A BENEFIT INCIDENCE ANALYSIS

OF THE SAFER AND

RATE SHELTER ALLOWANCE PROGRAMS

A Thesis

Submitted to the Faculty of Graduate Studies

in Partial Fulfillment of the Requirements for the Degree of

Master of Arts

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BY

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A thesis submitted to the Faculty of Graduate Studies of
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ABSTRACT

This thesis illustrates how microeconomic theory can be applied to the analysis of the benefits associated with a housing allowance program. It examines in particular British Columbia's Shelter Aid For Elderly Renters Program (SAFER) and New Brunswick's Rental Aid to the Elderly Program (RATE). The thesis makes use of a line of reasoning suggested by de Salvo. This was that the benefits associated with a housing program could be measured in income terms, by determining the amount of income required to reach the level of utility available to prospective housing program participants. The study suggests that the distribution of net benefits, measured in this way, is an important consideration in determining the merits of a particular housing allowance program.

The thesis examines previous European, American, and Canadian experience with housing allowance programs. It also describes, in some detail, the policy context within which the current Canadian housing allowance programs have evolved.

The benefit incidence patterns associated with the SAFER and RATE programs are examined rigourously. Net tenant benefits for housing program participants are measured by specifying a utility function for individuals which is consistent with the available estimates for price and income elasticities for the demand for housing. The sensitivity of this analysis is tested by examining an alternative specification for the utility function.

Finally, the thesis examines the implications of the introduction of a housing allowance program for senior citizens in Manitoba, and offers some policy recommendations in this regard.

CHAPTER I

INTRODUCTION

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INTRODUCTION

Canadian housing policy, as the end of the 1970's approaches, is undergoing fundamental revision. At the national level, the Federal government is pursuing policies of disentanglement and privatization, in recognition of the roles of the other levels of government and the private housing sector. At the provincial level, the housing policies and programs of the past ten years are being reviewed and evaluated in the light of current housing conditions and present fiscal constraints. Similar discussions are taking place at the municipal level, as local governments attempt to determine appropriate housing policies, given the limited resources generally available to local authorities dependent upon property tax revenues, and, increasingly, transfers from the senior levels of government. Within this more general policy discussion, a particular proposal has sparked considerable interest and fairly widespread support. It has been suggested that a system of housing allowances would largely remedy the housing problems still confronting Canada's low-income households. Such a scheme would allow these households to obtain adequate accommodation by enabling them to select a unit from among the existing stock of housing, while assuring the financial ability of these households to pay for adequate housing. This is in marked contrast to traditional housing programs, such as public housing, which tie the financial assistance received by program participants to particular housing units.

Recent events in Canada demonstrate quite clearly the important role which housing allowance programs will likely play in the formulation of housing policy at all three levels of government. Several Canadian

municipalities have already adopted housing allowance programs to complement existing income transfer programs. Two provinces, British Columbia and New Brunswick, have introduced housing allowance programs directed at low-income senior citizen renters. As well the Provincial Government of Manitoba has recently stated its intention to introduce a housing allowance scheme for low-income senior citizen renters. It is possible that the Manitoba government will soon implement a program similar in appearance to the program already in effect in British Columbia, The Shelter Aid for Elderly Renters (SAFER) program.[1] Most recently the Federal Government has indicated that it is examining a system of housing allowances in conjunction with its proposed deductibility program for the mortgage interest and property tax payments of homeowners.[2] A housing allowance program would apparently address at least two criticisms generally associated with a deductibility program, namely the regressivity of the benefits of such a program with respect to household income, if housing allowances were made available to low-income homeowners, and secondly, the exclusion of renters from the benefits of mortgage interest and property tax deductibility.

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1. The Minister responsible for the Manitoba Housing and Renewal Corporation, the Honourable J. Frank Johnson, indicated in March 1979 the Provincial intention to introduce such a housing allowance program; moreover, he indicated that the Provincial government was examining the SAFER program in particular, to determine its applicability in Manitoba. Winnipeg Tribune, March 15, 1979.

2. A recent statement made by an aide to Elmer MacKay, Minister responsible for the Canada Mortgage and Housing Corporation indicated that the federal government was considering the introduction of subsidies for low-income renters, as well as examining methods of increasing the benefits for low-income homeowners under the proposed mortgage interest and property tax deductibility plan. Winnipeg Free Press, July 31, 1979.

While increasing interest in the housing allowance approach has become apparent over the last few years, comparatively little attention has been paid, in a systemmatic way, to the analysis of the benefit patterns for participants in such a scheme.[3] <u>The main objective of this study is to present an economic analysis of the benefits received by participants in a housing allowance program.</u> The paper will utilize an approach suggested by de Salvo to analyse and evaluate housing programs.[4] This method is based on the specification of a utility function consistent with available estimates of the price and income elasticities of demand for housing. The benefits associated with a housing program can be measured, in income terms, by determining the amount of income required to reach the level of utility available to prospective housing program participants. The distribution of net tenant benefits, measured in this way, is an important consideration in determining the merits of a particular housing allowance program. The analysis of program benefits in this manner lends itself to the consideration of several issues in addition to that concerning the pattern

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3. For example, a recent report by FORMA Consulting Ltd. notes that knowledge of the "impact of housing allowance programs on affordability and housing expenditure is generally good, but little is known about the horizontal and vertical equity of the programs". <u>A Brief Review of the International Experience with Housing Allowances.</u> Ottawa: A report prepared for the Central Mortgage and Housing Corporation, November 1978, page 21.

4. Joseph S. DeSalvo. "A Methodology for Evaluation Housing Programs". <u>Journal of Regional Science</u>, August 1971, 173-185.

of benefits of housing allowance program participants.[5] The objectives
of this paper are to:

1. Examine the benefit patterns for participants in British Columbia's
    SAFER program, and New Brunswick's Rental Assistance to the Elderly
    (RATE) program.

2. Determine other issues pertinent to the equity of housing allowance
    programs - in particular, the treatment of groups excluded from
    program benefits.

3. Examine the efficiency of housing allowance programs relative to
    cash transfer programs, and to traditional housing programs, such
    as the Federal Non-Profit Housing Program.

4. Examine the compatibility of housing allowance programs with traditional
    housing programs, again using the Non-Profit Housing Program.

5. Determine the likely impact of housing allowance programs on the
    housing expenditures of low-income households, in the light of the
    effect on housing consumption such a program is likely to have.
    The effect on program costs is also examined.

6. Determine the implications, in terms of the above factors, of the
    introduction of a housing allowance program, similar to the SAFER
    program, in Manitoba, and to offer some recommendations pertinent
    to the proposed Manitoba scheme.

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5. Benefit patterns in this paper are considered to be defined in
two ways. The incidence of program benefits examines the importance of
net tenant benefits, measured as described above, in relation to house-
hold income. Benefit shares will relate the size of the net tenant benefits
received by a household participating in a housing program to the total
net benefits received by all participating households. The distribution
of these benefits over households with different incomes and different
rent-to-income ratios will allow the examination of both the horizontal
and vertical equity of a particular housing program.

Outline of the Thesis

This first chapter has outlined the objectives of the thesis. The

lack of emphasis placed on the analysis of the benefit structure of

housing allowance programs in previous discussions in such programs

should be noted. An emphasis, instead, on the efficiency of allowance

programs has dominated recent discussion, and as will be described in

the next chapter, was central to the development of both the SAFER and

RATE programs.

Chapter II will survey European and American experience with housing

allowance programs; it will also present, in some detail, a description

of current Canadian programs, especially the SAFER and RATE programs, as

well as a description of the policy environment which led to their intro-

duction.

Chapter III presents the simple model developed by De Salvo to

analyze housing programs, and illustrates how the model can be applied

to the SAFER, RATE, and Federal Non-Profit programs to yield some initial

conclusions about the benefit patterns associated with these programs.

Chapter IV tests the sensitivity of the simple model to a change

in the postulated price elasticity of demand for housing, in the context

of an alternative utility function specification.

Chapter V summarizes the conclusions of the thesis, and examines

the implications for the proposed Manitoba Allowance program if, as

seems probable, it is similar in nature to either of the current programs

in British Columbia or New Brunswick. It also offers some recommendations

concerning the proposed Manitoba Housing allowance program for senior

citizens.

CHAPTER II

A SURVEY OF EXISTING HOUSING ALLOWANCE PROGRAMS

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Introduction

Prior to the rigourous consideration of the benefit patterns

associated with housing allowance programs, it is useful to discuss

some institutional and policy issues. This chapter will present a

general description of a housing allowance program, against which

experience in Europe and the United States can be examined. It will

also provide a fairly detailed description of the policy environment

in which the present Canadian Housing allowance programs have been

developed. Finally, it will provide a cursory description of the

Federal Non-Profit Housing Program which will be used as an example

of a traditional housing program; the benefit patterns associated with

the Non-Profit program will be compared to those for housing allowance

programs in Chapter III.

General Characteristic of Housing Allowance Programs

Although the objectives of housing allowance schemes often differ

from one program to another, it is possible to offer a fairly general

description of the important features of such programs. A useful

definition has been suggested by de Leeuw. He describes a housing

allowance scheme as "a general system of grants to low-income households

intended to be spent largely on housing".[1] The two key elements of such

a proposal are:

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1. Frank de Leeuw, The Housing Allowance Approach. Washington, D.C.:
Report #90-2100-3. The Urban Institute, 1970, page 542.

1. The assistance is not tied to particular housing units, but can be applied to a large portion of the existing stock, and,

2. The assistance is intended to be spent primarily on the purchase of housing services.

This second element differentiates housing allowances from general income assistance programs. This distinction is important. A housing allowance scheme is something of a hybrid, combining elements of more traditional housing programs, with those of income transfer programs. The earmarking of the assistance provided through a housing allowance program is generally justified on the grounds that housing should be regarded as a merit good[2]; the consumption of housing by low-income households is desirable from a social point of view. A further implicit assumption of housing allowance programs is that private consumption of housing under a general income transfer scheme would not be optimal, in a social sense, as private consumption would not increase to the levels desired by society in general, and some households would remain "ill-housed".

The position of housing allowances as a hybrid, combining elements of both conventional housing programs and income support programs, is important in another sense. Often the implementation of housing allowance programs is justified primarily on efficiency grounds. Housing allowances, it is suggested, result in lower subsidy costs, compared with conventional programs, which depend upon the creation of new (and hence, expensive) units. However, this justification must logically be extended to include

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2. Such a suggestion has been made by Richard Musgrave, for example. See The Theory of Public Finance. New York: McGraw-Hill Book Company, 1959, Chapter I.

the comparison of the efficiency of housing allowances with that of
general income transfer programs. It is likely, as the following
analysis shows, that general transfers will be more efficient than
housing allowances. The evaluation of housing programs on efficiency
grounds alone may lead to some disturbing results for proponents of
housing allowances.

In any case, de Leeuw suggests three possible methods of implementing
a housing allowance scheme. These are described in Table II.1. All
three plans seek to offset excessive housing costs associated with
adequate housing by providing regular assistance in the form of cash
or rent certificates. The assistance varies with household income
and household size, as well as with housing costs.

Plan 1 would make use of rent certificates. The cost of the
certificate would be some percentage of the household's total income,
and would vary by the size of the household. The certificate would be
redeemable,at face value, only by a certified landlord, thereby
ensuring that only units of an acceptable standard would be eligible.
Low-income homeowners would have to receive assistance under an al-
ternative arrangement.

Plan 2 would provide for cash grants to low-income households,
provided their units met certain minimum standards. The size of the
grant would depend upon the size of the household, the household income,
and the cost of adequate housing. A separate program for homeowners
would not be required.

Plan 3 would provide assistance in the form of a cash grant, but
the assistance would be calculated as a percentage of the actual rent
paid. The percentage received would decrease as the household income

TABLE II.1

THREE POSSIBLE HOUSING ALLOWANCE PLANS

Plan	Size of Allowance	Form of Payment	Conditions Attached To Allowance	Separate Programs For Owner-Occupants
1. Rent Certificate	Difference between a "cost of adequate housing" and some percentage of household income (Housing gap formula)	Certificate redeemable by landlord	Income Below Some cut-off level	Yes
2. Minimum Housing Condition	Housing gap formula	Cash	Income below some cut-off level; inspection and certification of unit	No
3. Percentage of Rent	Percentage of actual rent paid; percentage declines as income rises	Cash	Income below some cut-off rental; certification of rental cost	Yes

SOURCE: Frank deLeeuw, "The Housing Allowance Approach", Urban Institute Paper #90-2100-3, 1970.

increased. Like the first plan, this procedure would not work well when applied to homeowners and a separate program for this group would be required.

As de Leeuw notes, the program elements, as described above, could be combined; for example, the minimum condition requirement could be combined with the percentage of rent scheme. Further, a number of administrative requirements are implicit in the plans described above – the determination of the eligibility of the households, the acceptability of particular units, and the verification of the rents charged would require a substantial administrative framework, and, possibly, significant administrative costs. Of particular importance in all three of the possible housing allowance plans is the definition of household income. This definition is generally fundamental to the calculation of the housing allowance. One problem is to determine the treatment of other transfer income. De Leeuw suggests that all such income should be considered in the calculation of the housing allowance. This, of course, begs the question of the treatment of housing allowances in the calculation of other transfer payments. However, other related problems include the rationale for the treatment of a spouses' income, or the income of dependent children, or the actual or imputed asset income of senior citizens who may be capital-rich but income-poor.

It is important to note, in de Leeuw's examples, the emphasis placed on the dual objective of housing allowances to ensure, firstly, the affordability, and, secondly, the adequacy of the housing units chosen by program participants. The emphasis of this latter objective may or may not be present in a particular housing allowance program.

In a Canadian context, Streich and McClain have offered a

somewhat similar general description of a housing allowance program.

They suggest that a housing allowance be defined as:

> "a direct cash transfer made regularly to families
>
> or individuals to enable them to afford adequate
>
> housing of their own choice from existing units;
>
> the amount of the allowance is based on income and
>
> housing costs, and is used solely for meeting
>
> these costs in their present unit or in another
>
> unit if they move."[3]

This definition is very similar to that suggested by de Leeuw, but does

differ in a number of interesting ways. Firstly, the specific

reference to a cash transfer would eliminate the rent certificate plan

described by de Leeuw. Recent policy discussion would suggest that

such a scheme would not be acceptable, primarily from an administrative

point of view, as it would require the issuing of rent certificates

as well as the certification of the units themselves, something of a

duplication of effort. Further, the definition suggested by Streich

and McClain is sufficiently general to include other forms of housing

allowances, such as the shelter components of welfare assistance and

municipal shelter supplements, as well as the more general system of

housing allowances envisioned by de Leeuw. In fact, they specifically

suggest the use of the term "housing allowance" in this generic sense.

Their definition includes the minimum housing standard objective, but

they also note that not necessarily all housing allowance programs

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3. Patricia Streich and Janet McClain, <u>Are Housing Allowances the Answer?</u> Ottawa: a paper prepared for the Canadian Council on Social Development, November 1978, page 6.

will have this goal. Moreover, Streich and McClain note that housing allowance programs often have competing goals, and use, as an example, a program with the stated objective of improving housing quality, but which has maximum allowance levels which may constrain the ability of the program to achieve a significant improvement in the quality of the housing of program participants.

To summarize the above discussion, a housing allowance program generally addresses both the housing affordability and housing quality problems often experienced by low-income households. A housing allowance program is something of a hybrid, combining elements of more traditional housing programs, with elements of general income support programs. Increasingly, housing allowance programs have become identified with the provision of regular cash payments, with some provision for the earmarking of the assistance so that it is applied mainly to housing expenditures. Program participants are able to select reasonably freely from the existing stock of housing. The housing allowance is portable; that is, it can be transferred from one unit to another. De Leeuw's plans result in basicly two methods by which the housing allowance can be calculated, although in either case the amount of the allowance may take into account the household income, the household size, the actual rent paid, or the cost of adequate accommodation. The two basic approaches generally used for the calculation of the allowance are the housing gap formula and the percent of rent formula. The housing gap formula compares the actual rent, or the average cost of adequate accommodation, with a required contribution by each household. Either all or some portion of the "gap" remaining is paid in the form of a housing

allowance. Both the SAFER and RATE programs make use of this approach. This method corresponds fairly closely with the mechanics of de Leeuw's rent certificate scheme. The second general approach is similar to de Leeuw's percentage of rent plan. The housing allowance is determined at some percentage of the rent paid; this percentage may vary with household income or other factors. Britain has recently introduced a housing allowance program which uses this method.

Two other features of housing allowance programs should be noted. It has already been suggested that a housing program will, in general, attempt to encourage low-income households to select units of at least some minimum standard. Implicit in the above discussion has been what could be termed the minimum standard approach. Households would be eligible to receive a housing allowance only if they occupied a unit which conformed to certain minimum standards; this implies the inspection and certification of all program units. An alternative method to earmark housing allowances and to control for housing quality is the base rent approach. Rent levels for standard, adequate housing units are determined; these rent levels are used in the calculation of the housing allowance, thereby encouraging movement of program participants into housing units of some minimum standard quality.

Another area that has been considered only implicitly is that of program targetting. As already mentioned, the two general housing programs existing in Canada, the SAFER and RATE programs, are directed to low-income senior citizens. It is important to note that such program targetting often occurs in the establishment of housing allowance programs, usually because of the expected costs and unknown market-impact of an untargetted approach.

European Experience with Housing Allowance Programs[4]

It is interesting to note the range of objectives of the various

European housing allowance programs before considering a somewhat

more detailed comparison of the programs themselves. Perhaps the

most interesting objective applied to the early introduction of the

Swedish program some forty years ago. At the time, concerns about

the potential problems of a static population led to the introduction

of a system of housing allowances for families with children.[5] This

program emphasis, at least at the national level, remained unchanged

until the mid 1970's. Other objectives of European housing allowance

programs are somewhat more relevant to the current situation in

Canada. For example, the programs are often designed to improve the

housing standards of program participants. Sweden at one time limited

the allowance to occupants of units constructed after 1941. The

Netherlands still limits the assistance to occupants of units built

after 1960. Other plans, such as West Germany's, offer larger

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4. Useful surveys of the European programs have been done by
Irving H. Welfeld, European Housing Subsidy Systems, Washington, D.C.,
U.S. Department of Housing and Urban Development, in September 1972,
and more recently by Forma Consulting Limited, A Brief Review of the
International Experience with Housing Allowances, Ottawa: a paper
prepared for CMHC, in November 1978.

5. Alva Myrdal describes the relationship between population
policy and housing allowances:

"...Children, and hence the population of the future are
subject to the most damaging effects of poor housing. Children
increase family costs so much in other directions than housing
as not to leave a family, even when enjoying aid, in a favoured
position compared with others of the same social strata or
doing the same work...finally the population is such that if
the community does not remove some of the costs for children
from the parents, the parents will prefer a birth strike."

National and Family Cambridge: The M.I.T. Press, 1968: page 271.

allowances if the units meet certain standards (such as having central heating). Often the housing allowance programs are designed to improve the maintenance of the existing stock. This is especially true in countries where rent controls had apparently resulted in reduced upkeep expenditures by landlords. Housing allowances, by improving the ability of tenants to pay market rents, will presumably encourage landlords to adequately maintain their rental property.[6] Housing allowance programs in Europe often have two further goals, quite similar to those discussed recently in Canada. The programs are consistent with a reduction in the direct intervention of the government in the housing market. This was certainly an objective of the Conservative government in Great Britain. An improvement in program efficiency is a final objective often suggested for European housing allowance schemes. As has been argued in Canada, it is suggested that these programs relate the economic costs of the units more closely to the contribution paid by program participants. This results in lower subsidy costs. Moreover, as will be discussed in the next chapter, the ability of program participants to choose their housing relatively freely from the existing stock limits the amount of overconsumption which occurs; this is more likely to be a problem when households are confronted with the all-or-nothing choice presented by more traditional housing programs. This also tends to reduce the relative subsidy costs for housing allowance programs.

Appendix B describes, in tabular form, the housing allowance

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6. This result is encouraged in Sweden and Denmark where landlords must devote a portion of the increased revenue resulting from a rent increase to maintenance expenses.

programs currently in place in France, Germany, Denmark, Sweden, the Netherlands, Finland, Norway, and Great Britain. It also provides a description of the formulas used in each case to calculate the housing allowance payment. The following discussion will compare the programs in terms of:

- a. Program Beneficiaries
- b. Housing Standards
- c. Subsidy Provisions
- d. Program Penetration
- e. Program Costs
- F. Program Funding Arrangements

(a) Program Beneficiaries

As a general rule, most European plans insist that the program participants meet certain residency requirements, although there is some inconsistency in the treatment of certain households eg. students living away from home, or the length of residency required for program eligibility.[7] There is also some variation in the eligibility of families without children. Finland and France insist that eligible households have children. In other countries, this is not a requirement. Sweden recently removed this condition. There is also some variation in the eligibility of welfare recipients. In Great Britain and the Netherlands welfare recipients are not eligible for housing allowance benefits. There are also some program targetting variations. France, for example, has a separate housing allowance program for

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7. For example a student in Denmark, living away from his parents, would qualify for a housing allowance; this would not be the case in West Germany.

senior citizens, and the infirm. Sweden's national plan until recently excluded senior citizens, who received housing allowances directly from the municipalities. The plans in Denmark and Norway are limited to senior citizen households. Finally, there is considerable variation in the eligibility of homeowners. Often the exclusion of homeowners is based on the justification that homeowners receive assistance from other sources, often in the form of mortgage interest and property tax deductions for income tax purposes, as in Great Britain.[8] In France, Germany, Sweden, and Norway, housing allowance benefits are available to both renters and owners.

The income limited for eligible households are often quite high. In the Netherlands, the maximum income is set at the 75th percentile of household incomes; in West Germany, it is set at about the 50th percentile. Most countries permit the participation of the moderate and middle income group. There is somewhat more variation in the income definitions used for program purposes. Great Britain, for example, basically used gross household income, but does disregard certain types of income. Most other countries use some form of adjusted income. West Germany uses a variable deduction of 15%, 22.5%, or 30% of gross income, depending upon household size and other factors. Sweden uses the previous year's taxable income; France uses a proxy for taxable income, 72% of the gross income. The Netherlands uses the prior year's taxable income, adjusted upwards by 5%. Asset

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8. In Great Britain, homeowners can opt for a direct interest reduction payment of up to 2½% in lieu of the interest deduction for income tax purposes. Some of the possible vertical inequities often associated with interest deductibility are thereby avoided.

restrictions exist in West Germany in the form of a ceiling level which determines household eligibility. In Sweden, 20% of the value of assets over $50,000 Kroner (about $12,500) are added to a families adjusted income. Elderly participants of municipal plans in Sweden are treated similarly. Most European plans provide for the payment of housing allowances on a monthly, cash basis directly to the recipient.

(b) Housing Standards

There is a great deal of variation among the European plans as far as the incorporation of housing standards is concerned. As was suggested above a housing allowance program may explicitly attempt to improve the housing quality of program participants. A number of methods to accomplish this are used. As indicated above, the Netherlands makes the assistance available only to units constructed after 1960; presumably all such units meet certain minimum standards. Other countries use the allowance level itself to influence program participants to select standard units. This is the case in Sweden and France. The Swedish plan pays a basic allowance regardless of the condition of the housing unit, but pays a bonus for improvements in quality. The French plan works in a similar fashion. Another method of controlling for housing quality is the minimum standards approach. Denmark, France, and West Germany set minimum standards for the housing units occupied by program participants. It is interesting to note that housing standards are not specifically considered by the housing allowance program in Great Britain (or either of the two provincial plans in Canada).

(c) Subsidy Provisions

With the exception of Great Britain, Finland, and to a certain extent, Denmark, the present European plans have adopted versions of the housing gap method of calculating housing allowances. That is, the allowance is based on the difference between actual housing costs, usually up to some maximum, and a required household contribution. The allowance may not equal the full amount of the difference between the two amounts.

Maximum permissible rents or ownership costs are established in most of the countries. In Great Britain, maximum rents for occupants of public housing are established by the local councils; maximum rents for occupants of private rental units are established by administrators of the housing allowance program. Sweden similarly establishes maximum rents, but ensures that these will not constrain the movement of program participants into better quality housing. West Germany and France have the most complex methods of determining the maximum permissible rents, depending upon the size, age, condition, location, and so on of the units.

The rent contributions paid by program participants generally depend upon household income, and sometimes household size and other factors. A minimum rent is payable in France. Denmark uses a set of rent scales which adjust the contribution according to the income and size of the household. West Germany uses a set of fractions (of household income) to accomplish the same end.

The only country which pays an allowance equal to the full amount of the housing gap (if the household's rent payment is less than the maximum permitted) is West Germany. France pays between 65% and 85% of

the gap, depending upon the household size. Denmark uses both housing gap and percentage of rent formulas, and pays the lesser of the two calculated housing allowances. Its rent gap formula results in a payment of 75% of the housing gap. Sweden includes only 80% of the actual rent in the calculation of the housing allowance; Norway pays 70% of the gap. The portion of the gap paid through the various European plans therefore varies between 65% and 100%.

Great Britain, Finland, and Denmark have adopted percentage of rent housing allowance formulas. Great Britain's scheme is particularly interesting. The percentage of rent paid is determined by the relationship of household income to a needs allowance used for families receiving welfare. If the household income equals the needs allowance, the housing allowance is equal to 40% of the rent; the allowance is reduced by 17% of any income above the needs allowance, and is increased by 25% of the amount by which income is less than the needs allowance.[9] The allowance can equal the rent paid for very low incomes, but is subject to maximum of 13 per week in London, and 10 elsewhere. Finland uses a more straight-forward percentage of rent scheme, varying the allowance form 20% to 70% of the approved rent, depending upon household income and size. As described above, Denmark's plan includes both types of allowance formulas. Its percentage of rent formula is adjusted by the number of children in the household.

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9. The rationale for the 17% factor used for income above the needs allowance is also interesting. Its use is based on the judgement that a family should be entitled to keep at least half of this additional income, after taxes. At a 33% marginal rate, this would leave 17% for additional housing costs.

(d) Program Penetration

The importance of housing allowance programs varies widely from one country to another. The percentage of all households participating in allowance schemes ranges from 1% in the Netherlands to about 15% in Sweden. The Swedish plan reaches 50% of all family households, and 90% of all single-parent households. The programs have had differing degrees of success at reaching the eligible households. Germany and Britain are reaching about 75% of all eligible households, roughly the same proportion as that served by the SAFER program in British Columbia. Program penetration for eligible households living in private housing in Great Britain was particularly slow, however; only 10% to 15% had been reached by May 1973 and this proportion stood at only 40% in January 1976.[10]

(e) Program Costs

The importance of the housing allowance program in terms of the allocation of national funds for housing purposes also varies widely. Housing allowances account for about 1/3 of the total housing subsidies paid in France. Sweden spends over 2 billion Kroner annually, about $500 million, with a population roughly one-third the size of Canada's. By comparison, West Germany's annual budget is DM 1.6 billion, or about $1 billion, with a population roughly three times as large as Canada's.

The costs of administering a housing allowance program appear to

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10. This experience is noted in a number of reports. For example, see J.B. Cullingworth, Housing allowances: The British Experience, unpublished Research Paper #95 (Toronto: Dept. of Urban and Regional Planning, U. of Toronto, December 1977), page 20.

vary with its complexity. France's plan is among the most complex

of the European systems; its administrative costs amount to some

12% to 15% of the total program costs. Denmark and Sweden have

administrative costs of 3% and 5%, respectively, of total program

costs. Other plans have costs somewhat between these levels. Britain's

plan was initially incurring administrative costs of about 17% of

the total program costs. This probably reflected the high costs

associated with the promotion and enrollment of program participants.[11]

(f) Program Funding

Funding for all of the European housing allowance programs is

now supported to some extent by the national governments. Even the

municipal housing allowance programs for senior citizens in Sweden,

formerly funded by the municipalities, now receive some national

support. The family allowances are funded entirely by the national

government. Similarly, the national governments of France and the

Netherlands pay for the entire cost of their housing allowance

programs. In West Germany, program costs are shared equally by the

federal and state governments. In Denmark, the national government

pays for 2/3 of the cost; the balance is paid by the municipality.

The British government pays for 75% of the costs of allowances for

recipients living in public housing and 80% of the costs of allowances

for recipients in private housing.

Although there is a limited amount of evaluative information

concerning the various European housing allowance programs, it is

useful to describe some of the general observations which have been

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11. Ibid, page 20.

made.[12] The bulk of the benefits made as a result of the Swedish

plan apparently accrue to lower-middle income households. This is

a result which is tested in this analysis of both major Canadian

housing allowance programs. As a class, senior citizen households

are also usually an important group receiving housing allowance

benefits. An increase in housing consumption has apparently occurred

in both Sweden and Denmark. There is some evidence that a similar

trend exists in West Germany. The result for Sweden and Denmark is

not surprising. A portion of any rent increase a landlord is permitted

must be used for maintenance and upkeep. A housing allowance program,

if it allows market rents to increase, would therefore result in

improved housing conditions even for households that did not move as

a result of the availability of housing allowances. Most programs,

however, have apparently tended to result in a more marked improvement

in housing for households who have moved as a result of the program.

In some cases, this trend is enforced by the payment of moving grants

to induce movement out of deteriorated neighbourhoods. There is

little evidence however, that the quality of the overall stock of

housing has been improved as a result of the various housing allowance

programs.

Most programs have apparently resulted in post-program rent-to-

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12. The summary included here describes some of the general
findings of the Forma Consulting Ltd. report. The importance of senior
citizens as recipients of housing allowances in Europe is pertinent
to the introduction in Canada of allowance programs targetted solely
to this group. The report by Forma Consultants suggests that the
European schemes may be reaching recipients of transfer payments, such
as the elderly, somewhat to the exclusion of the working poor, even
when programs are not targetted to particular groups.

income ratios that are lower than the pre-program ratios. An

exception is the program in the Netherlands which insists on a post-

program ratio of at least 14%, despite pre-program ratios of as low

as 9%.

There is little evidence that the programs are inflationary.

This is likely due to a number of causes. Firstly, the programs are

limited in size. Even Sweden's program affects only 15% of all house-

holds. Secondly, rents have been generally subject to an extensive

set of rent controls in most countries. And thirdly, in some cases

(for example, in Great Britain), the size of the publicly controlled

stock, with publicly administered rents which are not affected by

housing allowances, prevents any significant increase in rents in

the private stock.

American Experience with Housing Allowance Programs

American experimentation with housing allowance programs effect-

ively began in 1970,[13] although similar proposals had been considered

as early as 1937.[14] As in Canada, housing programs with some of the

characteristics of housing allowance plans had been developed previously.

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13. An earlier experiment was actually conducted in Boston, between
1964 and 1967, when 40 low-income families displaced by public action
received rent subsidies while living in three new Non-Profit projects.
However, the assistance was not portable and was paid directly to the
project owners, and so was not really a housing allowance scheme. The
program was apparently reasonably successful both in terms of the per-
ception of the families involved as well as the relative subsidy costs
involved. See C. Tilly and J. Feagin, "Boston's Experiment with Rent
Subsidies," Journal of the American Institute of Planners 36 (September
1970), pp. 323-29.

14. For example, the concept was discussed prior to the passage of
the U.S. Federal housing Act in 1937, as well as during the hearings on
postwar housing policy before the Taft Subcommittee in 1944.

Most notable were the Rent Supplement and the Section 23 Leasing programs. The Rent Supplement program subsidized rents in new buildings only, and the assistance was paid directly to the landlord. The Section 23 Leasing program extended the availability of subsidies to a restricted number of existing units, but the assistance was still paid to the landlord rather than to the tenant.

Initial housing allowance experiments were conducted in Kansas City, Missouri and Willmington, Delaware between 1970 and 1972. Both were very small scale experiments; housing allowance recipients totalled only 180 families in Kansas City and 82 families in Willmington, in 1972. However, some evaluative work is available for the Kansas City experiment, and this will be discussed below. The initial conclusions of this experimentation suggested that a housing allowance program might permit an improvement in the housing conditions of a relatively large number of families. Further, it appeared that a housing allowance program could address a variety of problems, such as a concentration of low-income households in the inner city and the problem of overcrowding. Such a program could also serve as a vehicle to increase consumer awareness and knowledge of the local housing market.

The results of these first two experiments led to a more ambitious program of experimentation with housing allowances, initiated in 1973. Three groups of experiments were conducted, examining the impact of housing allowances on: 1) the demand for housing by program participants (demand experiment); 2) the effects of housing allowances on the housing market (supply experiment); and 3) various administrative models for the delivery of housing allowances (administrative agency

experiment). The supply experiment is the only one still ongoing. Unfortunately, the results of these experiments are not yet available.

In 1975, the United States introduced the present Section 8 subsidy program, which is intended to assist lower-income families in paying for adequate housing in the private housing market. The program was introduced with a number of objectives in mind. Firstly, it was designed to ensure that local housing conditions were reviewed to determine local requirements for housing assistance. A sponsor of a Section 8 project is required to prepare a local housing market assistance plan, which develops targets for housing program activity. Secondly, the program deals directly with the affordability problems of low-income households; in fact, it is specifically targetted to this group. Moreover, the program seeks to integrate assisted households with higher-income households, in an attempt to reduce the stigma attached to public housing. It also attempts to allocate a fixed level of federal subsidy funds ($1 billion in 1975) to those households most in need of assistance. The minimum housing standards included in the program also address problems of housing adequacy encountered by low-income households. A Section 8 project must be sponsored by a private owner, a non-profit group, a public housing authority, or a state finance agency. An agreement between the sponsor and the Federal Department of Housing and Urban Development (HUD) is established.

The beneficiaries of the Section 8 program are intended to be lower income households. The maximum household income is set at 80% of the median income in the local area. In addition, at least 30% of the households assisted in a particular area must have incomes less than 50% of the local median income. These maximums are considerably

lower than those used in Europe. In addition to low-income families senior citizens and handicapped individuals are eligible for Section 8 assistance. Within these eligibility criteria, enrollment in the program is limited only by the availability of assistance funds. There are also guidelines for the maximum number of assisted units in a Section 8 project. A maximum of 20% of the units can be assisted unless the project is designed for the elderly or the handicapped, or unless the project has less than 40 units in total. The program allows for both new and existing projects. All units must meet a set of minimum standards, are inspected at the time of the agreement, and annually after the occupancy of the project.

HUD enters into a contract with the sponsor of a Section 8 project which specifies the subsidy levels payable for assisted households in the project. Assisted households must contribute between 15% and 25% of their adjusted household income to their rent payment. The difference between this contribution and the contract rent established in the Section 8 agreement is paid monthly to the sponsor. The contract rent equals the gross rent for the unit plus an allowance for tenant-paid utilities, up to a maximum fair market rent for standard accommodation in the local area. At the discretion of HUD, the contract rent may exceed the local market level by up to 20%.

It is evident that the Section 8 program differs from the general description of a housing allowance program in two important ways. Section 8 assistance is not portable; to benefit from the program, a household must live in an approved project. Secondly, the assistance is paid to the sponsor, not directly to the program participants.

There is limited evaluative information concerning the Section 8 program. It is useful, however, to briefly review the results of the earlier experimental housing allowance project conducted in Kansas City. A particularly useful analysis of the Kansas City experiment has been done by Solomon and Fenton.[15] It is important to note that the interpretation of the Kansas City results must be done with caution. The small scale of the experiment, the lack of a control group, and the lack of a systematic sampling procedure limit the extent to which the results can be generalized. Moreover, it is possible that households will have reacted differently to the Kansas City program because of its experimental (temporary) nature.

The Kansas City program utilized a rent gap formula to compute the housing allowance payable to a recipient. The allowance equalled the full difference between 25% of the adjusted household income (the required contribution) and the cost of adequate housing in the area. The full allowance was received, regardless of the actual rent paid, as long as the actual expenditure was greater than the housing allowance. In this case, the allowance was reduced to the actual expenditure. Program participants had to occupy housing units which met minimum standards, but were free to move anywhere in the Kansas City metropolitan area. The average housing allowance paid over the two year life of the program was $104 per month. The average total program cost per unit was $120 per month including $16 in

15. Arthur P. Solomon and Chester G. Fenton, "The Nation's First Experience with Housing Allowances: The Kansas City Demonstration", Land Economics 50, August 1974, 213-233.

administrative overhead costs. Administration, therefore, accounted for almost 13% of the total program cost, about the same level as that experienced by the French program.

Table II.2 describes some of the important results of the experiment. Of special interest is the income elasticity of demand revealed by program participants. As Solomon and Fenton note, it is considerably higher than the unitary elasticity normally suggested by empirical estimates. This likely indicates the successful earmarking of the housing allowance benefits. A cash transfer would presumably have resulted in a smaller increase in housing expenditures. The earmarking ratio compares the increase in housing expenditure with the size of the housing allowance and suggests that, on average, 69% of the allowance resulted in an increase in housing expenditure, the balance being devoted to other uses. It is also interesting to note the increase in the overall rent-to-income ratio from .17 to .26. However, out-of-pocket expenditures on housing gross expenditures minus the housing allowances paid, declined as a result of the housing allowances.

Some additional results of the Kansas City experiment are of interest. It would appear that the housing conditions of the allowance recipients, the majority of whom moved to take advantage of the program, improved. After the moves, 2/3 of the recipients lived in single detached units with an average of 5.6 rooms per unit, compared with less than 1/2 of the households and 4.6 rooms, respectively, before the move. There was also less overcrowding after the move. However, the general quality of the units occupied by program participants was still below the norm for the Kansas City area. There

TABLE II. 2

KANSAS CITY EXPERIMENTAL HOUSING ALLOWANCE PROGRAM - CHANGES IN

HOUSING EXPENDITURES[1]

	AT INTAKE	AFTER 15 MONTHS
TOTAL MONTHLY INCOME	$298	$462[2]
MONTHLY CONTRACT RENT[3]	$ 50	$121
RENT-TO-INCOME RATIO	.17	.26
INCOME ELASTICITY OF DEMAND		1.92
EARMARKING RATIO		.69

SOURCE: Solomon and Fenton, page 217.

1 For households participating in the program for the full 15 months.
2 Includes the monthly housing allowance.
3 Excludes tenant-paid utilities.

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was also an apparent improvement in the quality of the post-program

neighbourhoods, by both self-perceived and objective standards; 58%

of the families moved out of Census-defined poverty areas. An espe-

cially interesting result is that the majority of the households

moved into housing submarkets with relatively high vacancy rates;

presumably, this lessened any inflationary effect the program may

have had.

Canadian Policy Environment

This section briefly reviews the significant events in Canada

during the past few years which have led to the present Manitoba pro-

posal to introduce a housing allowance program for low-income senior

citizens. The policy discussion of housing allowances during the

early part of this decade often took place in the larger context of

the discussion surrounding the guaranteed annual income (GAI) concept.
The two proposals seemed at odds with one another and the considerable
favourable reaction for a GAI measure in the early 1970's likely
limited the amount of support for a comprehensive system of housing
allowances. An early proposal for a housing allowance program was
developed as part of the Family Income Security Plan (FISP) in 1970,
which revised family income security benefits. The proposal would
have provided allowances to households in receipt of FISP benefits
who were paying rents greater than $100 per month. The proposed
scheme was similar in nature to the general system of housing allowances
described above, with monthly cash payments made jointly with FISP
benefits. As a result of the proposal, 25% of all Canadian households
would have been eligible for some allowance benefits; of these, 18.7%
would have been eligible for assistance amounting to more than 25% of
their rent payments. The financing for the program would have been
arranged through the Canada Assistance Plan (CAP), through which the
provincial and Federal governments share the cost of social assistance
programs. The estimated cost of the scheme was $230 million, not
including the $115 million in shelter supplements included in CAP
at the time. The consideration of this proposal was probably in-
dicative of some dissatisfaction with the system of shelter com-
ponents still generally part of income supplement plans. These
components may or may not reflect actual housing costs; as will be
described in the next section, some municipalities have adopted a
system of additional shelter allowances to correct for deficiencies
in the level of shelter components used in the calculation of welfare
benefits. However, it was also argued that cash transfers via a

system of housing allowances would be more efficient than the transfers-in-kind associated with the conventional housing programs in effect at the time. The proposed measure did not, however, receive a great deal of support from the Central Mortgage and Housing Corporation (CMHC), largely because it was based upon very crude cost estimates and because the market effects of a general housing allowance program were not known. CMHC also favoured the continuation of direct public development of subsidized housing for low-income households. Moreover, the proposal contradicted two principles established for FISP, namely that new cost-shared programs should not be developed and that the extension of federal involvement in the provision of social services should not be encouraged.

Two years later it seemed possible that the housing allowance issue would again be considered when the Federal/Provincial Security Review was initiated. The review did not lead to major changes in the system of income support programs. However, as a result of the Review, it did become somewhat more evident that the introduction of a GAI was unlikely. As a result, it began to appear that additional supplements, including housing allowances, would become necessary if deficiencies in the existing transfer programs arose.

Also in 1972, the Federal Low Income Housing Task Force, directed by Dennis and Fish, argued that a housing allowance program should be developed, essentially on the basis that, if a general GAI could not be established, a system of shelter allowances would serve as an interim solution to the affordability problems experienced by low-income

households.[16] Depending upon the scheme used (rent rebate, rent
certificate, or generalized allowance), the housing allowance program
costs were estimated at $600 million to $1 billion. It was suggested
that this cost be borne entirely by the Federal government because its
tax base was more progressive than that of provincial (or municipal)
governments.

A year later, amendments to the National Housing Act (NHA) extended
the Rent Supplement Program, making it possible to provide subsidized
units in existing rental projects. The assistance was predicated on
establishing agreements with private landlords, who received the assist-
ance directly, and so differed significantly from a housing allowances.[17]

The housing allowance issue was not really reexamined until 1975,
when a major study of housing policy options was prepared in British
Columbia, as part of an examination of the recently introduced system
or provincial rent controls.[18] The study indicated a preference for a
system of housing allowances over continued direct public development
of subsidized units, suggesting that the former would allow a more
immediate response to the affordability problem, and would serve to
complement existing housing programs. The study further suggested that

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16. Michael Dennis and Susan Fish, Low-Income Housing: Programs
in Search of a Policy (Toronto: Hakkert Press, 1972).

17. Jeffrey Patterson provides a review of this early discussion
of housing allowances in Some Issues Associated with the Adoption of
Shelter Allowances in Canada (Ottawa: a paper prepared for the
Canadian Council on Social Development, November 1973).

18. Interdepartmental Study Team on Housing and Rents, Housing
and Rent Control in British Columbia (Victoria: Minister of Housing,
1975), 276-91.

households with incomes less than $6000 per year should be considered a prime target group for a comprehensive system of shelter allowances and that for this group (at least) the allowances should reduce the rent-to-income ratio to 25%. The study suggested that the program be funded through CAP, implying federal, provincial, and perhaps municipal sharing of the program costs.

The period since 1975 has seen the introduction of several housing allowance schemes, notably the SAFER program in British Columbia in 1977 and the RATE program in New Brunswick in 1978. Several municipalities, primarily in Ontario, have also introduced allowance schemes. While considerable discussion had occurred prior to 1975, the initial limited acceptance of the housing allowance approach can be linked to several factors. Firstly, there was considerable Federal resistance to the measure: the Federal government continued to support public development of subsidized units, although the introduction of the Rent Supplement program in 1973 did extend a measure of assistance to households in existing rental accommodation. The lack of Federal policy support limited the funding base available for any proposed housing allowance program and probably prevented the introduction of a program of any significant size. As well, a general reluctance to complicate a system of transfer programs which was already fairly involved probably also contributed to the slow implementation of housing allowance programs. Support for housing allowances also did not begin to grow until 1975 when the housing subsidy costs associated with conventional housing programs began to increase significantly. Housing allowances were increasingly viewed as an efficient alternative to the public production of subsidized units.

The increasing interest in the housing allowance concept, and, especially, the development of unilateral, provincially funded, programs in British Columbia and New Brunswick led to the formation in 1978 of the Interprovincial Task Force on Shelter Allowances and Rent Scales for Senior Citizens.[19] The Task Force report examined the role of housing allowances in dealing with the housing problems of low-income senior citizen households. The report generally supported the use of housing allowances, primarily on efficiency grounds. It suggested that the majority of senior citizens (perhaps as high a proportion as 85%) with housing problems cannot afford suitable accommodation. A housing allowance program would deal directly with this problem. This approach would be more efficient than traditional housing programs because it would more closely relate the economic cost of a housing unit with the ability-to-pay of a program participant. The subsidy costs associated with a housing allowance would correspondingly be less.

The Task Force recognized the income transfer aspects of a housing allowance program. In fact, its report suggested that ultimately any such program should be administered in conjunction with existing transfer programs, rather than by a housing agency. This adjustment has, in fact, already occurred for the SAFER program in British Columbia. Further, the Task Force report argued against a GAI approach, maintaining that housing costs vary too significantly from one area to another. These variations could not be captured by any simple GAI plan.

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19. Interprovincial Task Force on Shelter Allowances and Rent Scales for Senior Citizens, Task Force Report (Victoria: Department of Municipal Affairs and Housing, August 1978).

Two additional observations included in the Task Force report are of interest. Firstly, the Task Force stressed the complementary nature of a housing allowance program with traditional housing programs. Public production of subsidized units will still be required to resolve situations where senior citizens require specialized housing for health, social, or psychological reasons. In addition, in situations where the supply of adequate housing is a constraint, for example in small rural communities, public production may still be required to alleviate any upwards pressure on prices resulting from a system of housing allowance. Secondly, the Task Force report suggests that a system of housing allowances will provide benefits to program participants in a more equitable manner than is the case for traditional programs. This is one of the issues examined later in this paper.

Canadian Experience with Housing Allowance Programs

This section will briefly review the existing Canadian housing allowance programs currently in effect. The SAFER and RATE programs will be presented in some detail, along with some information on the experience of the SAFER program since its introduction.

(a) General Experience

Three main types of housing allowances exist in Canada.
These are: 1) the shelter component of welfare programs

2) municipal shelter supplements

3) provincial housing allowances

The first two are directly associated with the existing system of income transfers. Welfare payments made by municipalities and provinces are normally determined with reference to a household's budgetary requirements; usually a separate housing component is included. In

some cases, the housing component has been deemed inadequate and the municipalities have provided an additional shelter supplement in conjunction with the welfare payment. The City of Toronto has, for example, been paying an additional supplement since 1974. The SAFER and RATE programs are examples of the third type of housing allowance program, and correspond more closely with the general description provided above. A description of some of the current housing allowance programs in Canada is presented in tabular form in Appendix C, along with a description of the formulas used to calculate the housing allowance payments.

Since 1966, most social assistance programs have been funded through CAP, with the provincial and Federal governments sharing the costs of the programs equally. At the discretion of the provincial governments, municipalities may be required to contribute to the provincial share of the costs. The calculation of the shelter component of the welfare payments provided through these programs differs between provinces: Manitoba, for example, uses a flat rate component, which varies with family size; Ontario uses a sliding scale which varies with family size; and Alberta includes the actual shelter cost. Recently, two opposing trends in the use of shelter components have developed. As adjustments in the size of the component often appeared to lag the rate at which housing costs increase, some municipalities have adopted additional supplement payments. These additional supplements are now available in Toronto, Kitchener-Waterloo, Guelph, Hamilton, and Windsor. Ottawa-Carlton is currently developing a shelter supplement scheme. The provincial government in British Columbia presently pays an additional allowance equal to 75% of the amount by which the actual

shelter costs exceed the shelter component. Other jurisdictions have simply abandoned the shelter component concept and do not include it in the calculation of welfare benefits. This is presently the case in New Brunswick.

It is perhaps not surprising that so many Ontario municipalities are presently paying shelter supplements. The Ontario General Welfare Assistance (GWA) Plan does not have a separate shelter component and, with housing costs rising perhaps more rapidly in Ontario than elsewhere in the country over the past few years, there was likely substantial pressure on the adequacy of the GWA payments. In any case, Toronto introduced shelter supplements in 1974 and pays the difference between the actual rent and the shelter component, up to a maximum of $20 per couple, plus $5 for each additional household member. Kitchener-Waterloo introduced a similar system in 1976, and pays 75% of the gap, up to maximum of $50 per family and $20 for single person households. Ottawa-Carlton, after discovering in 1978 that 50% of GWA recipients had housing costs higher than their shelter component, is also planning to introduce a shelter supplement scheme.

(b) British Columbia's SAFER Program

The SAFER program was introduced in 1977 to address the affordability problems encountered by low-income senior citizen households in British Columbia, some of whom were devoting more than half of their income to rent. Alternative methods of addressing this problem, such as the direct construction of subsidized senior citizen units, were considered inefficient and rejected because they would have resulted in very large subsidy expenditures. Other options, such as tax credits or a guaranteed minimum income were similarly considered too

expensive. To qualify, SAFER recipients must have lived in the province for the last two years or for a consecutive five year period at some time previously. The household head must be 65 years of age or older. The housing units of allowance recipients are not subject to minimum standards. Homeowners are not eligible for allowance benefits.

The SAFER program uses a housing gap formula to compute the appropriate housing allowance payment. The allowance equals 75% of the amount by which the rent paid exceeds 30% of the household income. Gross income is considered, except for up to $50 monthly in either Workers Compensation or Veterans Pension payments. The maximum claimable rent, however, is $205 for single person households and $225 for two person households. Households paying more than these amounts can apply for allowance benefits but can only claim the appropriate maximum claimable rent level. The maximum claimable rent, combined with the required 30% of income contribution, results in maximum incomes for program eligibility. For example, a single person household with a monthly income of $683.33 (or about $8200 annually) would be expected to contribute $205, or the maximum claimable rent, towards its housing expenditure. Single person households at this income level or higher would not be eligible for any allowance benefits. Similarly, two person households with incomes of $750 per month (or $9000 annually) would not be eligible for allowance benefits.

The allowance payments are made directly to the program partic-pants. The assistance provided through the SAFER program, subject to the above criteria, is fully portable. The program is entirely funded

by the provincial government.

The number of SAFER recipients at one point in 1978 reached a total of over 16,000 households or about 70% of all eligible households. However, the number of recipients declined to under 14,000 households during the mandatory annual reapplication process. The provincial government had originally budgetted for $10.7 million in allowance payments in the first year of the operation of the program. Actual expenditures amounted to some $7.86 million, because of the lower than expected enrollment. This lower enrollment was likely due to initially low maximum claimable rent levels ($170 and $200 for single and two person households, respectively). It is also likely that households eligible for very small housing allowances opted to claim the renters tax credit. Senior citizen households in British Columbia may claim one or the other but not both.

No information concerning the administrative costs of the SAFER program is available but it seems likely that these will be similar to those experienced by the less complicated European schemes, representing 5% to 10% of the total program costs. This would imply annual administrative costs of $400,000 to $800,000.

Appendix D contains some recent information concerning current SAFER recipients.[20] As of September 1978, the typical SAFER beneficiary was single (83% of all recipients), age 70 to 79 (48%), had an income of $391 per month (the average income for all recipients), lived in Greater Vancouver (55%), had a rent of $181 per month (average

20. British Columbia Ministry of Municipal Affairs and Housing, Profile of the SAFER Beneficiaries, October 1978.

for all recipients), and received a SAFER allowance of $48 per month

(average for all recipients). A closer look at some of these variables

yields some interesting observations. For example, 76% of the SAFER

beneficiaries live in either the Greater Vancouver or the Capital

Regional Districts, although only 63% of the province's elderly live

in these areas. This probably reflects the relatively higher rental

costs (and cost of living, in general) in the two metropolitan areas.

Table D. 1, in Appendix D, describes the distribution, over age

groups, of current SAFER beneficiaries and compares it with the dis-

tribution for the entire elderly population and with the percentage of

beneficiaries over the elderly population. SAFER recipients are under-

represented in the lowest age categories, 65 to 69 and 70 to 74, and in

the highest age category, 90 and over. This latter is not surprising,

as it is likely that the number of independent senior citizen house-

holds for the group 90 and over is relatively small. If the elderly

are institutionalized, they cease to be eligible for SAFER benefits.

The underrepresentation in the lowest age groups may reflect higher

incomes and, hence, a decreased rate of eligibility for this group.

It is not clear that any higher incomes which may exist for this

group are permanent; higher incomes may reflect additional work income

which may not be available for more than a short period of time. If

the under representation is instead due to ineligibility because of

more adequate pension income for this group versus, say, the 75 to 79

age group, this income advantage will be permanent only as long as

the pension income keeps pace with increases in rental rates.

Table D. 2 indicates the percentage distribution of the current rent

levels of the SAFER beneficiaries. It is interesting to note that

some 21% of the single person households are paying over $210 in rent, despite a maximum claimable rent of $205; some 38.7% of the two person households are paying rents of over $230, despite a maximum claimable rent of $235.

Rents for individuals who are sharing accommodation are concentrated in the $91 to $130 range; this is not a surprising result as the maximum claimable rent for couples applies to persons who share. There would appear to be concentrations of SAFER households paying rents just below the maximum claimable amounts: 29.1% of the single person households pay rents between $171 and $200; 42.6% of the two person households (excluding sharers) pay rents between $171 and $200.

Table D. 3 describes the income distributions for SAFER recipients. Of the single person and sharer households participating in the SAFER program, almost 70% are at or just above the minimum income guaranteed for single persons ($319.74); similarly, over 87% of the couples are at or near the minimum income guaranteed for couples ($634.36). The SAFER program would appear to be reaching, almost exclusively, the lowest income groups among the senior citizen population.

Table D. 4 describes the level of SAFER benefits paid as of September 1978. Over 48% of the singles and sharers are receiving allowances of $51 to $85. In fact, 24% of them are receiving allowances between $71 and $85. By contrast, most of the couples are receiving allowances of less than $40; this group accounts for about 93% of all couples receiving SAFER assistance.

One other piece of information concerning the current SAFER recipients is available. Table II. 3 shows the rent-to-income ratios

with which the SAFER recipients would be confronted if they lived in
their present accommodation and did not receive SAFER allowances.
Also shown are the relevent distributions for the Capital City Region
and Greater Vancouver. These are compared with the 1974 distributions
for households with heads over 65, with rent-to-income ratios of .30
and over, for Victoria and Vancouver. The rent-to-income ratios for
the SAFER recipients, in the absence of SAFER benefits, would exceed
.45 for over 55% of the participants. In Vancouver, over 60% of the
SAFER participants would have rent-to-income ratios over .45, in the
absence of SAFER assistance. In fact, some 13% of the SAFER recipients
would have rent-to-income ratios in excess of .65. Unfortunately, a
description of post-program ratios is not available. The next chapter
will explore the likely pattern of these benefits.

TABLE II. 3

PRE-PROGRAM RENT-TO-INCOME RATIO DISTRIBUTIONS FOR SAFER RECIPIENTS

(September 1978)

RATIO	TOTAL	CAPITAL REGION DISTRICT	VICTORIA[1] (1974)	GREATER VANCOUVER REGIONAL DISTRICT	VANCOUVER[1] (1974)
.30-.35	15.3	13.3	16.8	13.4	19.7
.36-.40	14.8	17.5	16.7	13.9	13.4
.41-.45	14.1	17.8	7.9	12.5	11.6
.46 & over	55.8	51.3	58.7	60.2	55.3

SOURCE: Profile of the SAFER Beneficiaries, p. 8; CMHC SHU Survey

1 The 1974 distributions for Victoria and Vancouver show how the group
  of senior citizen households with rent-to-income ratios over .30
  were distributed: in Vancouver 19.7% of this group had rent-to-
  income ratios of .30 to .35. They are derived from results of
  CMHC's SHU Survey.

It is interesting to compare the pre-program ratios for Vancouver

and Victoria with the 1974 ratios. Some 58.7% of the households with

affordability problems in 1974 had rent-to-income ratios of over .46,

compared with 51.3% of the SAFER recipients. This may indicate a slight

improvement in the affordability problems of senior citizens in

Victoria. However, in Vancouver the corresponding totals were 55.3%

in 1974 and 60.2% for the present SAFER participants. This indicates

either some deterioration in the affordability situation or else an

increase in consumption due to the availability of SAFER benefits. It

is also interesting to note the increased importance of the group with

ratios of .41 to .45 in Victoria. In 1974 this was 7.9% compared with

the current pre-SAFER level of 17.8%. The likely increase in housing

consumption due to the availability of a housing allowance will be

examined in the next chapter.

Two interesting effects of the SAFER program can be noted here.

A survey of the waiting list for senior citizen subsidized housing

was conducted in 1977, shortly after the introduction of the SAFER

program.[21] It became apparent that the SAFER program would have an

immediate impact on the requirements for additional subsidized units.

The results of the survey suggest that almost half (47%) of the

households on the public housing waiting list indicated they would

prefer to remain in their present accommodation, because of the

availability of SAFER benefits. An additional 10% of the households

on the waiting list would prefer to move to more adequate accommodation,

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21. British Columbia Ministry of Municipal Affairs and Housing,
SAFER and the B.C. Housing Management Commission Waiting List,
January 1978.

utilizing the SAFER benefits. However, 43% of the households apparently preferred to move to public housing. It is possible that a significant portion of low-income senior citizen households will still prefer to seek accommodation in a public housing project, despite the availability of a housing allowance program. This suggests that a housing allowance program will not on its own resolve all of the housing problems of senior citizen households, especially if factors other than affordability are considered. The analysis of the public housing waiting list suggested that 12% of the households had health or social problems which are not directly addressed by the SAFER program. It is also suggested that a considerable portion of the households preferred the public housing option to the SAFER program. It is possible that the needs of both groups will be effectively met only by the continued construction of subsidized units.

A similar result was determined by the City of Vancouver Planning Department, who examined the implications of the SAFER program in resolving Vancouver's housing problems.[22] It would appear that housing allowances would resolve some of the housing problems experienced by senior citizen households in Vancouver, but not all of them. For example, there remained the problem of how to deal with low-income senior citizen homeowners, who are ineligible for SAFER assistance. There also remained the problems of family households who were excluded from the SAFER program. It is interesting to note that applications by couples for non-profit housing declined to almost nil and applications

22. City of Vancouver Planning Department, How Applicable are Shelter Allowances? City's Perspective, October 1978.

by singles dropped by one-half, after the introduction of the SAFER program. The conclusion reached by the City of Vancouver was that a housing allowance program would resolve the problems of only 51% of households in Vancouver encountering housing problems. Other policy options must be considered in order to resolve the problems of "house-poor" homeowners, the working poor, and young (new) households.

(c) New Brunswick's RATE Program

The RATE program in New Brunswick was introduced in two phases, the first commencing on October 1, 1978, the second on April 1, 1979. Its introduction was based on much the same rationale as that for the SAFER program. Concern about the mounting subsidy costs associated with the public development of subsidized units suggested that such construction was not a viable policy option in coping with the housing needs of the province's senior citizens. A housing allowance program was considered a viable solution, offering both an efficient and a rapid response to the existing problems.

RATE recipients must have lived in New Brunswick for either the last year prior to application or for a consecutive five year period at some time previously. The household head must be 65 years of age or older. Like the SAFER program, the housing units of recipients are not subject to minimum standards (except general safety and health codes). All the rental units are inspected. Homeowners are excluded from the program. Gross income is used to determine the amount of allowance payable.

As in the SAFER program, the RATE program uses a housing gap formula to calculate the available housing allowance. However, both

the household's contribution and the amount of housing gap received
as an allowance varies with the income of the household. Table II. 4
describes the adjustment made. A household with an annual income of
between $3000 and $3495 would be required to contribute 30% of its
income towards the rent payment; 75% of the gap remaining would be
received as a housing allowance. However, a household with an income
between $3500 and $3999 would have to contribute 31% of its income
and would receive only 70% of the gap. Moreover, the maximum claim-
able rents are $175 and $200 monthly for single and two person house-
holds, respectively. The maximum monthly allowance payable, in either
case, is $75. The allowance payments are made directly to the program
participants. The assistance provided through the RATE program,
subject to the above criteria, is fully portable. The program is
entirely funded by the provincial government.

TABLE II. 4

CALCULATION OF HOUSING ALLOWANCE, RATE PROGRAM

INCOME RANGE	REQUIRED CONTRIBUTION RATIO	PERCENTAGE OF GAP PAID
3000-3499	.30	75
3500-3999	.31	70
4000-4499	.32	65
4500-4999	.33	60
5000-5499	.34	55
5500-5999	.35	50

SOURCE: RATE, Rental Assistance to the Elderly in the Province of
New Brunswick, p. 5.

The RATE program has only recently been established. For its first six months, only households with annual incomes less than $4000 were eligible. As of April 1, 1979, single person elderly households with incomes of up to $6000 and couples with annual incomes of up to $6800 became eligible. Because it has only recently been introduced, detailed information concerning the current program participants is not yet available. Nor is there information concerning the likely program costs or penetration level. The program is of special interest, however, because of the fairly novel approach taken to calculating the allowance benefit. The impact of a variable contribution ratio and proportion of gap payment is examined in the next chapter. New Brunwick's present intention to adopt this formula in the calculation of public housing rents makes this discussion especially pertinent.

Federal Non-Profit Housing Program

The analysis in Chapter III will compare the benefit patterns associated with the SAFER and RATE programs with the benefits associated with the Federal Non-Profit Housing Program. This comparison is useful for two reasons. Firstly, the Non-Profit program is fairly representative of the traditional housing programs; that is, the assistance provided through the program is tied to particular units. By comparing the two types of programs, it is possible to offer some conclusions as to the compatibility of the housing allowance with traditional housing programs. It also allows a comparison of the relative efficiency of both approaches. Secondly, the Non-Profit program is currently probably the most important method for the direct construction or acquisition of subsidized units for senior

citizens. Other Federal programs exist, most significantly the Rent Supplement and Co-operative Housing Programs, but it seems likely that most of the production of subsidized senior citizen units over the next few years will be by private or public (municipal or provincial) non-profit housing corporations. The comparison of the housing allowance and Non-Profit programs therefore becomes especially pertinent.

A brief description of the present Non-Profit program is in order. The program allows the provision of assistance to non-profit corporations seeking to develop housing units for households with low or modest incomes. The major concern here, for purposes of comparison with the SAFER and RATE programs, is the development of projects for senior citizens. The non-profit corporation may be a "private" organization or a "public" corporation established by a municipality or a provincial government. The Federal assistance provided to a Non-Profit project is determined by the agreed-upon costs of the project and the market rate of interest. The capital required for the construction or acquisition of the project is provided by a private lender. The maximum assistance available from the Federal government is equal to the amount required to write down the financing costs associated with the agreed-upon costs of the project from the prevailing market rate of interest to a 2% rate. Any equity provided by the non-profit group will reduce the debt service cost of the project but will not affect the maximum Federal assistance available. The Federal assistance serves to reduce the monthly operating costs and, therefore, the project rents by offsetting a portion of the debt service cost. Other operating costs must be covered by rent revenues. The rents

charged are related to the incomes of tenants and must equal at least 25% of each tenant's income. A hypothetical Non-Profit project is described in Appendix A. The example assumes construction costs of $30,000 per unit, which is representative of current construction costs in Winnipeg, and a market mortgage rate of 11%. The operating costs used in this example are based on the budgetted amounts for a recently approved Winnipeg project.

The application of the Federal assistance results in three distinct rental rates associated with the hypothetical example. These are described in Table II. 5. The market rents are determined by a comparison of the accommodation in the Non-Profit project with similar accommodation in the private market. These levels are determined by CMHC appraisers. The full-recovery rents represent the amounts required to cover the operating costs and the total debt service costs associated with the project. The minimum rents with maximum Federal assistance reflect the impact of the assistance provided through the Non-Profit program on the project rents. The analysis of the benefit patterns will show the importance of these three rent levels. The financial benefit to a program participant is measured by the difference between the market rent and the project rent. If, as is presently the case, the full recovery rent is greater than the market rent, the cost of providing the unit will exceed the financial benefit to the program participant.

TABLE II. 5

RENT LEVELS FOR HYPOTHETICAL NON-PROFIT SENIOR CITIZEN

HOUSING PROJECT, WINNIPEG

	Market Rent	Full Recovery Rent	Minimum Rent-Maximum Assistance
One Bedroom Apartment	$280	$395	$220

SOURCE: Derivation Described in Appendix A.

Summary

The discussion in this chapter illustrates the diversity of
existing housing allowance programs. Some important differences between
the SAFER and RATE programs and the programs operating in Europe should
be noted. Perhaps one of the most important is the lack of any explicit
control for housing quality in either the British Columbia or the New
Brunswick program (although an annual inspection is conducted as part
of the RATE program). The maximum claimable rents allowed by both
the SAFER and RATE programs are set so as to ensure that a majority
of otherwise eligible households can receive housing allowance benefits.
That is, they reflect current rent levels for participating households
but do not necessarily reflect the cost of standard accommodation. As
will be seen in the next chapter, neither program necessarily results
in the movement of senior citizen households to standard accommodation.

Both Canadian programs are targetted specifically to senior
citizens. Although seniors are generally an important class of re-
cipients of European housing allowances, such targetting is not a
general feature of the European plans. The possible exclusion of
other groups, such as the working poor, is a concern which should be
recognized. The limitations of the present housing allowance programs

in Canada, with respect to meeting the housing needs of excluded households should be noted. The Canadian programs also exclude senior citizen homeowners, although this is not generally true of the European programs. This exclusion may be questioned on equity grounds, if low-income homeowners are encountering affordability problems comparable to those experienced by renters. It seems likely that the targetting of both Canadian programs, as well as the exclusion of homeowners, reflect the concern of policy-makers with the costs associated with housing allowance programs.

The other chief difference in terms of eligibility criteria is reflected in the relatively low income maximums which have been adopted by both the SAFER and RATE programs. The programs are directed almost exclusively to the lowest income groups. The European programs often reach middle income programs. The aspect of the Canadian programs again likely reflects a concern with controlling the costs of housing allowance programs. This may result from the provincial funding base supporting both the SAFER and RATE programs. This is a final difference between the Canadian and European programs which should be noted. Almost all of the European plans are supported to some extent by the national governments involved. This is not the case in Canada.

There are similarities between the Canadian and European programs as well. The housing gap approach to the calculation of housing allowances is common to most programs. There also seems to be fairly consistent penetration experience, as far as the enrollment of the eligible households. It also is likely that most programs experience similar experiences with administrative costs, with these costs varying according to the complexity of the programs.

It remains to be seen whether the housing allowance approach will become more popular in Canada. Its role within the national housing policy framework has still not been completely developed.

CHAPTER III

BENEFIT INCIDENCE PATTERNS FOR

HOUSING ALLOWANCE PROGRAMS

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BENEFIT INCIDENCE PATTERNS FOR HOUSING ALLOWANCE PROGRAMS

Introduction

For one reason or another, economists have in general paid only limited attention to housing policy issues. This is not to suggest that important contributions have not been made by Muth, Olsen, Sweeney, and others. However, most of these contributions have occurred only over the past decade and only after housing policy development had occurred in both the United States and Canada through the painful process of trial and error. A great deal of work is currently underway.[1] However, our understanding of urban housing markets is still incomplete.

This same state of affairs exists for public finance writers. As Bird suggests, our understanding of the property tax (and other public policies) depends on the availability of a broad base of information concerning local housing markets.[2] Although other goods and services provided by different levels of government have been examined, the public provision of subsidized housing received comparatively limited consideration. This chapter will examine the benefit incidence patterns associated with the SAFER and RATE programs as well as, for purposes of comparison, the Federal Non-Profit Program. It uses a simple model first described by De Salvo in "A

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1. Arnott and MacKinnon, for example, have done a considerable amount of work in the application of general equilibrium techniques to the analysis of urban issues, including housing.

2. See R.M. Bird, "The Incidence of the Property Tax: Old Wine in New Bottles?", in Canadian Public Policy, 1976, 323-334.

Methodology for Evaluating Housing Programs."

Previous work has not rigorously examined the benefit patterns associated with housing programs, and with the exception of some work by Heinberg,[3] has been concerned almost exclusively with public housing programs. Nourse attempted to describe the income redistribution resulting from public housing programs.[4] However, he did not attempt to measure the benefits accruing to public housing tenants with any precision. Instead, he (implicitly) assumed that these benefits would equal the subsidy costs of the program. Indeed, he even included administrative costs in the allocation of these benefits to the public housing tenants. Smolensky recognized that the direct benefits accruing to public housing tenants would not necessarily equal the actual subsidy costs incurred; however, he was concerned with establishing a cost for the promotion of rehabilitation of existing units, in combination with a system of housing allowances, and did not examine the resulting pattern of benefits in any detail.[5] Bish, as well, recognized the difference between subsidy costs and direct tenant benefits in his analysis of public housing in the United States.[6] He defined the direct benefits accruing to a public

3. John D. Heinberg, "The Transfer Cost of a Housing Allowance: Conceptual Issues and Benefit Patterns, "Housing the Poor", Donald J. Reeb and James T. Kirk, eds., New York: Praeger Publ., 1973, 230-52.

4. Hugh O. Nourse, "Redistribution of Income from Public Housing", National Tax Journal 19, March 1966, 27-37.

5. Eugene Smolensky, "Public Housing or Income Supplement--The Economics for Housing the Poor", Journal of the American Institute of Planners 34, March 1968, 94-101.

6. R.L. Bish, "Public Housing: The Magnitude and Distribution of Direct Benefits and Effect on Housing Consumption", Journal of Regional Science 9, September 1969, 425-38.

housing tenant as the difference between the private market rental value for the tenant's unit and the rent paid by the tenant. His analysis assumed real income was held constant, despite the reduced price for housing resulting from the availability of public housing units. This assumption is not made in the analysis considered later in this chapter; in fact, the impact on housing consumption is an important factor in the examination of the benefit patterns associated with housing allowance programs. Moreover, DeSalvo's measure of direct tenant benefits (or, as he terms them, net tenant benefits) is in income terms, although he uses the definition described by Bish to determine the cash value of the benefits associated with any particular housing program.

Some important conceptual work was completed by Heinberg in 1972, with regards to the subsidy costs and distribution of benefits associated with various possible American housing allowance programs. Heinberg was primarily concerned with estimating the subsidy costs associated with a housing allowance program, and did not examine in any detail the equity of the various program arrangements he discussed. Moreover, Heinberg also neglected to measure the net tenant benefits in income terms, assuming these benefits to equal the allowance pay-ments; as well, he did not take consumption effects into account.

Competitive Housing Market Assumptions

This paper will assume, as has most previous work, that the housing market is characterized by the familiar conditions confront-ing a competitive market. These are, as identified by Olsen:

1. There are numerous buyers and sellers of housing services.

2. Any particular individual is involved in only a small

portion of the total housing transactions (sales or purchases) which occur in a particular period.

3. No Collusion exists between market participants.

4. Free market entry by buyers and sellers is possible.

5. Perfect knowledge by market participants exists.

6. No artificial restrictions influence the demand and/or supply of housing services or the resources used to produce housing services; similarly, no artificial restrictions influence the price of housing services or the factors of production.

7. Housing service is a homogeneous commodity.[7]

Although this paper will not explore the validity of these assumptions with respect to the housing market, it is important that they be explicitly stated. Objections to each are frequently raised. Perhaps the most criticized is the homogeneous product assumption, given the diverse nature of the housing stock in any community. The translation of an observable entity, a housing unit, to a source for units of (unobservable) housing services is necessary for the application of conventional microeconomic theory. This has been the course followed by Olsen, Muth, and others. It is not, however, the only means of conducting the analysis of housing market issues, as has been shown by Sweeney. The development of a commodity hierarchy model for an urban area comes to grips quite directly with the heterogeneous nature of the housing stock, and more particularly

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7. See E. O. Olsen, "A Competitive Theory of the Housing Market", American Economic Review 59, September 1969, 612-22.

with the problem of different levels of housing quality. It is this
latter problem of different levels of housing quality which tends
to be over-simplified by recourse to the homogeneour product assumption;
poor quality housing stock then becomes stock which produces relatively
fewer units of housing services.[8] This topic is also beyond the scope
of the present paper, however.

Housing Program Tenant Benefits: A General Description

A useful method for examining housing programs has been suggested
by DeSalvo. His general approach can be applied to the programs
considered here. Housing allowance programs, to the extent that the
assistance can be earmarked to offset housing costs, provide program
participants with a transfer in kind, rather than an explicit income
transfer; the value of the tenant benefits can be measured in income
terms. DeSalvo develops the following concepts for the analysis of
a housing program's costs and benefits:

1. Net tenant benefits: the amount of additional income
   which would make a program participant as well off with
   the program as without it.

2. Gross tenant benefits: the total money value of the
   program to a tenant; that is, net benefits plus project rent.

3. Non-tenant benefits: the total money value of the consumption
   and production externalities associated with the program.

4. Total benefits: non-tenant benefits plus gross tenant
   benefits.

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8. This issue has been dealt with by Grigsby.

5. Total resource cost: total money cost of the production
of the housing services from a program unit.

6. Non-tenant contribution: the difference between total
resource cost and the project rent of the program unit.

7. Tenant subsidy: the difference between the market rent
and the project rent of the program unit.

A housing allowance program can be represented as in Figure III. 1.

Figure III. 1

Effect of a Housing Allowance Program
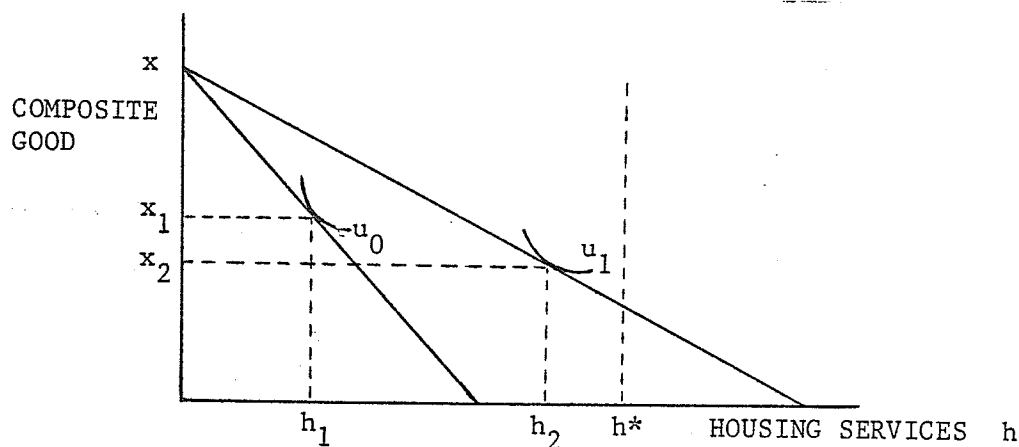
The availability of the housing subsidy shifts the budget con-
straint confronted by the individual and influences the quantity of
housing services (h) and quantity of other goods (x) purchased. The
budget constraint is given by $y = p_x x + p_h h$, where y is the individ-
ual's fixed income, and p_x and p_h are the prices of the composite
good and of housing services, respectively; as a result of the subsidy,
the individual changes his consumption from (x_1, h_1) to (x_2, h_2). His
rent expenditure changes from $r_1 = p_h h_1$ to $r_2 = \alpha p_h h_2$, where α equals

the subsidized rate available under the housing program, $0<\alpha<1$. The new budget constraint can be described as $y = p_x x + \alpha p_h h$. The individual, as a result of the program, experiences an increase in utility (with the normal preference assumptions), reaching a higher indifference curve as a result of the housing program.

The situation is quite different for the Non-Profit Housing program, or similar programs. This is demonstrated in Figure III. 2.

Figure III. 2

Effect of the Non-Profit Housing Program
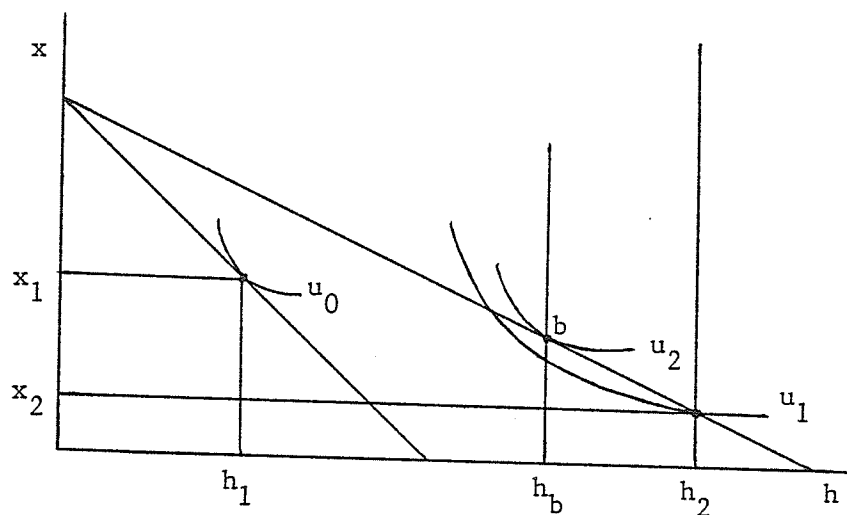
The Non-Profit program, assuming the unit rents in a new project are fixed, offers an individual an all or nothing choice between accepting the rent subsidy available in the project or continuing to face the existing market rent levels. The vertical line at h_2 represents the fixed level of housing services available in a project unit, at rent $\alpha p_h h_2$ (that is, reduced from the market level by α as in the above example). An individual who decides to accept a unit in the project experiences an utility level gain. However, unless h_2 is

chosen so that it coincides with h_b, the individual would prefer to substitute some housing services for the composite good; if $h_2 > h_b$, the individual would experience an overall gain in satisfaction through such substitution.

DeSalvo suggests that tenant benefits can be measured in income terms in the following way, using Figure III. 3:

Figure III. 3

An Income Measure of the Net Tenant Benefits of Housing
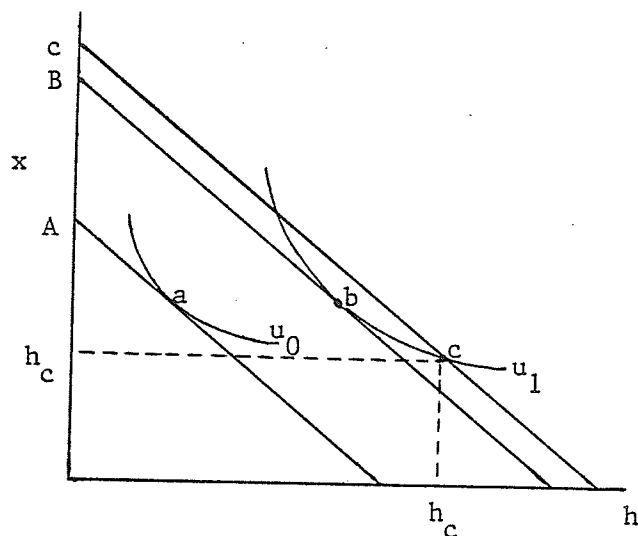
Programs

As a result of a housing program an individual moves from the consumption combination at a on u_0, to c on u_1. The increase in utility can be measured in income terms by determining the income required to reach this level of satisfaction, given market prices for x and h. Given this level of income, at market prices, the individual would choose the consumption combination represented by b on u_1. If the income associated with u_1 is y_1 and the individual's

actual income is y_0, the net benefits to the individual resulting from the program are B_t^n when $B_t^n = y_1 - y_0$.

The gross tenant benefits (B_t^g) are $B_t^g = B_t^h + R_p$ where R_p is the project rent paid by the individual. The individual's rent at c will be $\alpha p_h h_c$; the unit subsidy implied by the housing program (S) is

$$S = p_h h_c - \alpha p_h h_c = R_m - R_p$$

where R_m and R_p are the market and subsidized rents for the unit. Since the individual described in Figure III. 3 would be indifferent between b and c, and since c would require a higher income if the market price were being charged for h_c units of housing, the tenant's valuation of the unit must be less than the market's valuation. That is, a cash transfer resulting in the income associated with budget constraint B would result in a similar level of satisfaction, as the individual would be able to substitute units of x and h. An in-kind transfer, in this case, results in benefits measured in income terms equivalent to those available to the individual if he were able to freely substitute between the two commodities at an income level lower than that implied by the subsidized rent. The subsidy paid per housing unit would overstate the net tenant benefits. An in-kind subsidy, in this case, could be justified only if sufficient non-tenant benefits existed.

The possible importance of non-tenant benefits should be considered here. As DeSalvo notes, these may take the form of consumption or production externalities associated with the public provision of housing. An in-kind transfer may be preferable because it enforces a socially desirable level of housing services; a cash transfer may

lead an individual to substitute x for h to too great an extent,
from society's point of view. A substandard housing unit may be
selected, and the bulk of the cash transfer be devoted to the purchase
of the composite commodity. Transfers of both types, in-kind or
cash, may generate non-tenant benefits similar to those generated by
private contributions to charity; that is, the utility of contributors
may increase through the provision of subsidized housing. Certainly,
there tends to be very limited resistance to the proposition that this
form of assistance, and others, should be made available especially
to particular groups, such as senior citizens.

Other external benefits may be associated with the public pro-
vision of housing, in one form or another. Wright, for example,
suggests that significant social costs are incurred through the
typical low-density suburban development which occurs in the absense
of any public intervention.[9] As a result of this development, for
example, the infrastructure costs associated with new development
may be excessive. More importantly, these costs may be fully borne
by the occupants of new housing. There may also be considerable
social costs associated with the concentration of low income house-
holds in particular areas, another pattern associated with the private
development of housing. Wright suggests that as a result, considerable
class consciousness as well as antagonism may develop. Moreover, the
isolation of this group would eliminate the benefits which may result
if low income households were exposed to more economically productive

9. R.W. Wright, "Housing as an Instrument of Social Policy",
Journal of Canadian Studies 4, May 1969, 19-30.

households (demonstration effect). Wright suggests that housing policies should recognize the desirability of income integration, and that housing development should be encouraged to achieve this end. This would appear to be an important feature of housing allowance programs, which by their nature encourage the integration of low income households within the existing housing market.

It should be added that economists, in general, have regarded the direct public provision of housing units as inefficient, preferring either a cash subsidy or housing allowance scheme, on the grounds that it is likely that the case in Figure III. 3 will apply to most recipients of housing subsidies, and that either a cash transfer or certificate mechanism will be less expensive method of ensuring a particular level of satisfaction. There still remains considerable disagreement on the preferred form the transfer should take, however.[10] It is also generally true that the non-tenant benefits associated with the direct provision by the public sector have generally not been explicitly considered.

Some of these general observations can be illustrated with a numerical example. The following utility expression is assumed for an individual, where β is the individual's rent-to-income expenditure ratio,

$$u = h^{\beta} x^{1-\beta} \tag{1}$$

This expression will give rise to the unitary price and income elas-

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10. This matter has been considered in some detail by Olsen and Tullock.

ticities of demand estimated by various empirical investigations.[11] This will imply that the expenditure on the composite good is a fixed share of total income. More importantly, this implies that, for a given level of income, the absolute level of expenditures on the composite good will remain constant, as the price of housing is varied. Then, given the income constraint

$$y = p_x x + \alpha p_h h$$

the following demand curves can be derived, if the individual maximizes utility subject to the budget constraint:

$$h = \frac{\beta y}{\alpha p_h} \tag{2}$$

$$x = \frac{(1-\beta) y}{p_x} \tag{3}$$

Net tenant benefits, measured as described above, can be determined by comparing the income level required, at market prices, to attain the utility level reached as a consequence of participation in a housing program, with the tenant's actual income.

For the Non-Profit program, net tenant benefits are

$$\left[\frac{(h_1 p_h)}{\beta} \right]^{\beta} \left[\frac{y_0 - \alpha p_h h_1}{1-\beta} \right]^{1-\beta} - y_0 \tag{4}$$

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11. See, for example, Frank De Leeuw, "Demand for Housing: A Review of Cross Section Evidence, "_American Economic Review_ 61, 1971, 806-17. The utility function is of the familiar Cobb-Douglas form, and therefore implies unitary price and income elasticities. Moreover, it will also imply the usual properties of homogeneity, a constant elasticity of substitution (equal to 1) and constant returns to scale. It also implies a cross elasticity of demand equal to zero.

where h_1 is the fixed level of housing services provided in a Non-Profit unit. Appendix E describes the derivation of this expression. For the housing allowance program, net tenant benefits are

$$\frac{y_0}{\alpha^\beta} - y_0 \qquad\qquad (5)$$

as a result of allowing the individual to choose h_1 freely. (See Appendix E).

Table III. 1 compares the two programs. Pre-program participation values are subscripted "0"; post-program participation values are subscripted "1". The market rent and tenant rent for a Non-Profit housing program are assumed to be $280 and $220, respectively, as described in Table 1. 2.[12] Therefore, it is assumed in this example that α is approximately equal to 0.8;[13] that is, the housing prices available through either program are reduced to about 80% of the market level. It is assumed that this price reduction will be available for any unit under a housing allowance program; it will be available only for a project unit in the case of the Non-Profit program. The individuals are assumed to have monthly incomes of $500.

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12. Strictly speaking, Non-Profit tenants will pay rents equal to at least 25% of their gross income. The minimum rent with maximum federal assistance described in Table 1. 2 therefore corresponds to the average rent paid by tenants in a Non-Profit project. However, deviations from this rent level will likely be possible; the number of tenants with incomes which result in rents above the minimum will likely be small in number, with the possibility of reduced rents for lower income tenants correspondingly reduced as well. It is likely that most tenants will pay rents roughly equivalent to the minimum level.

13. The actual value for α would be 0.7857, but rounding this value to 0.8 will serve the purposes of this general discussion.

TABLE III. 1

GENERAL COMPARISON: HOUSING ALLOWANCE AND NON-PROFIT HOUSING PROGRAMS
- EQUAL RATE OF SUBSIDY CASE

	HOUSING ALLOWANCE	NON-PROFIT (FIXED RENTS) [1]	CASH TRANSFER	
			HOUSING ALLOWANCE LEVEL	NON-PROFIT LEVEL
β	.3	.3	.3	.3
α	.8	.8	1.0	1.0
x_0	350.00	350.00	350.00	350.00
h_0	150.00	150.00	150.00	150.00
y_0	500.00	500.00	500.00	500.00
u_0	271	271	271	271
$p_h h$	150.00	220.00	---	---
x_1	350.00	280.00	376.25	392.00
h_1	187.50	280.00	161.25	168.00
u_1	290	280	292	304
subsidy	37.50	60.00	37.50	60.00
net benefits (income equivalent)	34.76	15.77	37.50	60.00

SOURCE: Compiled by the author.

SYMBOLS

β -- rent-to-income ratio

α -- market price reduction factor (=.8)

x_0, x_1 -- initial, final quantity of composite good

h_0, h_1 -- initial, final expenditure on housing services

u_0, u_1 -- initial, final utility index factor

1 The Non-Profit rent paid by a tenant is assumed to be $220; a market value for the unit of $280 results in the $60 subsidy associated with the program. The housing allowance program reduces the price of housing; an individual with the specified demand curve would maintain his net housing expenditures at $150, but the allowance program would allow him to consume $187.50 worth of housing services. The subsidy level in this latter case would be $37.50. A cash transfer in either amount would encourage the individual to increase his consumption of housing by 30% of the cash transfer, and to increase his consumption of the composite good by 70% of the transfer; eg. by $11.25 and $26.25, respectively, with a cash transfer of $37.50.

and a rent-to-income ratio of 0.3. Under the housing allowance program, the individual would increase his housing expenditure from $150 to $187.50. The subsidy provided by the program would be $37.50 (post-program rent minus the pre-program rent). In income terms, however, the net benefit to the tenant would be only $34.76. A cash transfer equal to the subsidy would have resulted in a higher level of satisfaction, as it would have allowed an increase in the quantity of both goods consumed. The Non-Profit program is much less efficient, however. It results in a net benefit, in income terms, of $15.77, compared with a subsidy of $60. It is interesting to note though, given the assumed utility function, that housing expenditures increase very little as a result of a cash transfer. If the market rent of a "suitable" unit were in excess of $168, either cash transfer would leave the individual "poorly" housed.

It is also useful to compare the two programs in the case where the program subsidies are equal, and α different for each program. Table III. 2 considers the case where the subsidy paid under the housing allowance option equals $60. In this case, α is equal to 0.714; that is, the market price of housing must be reduced by 28.6% to encourage the individual to consume an additional $60 of housing services. The net benefit to the program participant would be $53.17. It is also interesting to note that the individual (given the assumed utility function) would still be better off under a system of general cash transfers. The relative inefficiency of the Non-Profit program should also be noted.

The implications of these examples are clear. Given a particular set of relative prices, a housing allowance program would seem more efficient than a Non-Profit program, in terms of the proportion of the

TABLE III. 2

GENERAL COMPARISON: HOUSING ALLOWANCE AND NON-PROFIT

HOUSING PROGRAMS – EQUAL SUBSIDY CASE

	HOUSING ALLOWANCE	NON-PROFIT (FIXED RENTS)	CASH TRANSFER
β	.3	.3	.3
α	.714	.8	
x_0	350.00	350.00	350.00
h_0	150.00	150.00	150.00
y_0	500.00	500.00	500.00
u_0	271	271	271
x_1	210.00	280.00	392.00
h_1	350.00	220.00	168.00
u_1	300	280	304
subsidy	60.00	60.00	60.00
net benefits (income equivalent)	53.17	15.77	60.00

SOURCE: Compiled by the author.

SYMBOLS AS IN TABLE III. 1.

subsidy perceived as net benefits by an individual participating in the program. The individual described in Table III. 1 and Table III. 2 would prefer the housing allowance arrangement. However, it should be noted that there may exist social or other advantages for the individual to select the Non-Profit unit, such as benefits from residence with his peers. These benefits may not be captured in the market rent level.

It should also be pointed out that although the values used for the Non-Profit example above are fairly representative of the current program, those used for the housing allowance program do not accurately represent the SAFER and RATE programs. A discussion of both these programs follows.

The Benefit Patterns Associated with British Columbia's SAFER Program

The above comments are generally applicable to housing allowance schemes. The SAFER program implies a more complicated expression for α. Allowances (A) paid under the scheme are calculated according to the following formula:

$$A = .75 \ (p_h h - .3y_0)$$

where y_0 is the individual's income, and $p_h h$ equals the market rent paid for the unit, as before. The allowance will therefore be equal to 75% of the amount by which the market rent exceeds 30% of the household's gross income. The maximum claimable rent is $205 for one person households and $225 for couples. This will determine a maximum allowance A_m of

$$A_m = .75 \ (205 - .3y_0)$$

$$A_m = 153.75 - .225y_0 \ \text{for one person households,}$$

and

$$A_m = 168.75 - .225y_0 \text{ for couples}$$

the tenant's rent payment will be

$$\alpha p_h h = p_h h - .75 (p_h h - .3y_0)$$

$$\alpha p_h h = .25p_h h + .225y_0$$

and, solving for α yields

$$\alpha = .25 + \frac{.225y_0}{p_h h}$$

or, with the maximum allowance, the rent payment will be

$$\alpha p_h h = p_h h - (153.75 - .225y_0)$$

and

$$\alpha = 1 - \left(\frac{153.75 - .225y_0}{p_h h} \right) \text{ for one person households, and}$$

$$\alpha = 1 - \left(\frac{168.75 - .225y_0}{p_h h} \right) \text{ for couples}$$

The proportion by which the market rent is reduced will decrease (α will approach 1) as the household's income increases, and increase (α will approach 0) as the market rent increases. No allowance will be received if an individual's monthly income is greater than $683.33 or, in the case of a couple, greater than $750. If β (the rent-to-income ratio) equals 0.3, α will equal 1 and no allowance will be received. This was the value for β for the individual participating in the allowance scheme described above. If we again assume the utility expression described above, the demand function for housing can be described as

$$h = \frac{\beta y_0}{\alpha p_h}$$

Again assuming a unit price for housing services and substituting
for the value of α available under the SAFER program, yields

$$h = \frac{y_0 \ (\beta - .225)}{.25p_h} \tag{6}$$

Then, a household whose monthly income is $500 and whose initial
rent payment is $150 will not be induced to increase its consumption
of housing services, as this is not possible without an increase in
net housing expenditures. This can be graphically described as in
Figure III. 4.

Figure III. 4

Effects of the SAFER Program
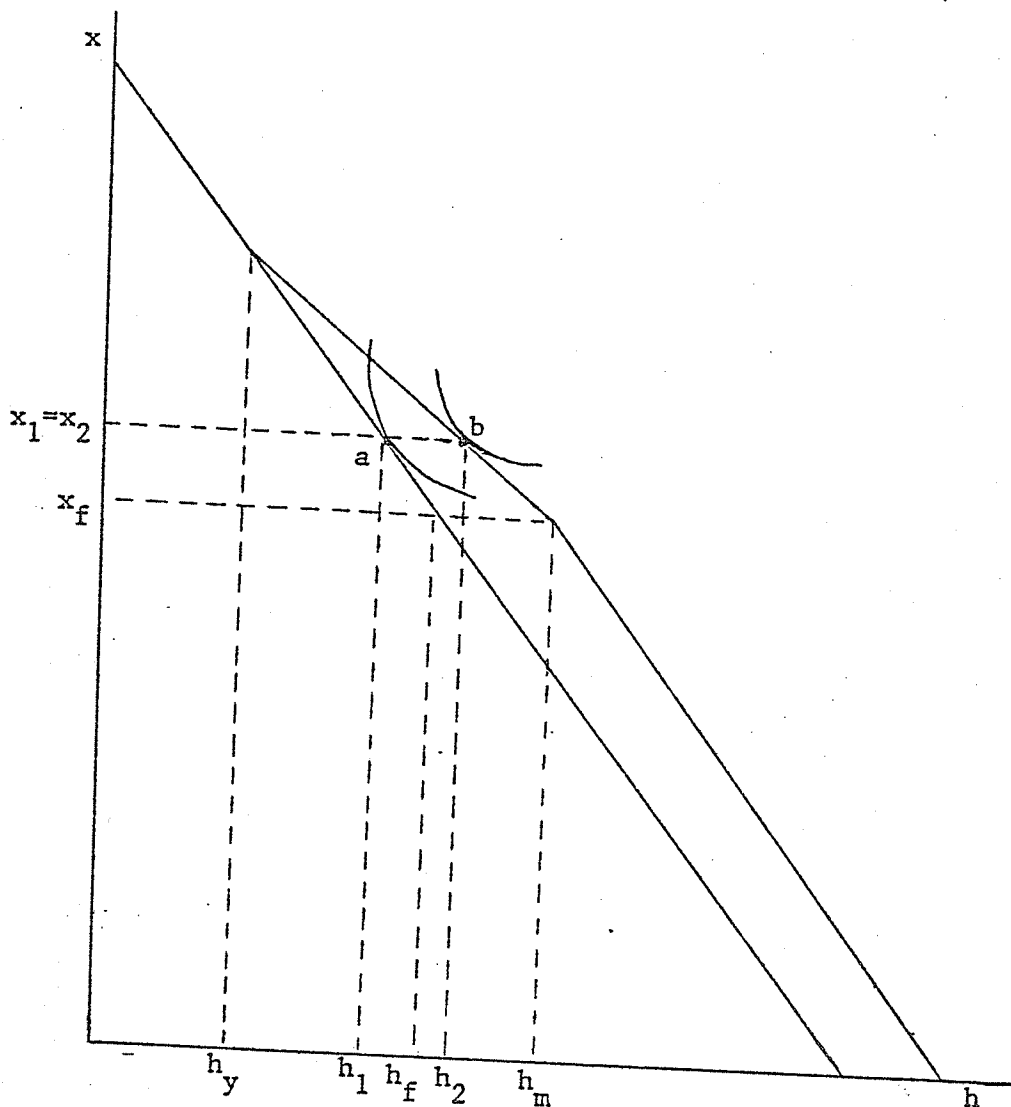
The housing services at h_y would have a market rent equal to 30% of the household income; given the assumed demand function, the program will not cause a household to increase its consumption of housing services as this is not possible without a reduction in the consumption of the composite good (an increase in β). The housing services at h_m would have a market value equal to the maximum claimable rent. At this point, the allowance available to the household would be fixed; the household would face the relative prices available in the market, but it would have access to a lump sum allowance to cover a portion of its housing expenditure. It should be pointed out that, given the assumed demand function, households with a consumption of housing services greater than h_f will receive the maximum allowance. A household initially at point α will increase its consumption of housing to h_2; the consumption of the composite commodity will not change. More importantly, given a unitary price elasticity, the net rent-to-income ratio will not change.

We can consider a single person household whose income is $500 but for whom $\beta = .41$; this individual will confront the maximum claimable rent situation,[14] and

$$\alpha = 1 - \left(\frac{153.75 - .225y_0}{p_h h}\right)$$

and the appropriate demand schedule will be

$$h = \frac{(\beta - .225)y_0 + 153.75}{p_h} \qquad (7)$$

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14. For couples the appropriate values for α and the demand function will be: $\alpha = 1 - (168.75 - .225\ y_0\ /\ p_h h;\ h = (\beta - .225)y_0 + 168.75\ /\ p_h$

Such an individual would increase his rent expenditure from $205 to $246.25; the expenditure on housing rises by the maximum allowance available. The value of α for this individual is 0.8325; this is a value somewhat higher than that applicable to the Non-Profit program. That is, the market assisted rent of the housing services consumed by this individual has been reduced to about 83% of its market value. His net benefits, in income terms, can be measured as before. For a housing allowance program, with α determined as above, net tenant benefits will equal

$$y_0 \ \frac{(.25 + .225y_0)^{-\beta}}{p_h h} - y_0 \qquad (8)$$

when less than the maximum allowance is received. When the maximum allowance is received,[15] net tenant benefits will equal

$$y_0 \left[1 - \frac{(153.75 - .225y_0)^{-\beta}}{p_h h} \right] - y_0 \qquad (9)$$

The individual just described will have net benefits of $39.03, an amount which is less than the value of the allowance he actually received.

Table III. 3 compares values of α, A, and net tenant benefits for seven single person households (for illustrative purposes) with monthly incomes of $400 but different rent-to-income ratios.

The following comments can be made concerning Table III. 3. The use of a maximum claimable rent very quickly results in the payment of maximum allowance. Only individuals with initial rents between

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15. For a couple, net tenant benefits will be:
$$\{y_0 \ 1 - (168.75 - .225y_0)^{-\beta} / p_h h\} - y_0$$

TABLE III. 3

BENEFIT INCIDENCE FOR SINGLE PERSON HOUSEHOLDS, $y_0 = \$400$

SAFER PROGRAM

β^1	h_0	h_1	α	A	NET BENEFITS	NET BENEFITS / INCOME	BENEFIT SHARE %
.30	120.00	120.00	1.0	---	---	0.0	0.0
.32	128.00	152.00	.8421	24.00	22.61	.057	7.4
.35	140.00	200.00	.7000	60.00	53.19	.133	17.4
.37	148.00	211.75	.6989	63.75	56.69	.142	18.5
.40	160.00	223.75	.7151	63.75	57.42	.144	18.7
.42	168.00	231.75	.7249	63.75	57.87	.145	18.9
.45	180.00	243.75	.7385	63.75	58.47	.146	19.1
			TOTALS:	339.0	306.25	.109	100.0

SOURCE: Compiled by the author.

[1] Individuals with $\beta > .353125$ will receive the maximum allowance. This can be shown by setting the individual's demand function equal to 205 (the maximum claimable rent). Then

$$205 = y_0 \frac{(\beta - .225)}{.25 p_h} = 400 \frac{(\beta - .225)}{.25} \quad \text{and} \quad \beta = .353125$$

$120 and $141.25 will receive less than the maximum allowance. As a result, net benefits do not vary significantly as the rent-to-income ratio increases for a particular income level. To the degree that higher values for β indicate a more severe housing problem, this may require the use of a higher maximum rent level. Similarly, net benefits as a proportion of income increase with the rent-to-income ratio, but level off very quickly. The final column illustrates the distribution of benefits over the seven individuals described in the table. Benefit shares rise with the rent-to-income ratio but level off rapidly.

It is also interesting to examine the subsidy costs associated with Table III. 3. Because six of the individuals are induced to increase their consumption of housing, the subsidy costs total $339. If this change in consumption did not occur (ie., if it was assumed that the price elasticity of housing was 0), the subsidy costs would only have totalled $153. It seems plausible to expect that the price elasticity for low income seniors will be something less than 1, since the unitary estimate is generally expected to be applicable to all renters. It is probable that low income seniors will take advantage of the housing allowance program to lower their rent-to-income ratio and increase their consumption of other goods. This possibility will be explored in the next chapter. The appropriate price elasticity may still be close to 1 if the current housing expenditures represent equilibrium levels. High levels for β may overstate the extent of current affordability problems if housing expenditures are based on permanent and not current incomes. In any

case, estimated subsidy costs should not assume that no change in housing consumption will occur, or the costs of a housing allowance program may be seriously underestimated.

It is also interesting to examine the effects of the SAFER program on single person households (again, for illustrative purposes) with different income levels but with the same rent-to-income ratios. This comparison is described in Table III. 4. The following comments can be made. Aside from the first three income categories, the net benefits provided with the program are strongly regressive. Again, this is due to the existence of a maximum allowance. Individuals with incomes above $410, and with rent-to-income ratios of 0.35, receive the maximum allowance, given the assumed demand curve. Net benefits are proportional, however, for individuals receiving less than the maximum assistance. As Table III. 4 shows, this may result in a lower benefit share for the lowest income groups than for those groups with slightly higher incomes.[16] The proportional distribution of benefits again results from the assumed demand function. Households receiving less than the maximum allowance face the same shift in the relative price of housing services.

The Benefit Patterns Associated with New Brunswick's RATE Program

As noted in the previous chapter, the RATE program differs from the SAFER program in that both the recipient contribution rates and

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[16] Interestingly enough, Heinberg reached a similar conclusion for the possible allowance schemes he examined for American data.

TABLE III. 4

BENEFIT INCIDENCE FOR SINGLE PERSON HOUSEHOLDS, $\beta = .35$

SAFER PROGRAM

MONTHLY INCOME[1]	h_0	h_1	α	A	NET BENEFITS	NET BENEFITS / INCOME	BENEFIT SHARE %
300	105.00	150.00	.7000	45.00	39.89	.133	14.6
350	122.50	175.00	.7000	52.50	46.54	.133	17.1
400	140.00	200.00	.7000	60.00	53.19	.133	19.5
450	157.50	210.00	.7500	52.50	47.67	.106	17.5
500	175.00	216.25	.8092	41.25	38.44	.077	14.1
550	192.50	222.50	.8652	30.00	28.60	.052	10.5
600	210.00	228.75	.9180	18.75	18.23	.030	6.7
TOTALS:				300.00	272.56	.082	100.0

SOURCE: Compiled by the author.

[1] Individuals with a monthly income above $410 will receive the maximum allowance. This can be shown by setting the individual's demand function equal to 205 (the maximum claimable rent). Then

$$205 = y_0 \ (\beta - .225) = y_0 \ (.35 - .225) \quad \text{and} \ y_0 = \$410.$$
$$\frac{.25p_h}{.25} \qquad \qquad \frac{}{.25}$$

the percentage of the housing gap paid through the program varies with the incomes of participating households. As a result, the RATE program in effect uses six different housing allowance formulas, dependent upon household income. These are described in Table III. 5.

TABLE III. 5

RATE PROGRAM - HOUSING ALLOWANCE FORMULAS

ANNUAL HOUSEHOLD INCOME	FORMULA NUMBER	ALLOWANCE FORMULA A	MAXIMUM ALLOWANCE	
			SINGLE PERSON HOUSEHOLDS A_m	COUPLES A_m
3000–3499	1	$.75(p_h h - .3y_0)$	$131.25 - .225y_0$	$150.00 - .225y_0$
3500–3999	2	$.70(p_h h - .31y_0)$	$122.50 - .217y_0$	$140.00 - .217y_0$
4000–4499	3	$.65(p_h h - .32y_0)$	$113.75 - .208y_0$	$130.00 - .208y_0$
4500–4999	4	$.60(p_h h - .33y_0)$	$105.00 - .198y_0$	$120.00 - .198y_0$
5000–5499	5	$.55(p_h h - .34y_0)$	$96.25 - .187y_0$	$110.00 - .187y_0$
5500–maximum income[1]	6	$.50(p_h h - .35y_0)$	$87.50 - .175y_0$	$100.00 - .175y_0$

[1] The maximum income permitted is $6000 for single person households and $6800 for couples.

The table also describes the maximum allowances available to single person households and couples, for whom the maximum claimable rents are $175 and $200, respectively. These are derived as illustrated for the SAFER program. Appropriate values for α, for the demand equations, and for the net tenant benefits for program participants

can also be derived as demonstrated above. These values are illustrated

in Table D. 1, Table D. 2, and Table D. 3 in Appendix D. The simple

(Cobb-Douglas) utility function is again assumed. The SAFER formula

applies only to RATE program recipients who have annual incomes between

$3000 and $3499 (or $250 to $291.58 monthly). However, although the

parameters of the housing allowance formula used in New Brunswick are

sensitive to income, in general the program is very similar to the

SAFER program. An eligible household will confront the situation

depicted in Figure III. 4.

The benefit patterns associated with the RATE program are des-

cribed in Table III. 6 and Table III. 7. As was the case for the SAFER

program, for a given level of income, the level of allowance paid is

fairly insensitive to the rent-to-income ratio because of the constraint

represented by the maximum claimable rent. This result is even more

apparent for the RATE program because of the compressing influence of

the variable required contribution rate. In the example illustrated

in Table III. 6, households must devote 32% of their income to housing

expenditures. As a result, both net benefits as well as the benefit

shares do not vary significantly for eligible households.

Table III. 7 illustrates the effects of the RATE program on single

person households with different income levels but with the same rent-

to-income ratios. As was the case with the SAFER program, the net

benefits associated with the RATE program are strongly regressive.

However, it should be pointed out that the benefits are regressive over

the entire range of eligible incomes and, unlike the SAFER program, are

not proportional over the lowest income groups. This is a result of

TABLE III. 6

BENEFIT INCIDENCE FOR SINGLE PERSON HOUSEHOLDS, $y_0 = \$400$[1]

RATE PROGRAM

β[2]	h_0	h_1	α	A	NET BENEFITS	NET BENEFITS / INCOME	BENEFIT SHARE %
.30	120.00	120.00	1.0	---	---	0.0	0.0
.32	128.00	128.00	1.0	---	---	0.0	0.0
.35	140.00	165.80	.8444	25.80	24.39	0.061	19.8
.37	148.00	173.80	.8516	25.80	24.50	0.061	19.9
.40	160.00	185.80	.8611	25.80	24.65	0.062	20.0
.42	168.00	193.80	.8669	25.80	24.74	0.062	20.1
.45	180.00	205.80	.8746	25.80	24.85	0.062	20.2
TOTALS:		129.00			123.13	0.044	100.0

SOURCE: Compiled by the author.

[1] Housing allowance equation #4 will apply to these households, as the annual income equals $4800. Therefore these households will be expected to devote 33% of their income to housing (or $132).

[2] Individuals with $\beta > .338$ will receive the maximum allowance. This can be shown by setting the individual's demand function equal to 175 (the maximum claimable rent). Then

$$175 + y_0 \frac{(\beta-.198)}{.40} = 500 \frac{(\beta-.198)}{.40ph} \qquad \text{and} \qquad \beta = .338$$

TABLE III. 7

BENEFIT INCIDENCE FOR SINGLE PERSON HOUSEHOLDS, $\beta=.35$

RATE PROGRAM

MONTHLY INCOME[1]	h_0	h_1	α	A	NET BENEFITS	NET BENEFITS / INCOME	BENEFIT SHARE %
300	105.00	133.00	.7895	28.00	25.88	.086	42.0
350	122.50	142.00	.8627	19.50	18.57	.053	30.2
400	140.00	152.00	.9211	12.00	11.68	.029	19.0
450	157.50	163.00	.9663	5.50	5.44	.012	8.8
500	175.00	175.00	1.0	---	---	0.0	0.0
550	192.50	192.50	1.0	---	---	0.0	0.0
600	210.00	210.00	1.0	---	---	0.0	0.0
TOTALS:				65.00	61.57	0.020	100.0

SOURCE: Compiled by the author.

[1] Housing allowance formulas 2, 3, 4, and 5 apply to income levels 300, 350. 400, and 450 respectively. Individuals with these incomes receive less than the maximum allowance, as their housing expenditures would increase to less than the maximum claimable rent. Housing allowance formula 6 applies to households with incomes of $500 and over, none of whom would receive housing allowance benefits.

the variable housing allowance formulas used by the RATE program. As well, unlike the SAFER program, the RATE program results in benefit shares which decline, unambiguously, with income. It would appear that the benefit structure associated with the RATE program is somewhat more equitable than that associated with the SAFER program.

The Benefit Patterns Associated with the Federal Non-Profit Housing Program

CMHC's Non-Profit housing program is fairly accurately depicted by the general description provided above. The situation described in Figure III. 2 is directly applicable, although the particular level of α will also be somewhat sensitive to the income of the individual to the extent that the Non-Profit rent is adjusted according to the income of a project participant.

The distinction DeSalvo draws between tenant subsidy and non-tenant contribution has particular relevance for the Non-Profit program. In the example used here, the total cost of supplying a unit is $395; the non-tenant contribution would therefore be $175 for a unit with a tenant rent of $220. The subsidy perceived by the tenant will still be only $60. The following discussion will assume Non-Profit project and market rents as described above; then α = .7857142. The utility and demand functions as described above will apply in this discussion; moreover, as α is fixed, the general expressions can be used.

Table III. 8 and Table III. 9 describe the effects of the Non-Profit housing program on individuals with the same incomes but differ-

TABLE III. 8

BENEFIT INCIDENCE FOR HOUSEHOLDS, $y_0 = \$400$

NON-PROFIT HOUSING PROGRAM

β	h_0	PREFERRED h_1 ($\alpha = .7857142$)	NON-PROFIT RENT	TENANT SUBSIDY	NET BENEFITS	NET BENEFITS / INCOME	BENEFIT SHARE %
.30	120.00	152.73	220.00	60.00	-21.44	-.054	-33.7
.32	128.00	162.91	220.00	60.00	-11.92	-.030	-18.7
.35	140.00	178.18	220.00	60.00	1.43	.004	2.2
.37	148.00	188.36	220.00	60.00	9.69	.024	15.2
.40	160.00	203.64	220.00	60.00	21.03	.053	33.1
.42	168.00	213.82	220.00	60.00	27.87	.070	43.8
.45	180.00	229.09	220.00	60.00	36.99	.092	58.1
TOTALS:				420.00	63.65	.023	100.0

SOURCE: Compiled by the author.

TABLE III. 9

BENEFIT INCIDENCE FOR HOUSEHOLDS, $\beta = .35$

NON-PROFIT HOUSING PROGRAM

MONTHLY INCOME	h_0	PREFERRED h_1 ($\alpha = .7857142$)	NON-PROFIT RENT	TENANT SUBSIDY	NET BENEFITS	NET BENEFITS INCOME	BENEFIT SHARE %
300	105.00	133.64	220.00	60.00	-63.03	-.210	-94.4
350	122.50	155.91	220.00	60.00	-25.10	-.072	-37.6
400	140.00	178.18	220.00	60.00	1.43	.003	2.2
450	157.50	200.45	220.00	60.00	20.77	.046	31.1
500	175.00	222.73	220.00	60.00	34.98	.070	52.4
550	192.50	245.00	220.00	60.00	45.28	.082	67.8
600	210.00	267.27	220.00	60.00	52.45	.087	78.5
TOTALS:				420.00	66.78	.021	100.0

SOURCE: Compiled by the author.

ent rent-to-income ratios, and on individuals with the same rent-to-income ratios but different incomes. Table III. 8 shows that benefit incidence is progressive; net benefits rise as a porportion of income as β rises. Moreover, benefit shares are also progressive. This is in sharp contrast to the results for the housing allowance program, where both benefit incidence and benefit shares levelled off very quickly, as β increased. However, for low rent-to-income ratios, the the Non-Profit program results in a negative gain in satisfaction. Requiring individuals with low rent-to-income ratios to pay the Non-Profit rent would force sufficient reduced consumption of the composite good to offset the lower price charged for the unit. When β is fixed, both benefit incidence and benefit shares are progressive, as Table III. 9 shows. This is a somewhat disturbing result as it is likely that housing problems will be most prevalent among the lowest income groups. Participation in a Non-Profit project would result in a negative gain in satisfaction for the individual with less than $350 of monthly income. The benefit progressivity of the Non-Profit program again contrasts sharply with the regressivity associated with the housing allowance program. Comparing Table III. 4 and Table III. 9 suggests that individuals with incomes of $500 or less would prefer the SAFER program arrangements, if given a choice; the net benefits available through this program exceed those available through the Non-Profit program. Individuals with incomes above $500 would select the Non-Profit program. Individuals with rent-to-income ratios greater than .35, with incomes somewhat lower than $500, would likely prefer the Non-Profit program, as the net benefits increase with an increase in β

while they remain relatively fixed under the SAFER program. Similarly, as the SAFER net benefits decline more rapidly than those available through the Non-Profit program, individuals with incomes somewhat less than $500 but with rent-to-income ratios less than .35 would prefer the Non-Profit program.

Price and Income Elasticities of Demand

The particular form of the utility function specified in this chapter ensures that the price elasticity of demand is equal to 1. While this value conforms to the available empirical estimates, there may be some merit to suggesting that for low income seniors a value less than 1 would be more appropriate. The sensitivity of the results described above to different values for the price elasticity will be examined in the next chapter.

It is interesting to examine briefly the implied income elasticities associated with the SAFER program. In particular, the effect of changes in y_0 (which excludes the housing allowance received) on the amount of housing consumed under the terms of the program should be examined. If the post-program rent is less than the maximum allowed, the income elasticity (η) will be described as

$$\eta = \frac{\partial h}{\partial y_0} \frac{y_0}{h} = \frac{(\beta - .225)}{.25 p_h} \frac{y_0}{h} = 1$$

The particular form of the utility function specified ensures a unitary income elasticity. However, if the post-program rent exceeds the maximum allowed, η is described (for single person households) as

$$\eta = \frac{\partial h}{\partial y_0} \frac{y_0}{h} = \frac{\beta - .225}{p_h} \frac{y_0}{h}$$

which can be rewritten as

$$\eta = 1 - \frac{153.75}{p_h h}$$

As a result of the constraint imposed by the maximum claimable rent, post-program housing expenditures will no longer demonstrate a unitary income elastrate; in fact, the income elasticity will depend upon the amount of the housing expenditure, and will be less than 1. A similar result applies to the effects on post-program housing consumption with changes in post-program income (inclusive of the housing allowance).

It is also possible to comment on the observed income elasticities discussed by Solomon and Fenton which were described in the previous chapter. Because of the unitary price elasticity assumed here, the housing allowance programs described above resulted in an increase in housing expenditures equal to the amount of the allowance. Therefore, the earmarking ratio was equal to 1; net housing expenditures were unchanged. However, the income elasticity measured by Solomon and Fenton was likely not defined as above. That is, it is likely that Solomon and Fenton compared the pre-program and post-program incomes and housing expenditures. The elasticity they discussed would therefore be another indicator of the extent to which earmarking is successful. A similar set of elasticites associated with the SAFER program is described in Table III. 10, for single person households with rent-to-income ratios of .35. The SAFER assistance, because of the assumed demand function, results in constant income elasticity with respect to the allowance received by program participants. That is, a percentage increase in income due to the housing allowance will result

in an increase in housing expenditures of 2.86%. This is the definition

for income elasticity employed by Solomon and Fenton, who calculated an

income elasticity for the Kansas City housing allowance program of 1.92.

This result is not necessarily inconsistent with an underlying unitary

price and income elasticity. The result obtained for a particular

program will also depend on the extent to which earmarking is success-

ful. The Kansas City results may suggest that a price elasticity less

than 1 may be appropriate. It is interesting to note that the observed

income elasticities (as defined by Solomon and Fenton) decreased with

household income. This may also indicate that a price elasticity lower

than 1 may be applicable to low income seniors.

TABLE III. 10

SAFER PROGRAM - INCOME ELASTICITIES FOR SINGLE PERSON HOUSEHOLDS, $\beta=.35$

MONTHLY INCOME	EARMARKING RATIO	INCOME ELASTICITIES	
		SOLOMON & FENTON DEFINITION	WITH RESPECT TO CHANGES IN y_0
300	1.0	2.86	1.00
350	1.0	2.86	1.00
400	1.0	2.86	1.00
450	1.0	2.86	.27
500	1.0	2.86	.29
550	1.0	2.86	.31
600	1.0	2.86	.33

SOURCE: Compiled by the author.

Summary

The results of the application of a fairly simple model to the SAFER, RATE, and Non-Profit housing programs can now be described. For a fixed level of income, the SAFER program results in benefits which increase, as a proportion of income, as the rent-to-income ratio increases. However, due to the use of a maximum claimable rent the benefits level off very quickly. This is even more apparent for the RATE program, for which the net benefits are almost a constant proportion of income for all eligible households. The Non-Profit program results in benefits which are strictly progressive. In fact, net benefits can be negative for low values of β. It should be noted that, of the three programs, the SAFER program would result in the greatest net benefits for households with monthly incomes of $400, and the Non-Profit in the lowest net benefits. These results are summarized in Table III. 11.

When the rent-to-income ratio is fixed, the SAFER program again results in benefits which level off very quickly but are generally regressive. As incomes increase, net benefits decrease. However, these benefits may be proportional for the lowest income groups. The net benefits for the RATE program are unambiguously regressive, as a result of the flexibility inherent in the housing allowance formulas used. The net benefits of the Non-Profit program are progressive throughout. As a result, it is likely that individuals choosing between the SAFER and the Non-Profit programs, with incomes of $500 or less per month, would prefer the SAFER program, while individuals with monthly incomes above $500 would prefer the Non-Profit program.

TABLE III. 11

BENEFIT INCIDENCE FOR SINGLE PERSON HOUSEHOLDS, $y_0 = \$400$

SAFER, RATE, AND NON-PROFIT PROGRAMS

β	NET BENEFITS INCOME			BENEFIT SHARE %		
	SAFER	RATE	NON-PROFIT	SAFER	RATE	NON-PROFIT
.30	0.000	0.000	-0.054	0.0	0.0	-33.7
.32	0.057	0.000	-0.030	7.4	0.0	-18.7
.35	0.133	0.061	0.004	17.4	19.8	2.2
.37	0.142	0.061	0.024	18.5	19.9	15.2
.40	0.144	0.062	0.053	18.7	20.0	33.1
.42	0.145	0.062	0.070	18.9	20.1	43.8
.45	0.146	0.062	0.092	19.1	20.2	58.1
TOTALS:	0.109	0.044	0.023	100.0	100.0	100.0

SOURCE: Compiled by the author.

These results are summarized in Table III. 12.

On efficiency grounds, the net benefits available through the Non-Profit program tend to be a much smaller proportion of the subsidy normally considered accruing to the tenant, that is, the difference between the market and program rents. Table III. 9 suggests, however, that this may not be true for Non-Profit tenants with higher incomes. For this group, the level of net benefits approaches the subsidy level. In general, it would appear that the direct public provision of housing will be inefficient when compared with either a housing allowance program or with a system of cash transfers.

One final comment should be emphasized here. The subsidy costs estimated for a housing allowance program should take account of the consumption effects which will likely result. As result of an increase in housing consumption, program costs will likely escalate above those estimated if only current housing expenditures are considered. The extent of the increase in consumption will depend upon the underlying price elasticity of demand for housing for the households participating in the program. This matter, as well as the others raised above, will be pursued in the next chapter.

TABLE III. 12

BENEFIT INCIDENCE FOR SINGLE PERSON HOUSEHOLDS, $\beta = .35$

SAFER, RATE, AND NON-PROFIT PROGRAMS

y_0	NET BENEFITS INCOME			BENEFIT SHARE %		
	SAFER	RATE	NON-PROFIT	SAFER	RATE	NON-PROFIT
300	.133	0.086	-0.210	14.6	42.0	-94.4
350	.133	0.053	-0.072	17.1	30.2	-37.6
400	.133	0.029	0.003	19.5	19.0	2.2
450	.106	0.012	0.046	17.5	8.8	31.1
500	.077	0.000	0.070	14.1	0.0	52.4
550	.052	0.000	0.082	10.5	0.0	67.8
600	.030	0.000	0.087	6.7	0.0	78.5
TOTALS:	.082	0.020	0.021	100.0	100.0	100.0

SOURCE: Compiled by the author.

CHAPTER IV

AN ALTERNATIVE SPECIFICATION FOR

THE UTILITY FUNCTION

CHAPTER IV

AN ALTERNATIVE SPECIFICATION FOR THE UTILITY FUNCTION

Introduction

The sensitivity of the results determined in the previous chapter to alternative specifications for the utility function, as well as alternative price elasticity assumptions, should be examined. In particular, it is of interest to determine the impact of a price elasticity of demand for housing with an absolute value less than one. Both these issues can be examined by specifying a somewhat more complex utility function. The example used in this chapter will be a utility function of the constant-elasticity-of-substitution (C.E.S.) type.

Housing Program Tenant Benefits - A General Description

The utility function is assumed to take the following form:

$$U = (Ah^{-\rho} + Bx^{-\rho})^{-(1/\rho)}$$

where h and x are units of housing and the composite good, as before; A and B are normalized weighting factors for the two commodities which are sensitive to the rent-to-income ratio, and $A+B = 1$; and ρ is related to the elasticity of substitution, σ, as follows:

$$\sigma = 1/(1+\rho)$$

Then, again given the income constraint:

$$y = p_x x + \alpha p_h h$$

The following demand functions can be derived if an individual maximizes utility subject to the budget constraint:

$$h = \frac{\beta\ y}{\alpha p_h} \tag{1}$$

$$x = \frac{(1-\beta)y}{p_x}$$

where

$$\frac{\beta}{\alpha p_h} = \frac{(\frac{A}{\alpha p_h})^{1/(1+\rho)}}{\left[A(\alpha p_h)^\rho\right]^{1/(1+\rho)} + (B p_x{}^\rho)^{1/(1+\rho)}} \qquad (2)$$

and

$$\frac{(1-\beta)}{p_x} = \frac{(\frac{B}{p_x})^{1/(1+\rho)}}{\left[A(\alpha p_h)^\rho\right]^{1/(1+\rho)} + (B p_x{}^\rho)^{1/(1+\rho)}} \quad .$$

In order to ensure price elasticities of demand with an absolute value less than 1 (ie. a price inelastic demand for housing), ρ will be assumed equal to 1; then, the elasticity of substitution will equal .5, and housing and the composite good will be considered poor substitutes.[1]

This particular form for the utility function still ensures a unitary income elasticity of demand for both goods, in keeping with the available empirical estimates. However, it allows the price elasticity to vary according to the value chosen for ρ. The price elasticity for can be described as follows, if $\rho = 1$:

$$\frac{\partial h}{\partial p_h} \frac{p_h}{h} = \frac{1+\rho}{1+\rho} \frac{(\frac{\beta}{p_h})}{} p_h = -\frac{1+\beta}{2}$$

Thus, for the values of β considered here (.30 to .45), the price elasticity associated with the specified utility function will vary from -.65 to -.725, increasing in absolute value as β increases. It should be pointed out that the net rent-to-income ratio, β, will also

1. This functional form is actually quite closely related to the Cobb-Douglas specification used in Chapter III. The particular form of the C.E.S. function specifies here suggests that housing and the composite good are poor substitutes; then, in Hicksian terms, a price decrease for housing will increase the demand for the composite good, as the income effect associated with the price change will more than offset the substitution effect.

hange due to a change in the price of housing.

Net tenant benefits for housing program participants can again
be determined by comparing the income level required, at market prices,
to attain the utility level reached as a consequence of participation
in the program, with the household's actual income. The general
expression for these benefits can be described as follows; for the
on-Profit Program, or similar programs, net tenant benefits are

$$\frac{A(\beta_o/p_h)^{-1} + B\left[(1-\beta_o/p_x\right]^{-1}}{Ah_1^{-1} + Bx_1^{-1}} - y_o \qquad (3)$$

iere h_1 is the fixed level of housing services provided in a Non-Profit
it, x_1 is the amount of the composite good which can be purchased by
Non-Profit tenant, $x_1 = (y_o - \alpha p_h h_1)/p_x$, β_o is the initial rent-to-
come ratio, and y_o is the initial household income. For a housing
lowance program, net tenant benefits are:

$$\frac{A(\beta_o/p_h)^{-1} + B\left[(1-\beta_o)/p_x\right]^{-1}}{A(\beta_1 y_o/\alpha p_h)^{-1} + B\left[(1-\beta_1)y_o/p_x\right]^{-1}} - y_o \qquad (4)$$

re β_1, is the post-program net rent-to-income ratio. Although β will
nge with a change in the price of housing, it will remain constant
a change in income. Both A and B are constant for any particular
vidual.

Table IV.I again presents a general comparison of the housing
wance and Non-Profit Programs; this comparison, however, assumes the
rlying utility function described above. An individual with a

TABLE IV.I

General Comparison: Housing Allowance and Non-Profit Housing Programs -

Equal Rate of Subsidy Case

	Housing Allowance	Non-Profit (Fixed Rents)	Cash Transfer at The Housing Allowance Level
β_o	.3	.3	.3
α	.8	.8	.8
x_o	350.00	350.00	350.00
h_o	150.00	150.00	150.00
y_o	500.00	500.00	500.00
U_o	290	290	290
x_1	361.50	280.00	374.24
h_1	173.13	280.00	160.39
β_1	.277	.44	.30
U_1	309	280	310
Subsidy net benefits (income equivalent)	33.24	-17.24[1]	34.63

SOURCE: Complied by the author.

1 net benefits for the Non-Profit Program
are less than o for all incomes less than
about $540 monthly, or about $6500 annually,
if β = .3. For this level of income, β_1 = .407.

Symbols

β – rent-to-income ratio

α – market price reduction factor

x_o, x_1 – initial, final quantity of composite good

h_o, h_1 – initial, final expenditure on housing

β_o, β_1, – initial, final net rent-to-income ratio

U_o, U_1, – initial, final utility index level

monthly income of $500, and β_0 equal to .30, would increase his housing

expenditures from $150 to $173.13, if α equalled .8 (approximately the

level available for the Non-Profit program). However, his net housing

expenditures would decline to $138.50, and his consumption of x would

increase to $361.50, from $350.00. The housing allowance paid would be

spent on additional housing; β_1 would equal .277. Therefore as a result

of the housing allowance program, net housing expenditures are reduced,

and the allowance can be considered as both a housing subsidy and a

cash transfer. This is precisely the main goal of both the SAFER and

RATE programs. It will not result unless the price elasticity of demand

has an absolute value less than 1.

As before, the Non-Profit program results in lower net benefits than

the housing allowance program. Indeed, in this case, the net benefits

of the program are negative. Given the assumed utility function, the

additional benefits of the Non-Profit unit are more then offset by the

negative benefits associated with the forced drop in consumption of the

composite good. The housing allowance program is more efficient than

the Non-Profit program, in terms of the net benefits received by a

program participant, compared with the subsidy costs; but, a cash

transfer would still be the most efficient approach. Such a transfer,

at the housing allowance level, would increase housing consumption to

$160.39.

Some interesting observations can be made concerning the results

of Table $\overline{IV}$.I and Table III.1, which assumed the Cobb-Douglas utility

function described in the previous chapter. Firstly, housing expenditures

increase somewhat less, given a price elasticity less than 1; the

earlier table resulted in housing expenditures of $187.50 compared with

$173.13 in Table IV.1 This difference should be noted for several

reasons. Any inflationary pressure associated with a housing

allowance program will be somewhat less of a problem if the price

elasticity is less than 1. However, if ensuring some minimum housing

standard is a program goal, the allowances paid, if this lower

elasticity is appropriate, would have to be greater. Moreover, at least

for the example considered here the allowances paid are fairly in-

sensitive to the price elasticity. Subsidy costs for the individual

described in Table IV.1 are $34.13, some 91% of the $37.50 determined

in Table III.1. However, housing expenditures increase by only $23.13

in the second example, compared with the full amount of the allowance

in Table III.1.

Implications of the Alternative Utility Function for the SAFER, RATE, and Non-Profit Programs

As in the previous chapter the particular value for x under the

SAFER or RATE programs can be substituted into the general demand

function to determine the appropriate demand function for housing

under either program. A general expression for the demand for housing

under either the SAFER or RATE programs, given the assumed utility

function is [2]:

$$h = \frac{(y_o - b)^2}{(y_o p_h a - p_h^2 ab + \frac{Bp_x p_h b}{2A}) \pm \left[(\frac{Bp_x}{2A})^2 p_h^2 b^2 - \frac{Bp_x p_h^2 y_o ab}{A} + p_h y_o^2 \frac{aBp_x}{A} \right]^{\frac{1}{2}}} \quad (5)$$

where α is written in the form

$$\alpha = a + \frac{b}{h}$$

---

[2] I am indebted to Dr. K. Sharma, of the Physics Department, University
of Manitoba, who suggested this general solution. One of the two
roots of the expression will result in a negative value for h. Its
derivation is described in Appendix E.

Thus, for example, the value for α under the SAFER program results in,

$$a = .25 \quad \text{and} \quad b = \frac{.225y_0}{P_h}$$

if less than the maximum claimable rent is paid by a participating

household and

$$a = 1 \quad \text{and} \quad b = -\frac{(153.75 - .225y_0)}{P_h}$$

if the maximum claimable rent, or more, is by a participating household.

The appropriate values for the RATE program will change according to

the household income, as described in Chapter III. Given this general

expression for the demand for housing, and the general expression for

the net benefits of housing programs described above, the SAFER, RATE,

and Non-Profit programs can be examined in the context of the C.E.S.

utility function specified above.[3] The following discussion compares

some of important results obtained using the C.E.S. utility function

with those of the previous chapter. In general, the conclusions reached

regarding the benefit patterns associated with the SAFER and RATE are

not altered.

As noted in the general example discussed above the particular

utility function specified in this chapter gives rise to a substantially

different pattern of induced housing consumption as a result of a housing

allowance program. Tables IV.2 and IV.3 compare the results of Chapter

III with those for the C.E.S. utility function, for single person

households with a constant income but with varying rent-to-income

expenditures, and for single person households with a fixed rent-to-

income ratios, but a constant income.

---

[3] The benefit incident patterns associated with the SAFER and RATE
programs, given the specific C.E.S. utility function, are described
in Appendix E.

TABLE IV.2

POST PROGRAM HOUSING CONSUMPTION: SAFER AND RATE PROGRAMS

FOR ALTERNATIVE UTILITY FUNCTION SPECIFICATIONS

SINGLE PERSON HOUSEHOLDS

Monthly Income = $400

β_o	h_o	SAFER Program		RATE Program	
		Cobb-Douglas Utility Function h_1	C.E.S. Utility Function h_1	Cobb-Douglas Utility Function h_1	C.E.S Utility Function h_1
.30	120.00	120.00	120.00	120.00	120.00
.32	128.00	152.00	136.03	128.00	128.00
.35	140.00	200.00	161.61	165.80	145.51
.37	148.00	211.75	179.66	173.80	159.40
.40	160.00	223.75	206.39	185.80	178.36
.42	168.00	231.75	214.88	193.80	186.60
.45	180.00	243.75	227.66	205.80	198.95

SOURCE: Compiled by the author.

TABLE IV.3

POST PROGRAM HOUSING CONSUMPTIONS: SAFER AND RATE PROGRAMS

FOR ALTERNATIVE UTILITY FUNCTION SPECIFICATIONS

SINGLE PERSON HOUSEHOLDS

Rent-To-Income Ratio = .35

y_o	h_o	SAFER Program		RATE Program	
		Cobb-Douglas Utility Function h_1	C.E.S Utility Function h_1	Cobb-Douglas Utility Function h_1	C.E.S Utility Function h_1
300	105.00	150.00	121.21	133.00	116.12
350	122.50	175.00	141.41	142.00	130.88
400	140.00	200.00	161.61	152.00	145.51
450	157.50	210.00	181.81	163.00	160.17
500	175.00	216.25	202.01	175.00	175.00
550	192.50	222.50	213.12	192.50	102.50
600	210.00	228.75	222.79	210.00	210.00

SOURCE: Compiled by the author.

Whereas, the RATE program results in a smaller increase in housing consumption because of the lower allowances it pays, regardless of the specfied utility function, the C.E.S. utility function results in smaller increases in consumption because of the implied price-inelastic demand for housing. The reduction in consumption due to the C.E.S. utility function is relatively less for households with higher rent-to-income ratios, or with higher incomes, as these households are constrained by the maximum allowable rents.

The different patterns of the consumption of both housing and the composite good are further described in Tables IV.4, IV.5, IV.6, and IV.7, which describe how the allowances paid under the SAFER and RATE programs would be utilized under the alternative utility function specifications. All four tables illustrate the increase in both the consumption of housing and the composite good resulting from a housing allowance program if the demand for housing by program participants is price-inelastic. One result is a smaller increase in the consumption of housing. However, the savings in the subsidy costs associated with a housing allowance program will be offset in two ways. Firstly, some of the allowance results in the increased consumption of the composite good. Subsidy costs will exceed the actual cost of the increased housing consumption. Secondly, households with high rent-to-income ratios, or with higher incomes will tend to claim the maximum allowable rents. The relative importance of these groups among the program participants may make the subsidy costs somewhat insensitive to the price elasticity of demand for housing.

TABLE IV.4

UTILIZATION OF SAFER ALLOWANCES

ALTERNATIVE UTILITY FUNCTIONS

SINGLE PERSON HOUSEHOLDS, y_0 = $400

| | SAFER Allowance | | Increase In Consumption | | | |
| | Cobb-Douglas | C.E.S. | Cobb-Douglas | | C.E.S. | |
β			Housing	Composite Good	Housing	Composite Good
.30	---	---	---	---	---	---
.32	24.00	12.02	24.00	---	8.03	3.99
.35	60.00	31.21	60.00	---	21.61	9.60
.37	63.75	44.75	63.75	---	31.66	13.09
.40	63.75	63.75	63.75	---	46.39	17.36
.42	63.75	63.75	63.75	---	46.88	16.87
.45	63.75	63.75	63.75	---	47.66	16.09
TOTALS	339.00	279.23				

SOURCE: Compiled by the author.

TABLE IV.5

UTILIZATION OF SAFER ALLOWANCES

ALTERNATIVE UTILITY FUNCTIONS

SINGLE PERSON HOUSEHOLDS, $\beta = .35$

y_o	SAFER Allowance Cobb-Douglas	C.E.S.	Increase in Consumption Cobb-Douglas Housing	Composite Good	C.E.S. Housing	Composite Good
300	45.00	23.41	45.00	---	16.51	7.20
350	52.50	27.31	52.20	---	18.91	8.40
400	60.00	31.21	60.00	---	21.61	9.60
450	52.20	35.11	52.50	---	24.31	10.80
500	41.25	39.01	41.25	---	27.01	12.00
550	30.00	30.00	30.00	---	20.62	9.38
600	18.75	18.75	18.75	---	12.97	5.96
TOTALS	300.00	204.80				

SOURCE: Compiled by the Author.

TABLE IV.6

UTILIZATION OF RATE ALLOWANCES

ALTERNATIVE UTILITY FUNCTIONS

SINGLE PERSON HOUSEHOLDS, y_o = $400

| | RATE Allowance | | Increase In Consumption | | | |
| | | | Cobb-Douglas | | C.E.S. | |
β	Cobb-Douglas	C.E.S.	Housing	Composite Good	Housing	Composite Good
.30	---	---	---	---	---	---
.32	---	---	---	---	---	---
.35	25.80	8.11	25.80	---	5.51	2.60
.37	25.80	16.44	25.80	---	11.40	5.04
.40	25.80	25.80	25.80	---	18.36	7.44
.42	25.80	25.80	25.80	---	18.60	7.20
.45	25.80	25.80	25.80	---	18.95	6.85
TOTALS	129.00	101.95				

SOURCE: Compiled by the author.

TABLE IV.7

UTILIZATION OF RATE ALLOWANCES

ALTERNATIVE UTILITY FUNCTIONS

SINGLE PERSON HOUSEHOLDS, $\beta = .35$

| y_o | RATE Allowance | | Increase In Consumption | | | |
	Cobb-Douglas	C.E.S.	Cobb-Douglas Housing	Cobb-Douglas Composite Good	C.E.S. Housing	C.E.S. Composite Good
300	28.00	16.18	28.00	---	11.12	5.06
350	19.50	12.27	19.50	---	8.38	3.89
400	12.00	8.11	12.00	---	5.51	2.60
450	5.50	3.94	5.50	---	2.67	1.27
500	---	---	---	---	---	---
550	---	---	---	---	---	---
600	---	---	---	---	---	---
TOTALS	65.00	40.50				

SOURCE: Compiled by the author

Both the SAFER and RATE programs display elements of a cash
transfer only if the price elasticity of demand has an absolute value
less than 1. Apparently the designers of both programs felt that
the appropriate elasticity for low-income seniors would be close to
zero; then housing consumption would not increase as all of the
allowance would be devoted to an increase in consumption of the
composite good. To the extent that the current housing expenditures
of seniors are based upon permanent income, with the households in
equilibrium as far as the allocation of their income to housing
consumption, the appropriate elasticity may correspond to the
empirically estimated unitary level. Then the results of the previous
chapter would be applicable, and housing consumption would increase
by the full allowance. The C.E.S. function specified here would result
in an increase in consumption of both goods. The rent-to-income
ratios would decline as described in Table IV.8. For households with
equal incomes, the reduction in β increases with the pre-program
rent-to-income ratio, until the maximum claimable rent constrains the
allowance level. Households with different incomes, but the same
pre-program rent-to-income ratio, experience a constant post-program
level of β, under the SAFER program, until the maximum claimable rent
is applicable. The reduction in β under the RATE program declines
as household income increases, as a result of RATE's variable housing
allowance formula.

It is the impact of the C.E.S. utility function in the benefit
patterns of participating households in the SAFER and RATE programs
which is of particular interest here, however. Apart for some minor

TABLE IV.8

THE EFFECT OF THE C.E.S. FUNCTION ON β

SINGLE PERSON HOUSEHOLDS

Households, y_0 = $400				Households, β = .35		
β_0	Post-Program β SAFER	RATE	y_0		Post-Program β SAFER	RATE
.30	.300	.300	300		.326	.333
.32	.310	.320	350		.326	.339
.35	.326	.344	400		.326	.344
.37	.337	.357	450		.326	.345
.40	.357	.381	500		.326	.350
.42	.378	.401	550		.333	.350
.45	.410	.433	600		.340	.350

SOURCE: Compiled by the author

changes, the conclusions of the previous chapter remain unaltered.
Tables IV.9 compares the benefit incidence patterns associated with
both utility functions. The C.E.S. utility function still results
in a benefit incidence pattern for the SAFER program which is
progessive, for households with equal income levels, over increasing
rent-to-income ratios. The range over which benefits are progessive
is extended somewhat as the constraint represented by the maximum
claimable rent is not effective until a somewhat higher level for β.
This results from the lower levels of housing consumption induced by a
price-inelastic demand for housing. Also, the benefits received by
households with lower levels of β are somewhat lower, and, conversely,
the benefits are somewhat greater for households with higher levels
of β. The relative impact of the allowance on housing consumption
increases with β, as the absolute value of the price elasticity
increases, reflecting a greater preference for housing. Similar
conclusions apply to the RATE program. The benefit incidence pattern
for the SAFER program remains largely proportional to household
income, for households with the same rent-to-income ratio. Again
the range over which this result applies is somewhat extended because
of the reduced amount of induced housing consumption associated with
the C.E.S. function; and again the benefits enjoyed by the lowest
income groups would be somewhat less than indicated in the previous
chapter, but remain essentially the same for the higher income groups.
The benefit incidence pattern for the RATE program remains regressive
throughout, although the benefits are generally reduced. The maximum
claimable rent does not constrain any of the eligible households
described in Table IV.9, with rent-to-income ratios of .35.

TABLE IV.9

BENEFIT INCIDENCE FOR SAFER AND RATE PROGRAM PARTICIPANTS

ALTERNATIVE UTILITY FUNCTIONS

SINGLE PERSON HOUSEHOLDS

Net Benefits/Income
Households, y_o = $400

β	SAFER Program		RATE Program	
	Cobb-Douglas	C.E.S.	Cobb-Douglas	C.E.S.
.30	0.000	0.000	0.000	0.000
.32	0.057	0.030	0.000	0.000
.35	0.133	0.076	0.061	0.020
.37	0.142	0.107	0.062	0.040
.40	0.144	0.150	0.062	0.063
.42	0.145	0.151	0.062	0.063
.45	0.146	0.152	0.062	0.063
OVERALL	0.109	0.095	0.044	0.036

Net Benefits/Income
Households, β = .35

y_o	SAFER Program		RATE Program	
	Cobb-Douglas	C.E.S.	Cobb-Douglas	C.E.S.
300	0.133	0.075	0.086	0.053
350	0.133	0.075	0.053	0.035
400	0.133	0.075	0.029	0.020
450	0.106	0.075	0.012	0.009
500	0.077	0.075	0.000	0.000
550	0.052	0.053	0.000	0.000
600	0.030	0.031	0.000	0.000
OVERALL	0.082	0.063	0.020	0.013

SOURCE: Compiled by the author

Table IV.10 describes the pattern of benefit shares associated
with both utility functions for the SAFER and RATE programs. The
C.E.S. function results, for the SAFER program, in smaller benefit
shares for households with lower initial rent-to-income ratios, but
larger shares for households with higher rent-to-income ratios, for
a given level of income. Benefit shares, however, remain progressive,
rising as the initial rent-to-income ratio rises. An element of pro-
gressivity is also introduced for RATE program households, rather than
the almost porportional distribution of benefit shares which resulted
from the Cobb-Douglas utility function. This is perhaps most significant
difference resulting from the C.E.S. specification. The distribution
of benefit shares for SAFER program households with the same initial
rent-to-income ratio, remains progressive with respect to household
income, over a slightly larger range, although the benefit shares for
the lowest income groups decline, while those for the higher income
groups increase. Benefit shares for the RATE program remain unambigously
regressive, although the shares decline somewhat for the lowest income
group, and increase somewhat for higher income groups of eligible
households.

Some final comments should be made regarding the benefit patterns
associated with the Non-Profit program as a result of the C.E.S.
utility function. These are described in Tables E.5 and E.6 in
Appendix E. The general results of Chapter III are not changed. The
Non-Profit program results in negative benefits for households with
the lowest rent-to-income ratios, for households with equal incomes,
and for the lowest income groups, for households with the same initial
rent-to-income ratios. In fact this effect is more pronounced than that
determined using the Cobb-Douglas specification, because the housing

TABLE IV.10

BENEFIT SHARES FOR SAFER AND RATE PROGRAM PARTICIPANTS

ALTERNATIVE UTILITY FUNCTIONS

SINGLE PERSON HOUSEHOLDS

Benefit Shares
Households, y_o = $400

β	SAFER Program		RATE Program	
	Cobb-Douglas	C.E.S.	Cobb-Douglas	C.E.S.
	%	%	%	%
.30	0.0	0.0	0.0	0.0
.32	7.4	4.5	0.0	0.0
.35	17.4	11.3	19.8	8.0
.37	18.5	16.1	19.9	16.2
.40	18.7	22.6	20.0	25.2
.42	18.9	22.7	20.1	25.3
.45	19.1	22.8	20.2	25.3
OVERALL	100.0	100.0	100.0	100.0

Benefit Shares
Households, β = .35

y_o	SAFER Program		RATE Program	
	Cobb-Douglas	C.E.S.	Cobb-Douglas	C.E.S.
300	14.6	11.4	42.0	39.6
350	17.1	13.3	30.2	30.3
400	19.5	15.2	19.0	20.2
450	17.5	17.1	8.8	9.9
500	14.1	19.0	0.0	0.0
550	10.5	14.8	0.0	0.0
600	6.7	9.3	0.0	0.0
OVERALL	100.0	100.0	100.0	100.0

SOURCE: Compiled by the author

consumption associated with the C.E.S. utility function would occur
at lower levels. The Non-Profit program would therefore be less
attractive, as it provides a fixed, high level of housing services.
Net benefits remain progressive with respect to the initial rent-to-
income ratio (income held constant) and progressive with respect to
income (rent-to-income ratio held constant). Benefit shares are even
more strongly progressive against both rent-to-income ratios and
income. Net benefits for the Non-Profit program begin to exceed those
for the SAFER program at an income above $550 (for β = .35). This
conclusion is therefore somewhat insensitive to the utility function
specified. It would appear that households with incomes above $500
to $550 would prefer the Non-Profit program to the SAFER program, regard-
less of which of two utility functions described here is chosen.

Income Elasticities of Demand

It is interesting to examine the earmarking ratios, and income
elasticities of demand associated with the C.E.S. utility function.
These are described for the SAFER program in Table IV.11. It is
particularly interesting to compare these results with the Kansas
City experiment results described in Chapter II. The earmarking
ratios are identical to those determined in Kansas City, at .692 for
SAFER households not constrained by the maximum claimable rent. The
income elasticity measured by Solomon and Fenton, which compares the
change in income due to the housing allowance with the increase in
housing consumption is also almost identical, standing at 1.98 for
SAFER households not constrained by the maximum claimable rent, compared
with 1.92 for the Kansas City program. The underlying income elasticity
is unitary, except where households confront the maximum rent constraint.

TABLE IV.11

SAFER PROGRAM - INCOME ELASTICITIES FOR SINGLE PERSON HOUSEHOLDS, β = .35

C.E.S. UTILITY FUNCTION

Monthly Income	Earmarking Ratio	Income Elasticities Solomon & Fenton Definition	Income Elasticities With Respect To Changes In y_o
300	.692	1.98	1.00
350	.692	1.98	1.00
400	.692	1.98	1.00
450	.692	1.98	1.00
500	.692	1.98	1.00
550	.687	1.96	0.46
600	.681	1.95	0.53

SOURCE: Compiled by the author

These results suggest that the particular price elasticities associated
with the specified C.E.S. utility function may have some empirical
significance. It will be particularly interesting to evaluate the
results of the SAFER program after some years of operation permit the
longer term consumption effects implicit in the analysis described
here.

Summary

The general conclusion of the previous chapter with respect to
the benefit patterns associated with the SAFER and RATE program remain
appropriate despite a change in specification of the utility function,
with implied price elasticities of demand for housing, for eligible
households, with absolute values less than one. The C.E.S. utility
function specified in this chapter does have important implications
for the housing consumption patterns of participating households.
Specifically, housing consumption does not increase as greatly as that
estimated in the previous chapter. Moreover, the housing allowance
program results in an increase in the consumption of the composite good.
As a result, the net rent-to-income ratio of program participants
declines. The implications for subsidy costs are not clear - benefits
tend to rise (with the restated utility function) for some groups,
in particular for higher income households and households with higher
rent-to-income ratios, and fall for the remaining groups. The housing
consumption patterns predicted for the SAFER program are quite comparable
to the actual results achieved by the Kansas City experiment. Some
credence can therefore be attached to the price elasticities associated
with the C.E.S. utility function described in this chapter, which vary
from -.625 to -.725.

CHAPTER V

A HOUSING ALLOWANCE PROGRAM

FOR MANITOBA SENIOR CITIZENS:

CONCLUSIONS AND POLICY RECOMMENDATIONS

CHAPTER V

A Housing Allowance Program For Manitoba Senior Citizens:
Conclusions and Policy Recommendations

Introduction

This final chapter applies the procedures described in the last

two chapters to analyse the benefit patterns, and other features,

associated with a Manitoba housing allowance program similar to either

the SAFER or RATE programs. It then offers some conclusions based

upon this and earlier discussion in this paper. Finally it offers

some recommendations pertinent to the development of a Manitoba housing

allowance program, as well as some suggestions as to the appropriate

direction for further research in this area.

A Housing Allowance Program for Manitoba Senior Citizens

The implementation of a program similar to the SAFER program in

British Columbia is presently being considered by the Manitoba government.

The conceptual framework developed in the previous two chapters can

be applied to available Manitoba data to examine the likely benefit

patterns such a housing allowance program would have for Manitoba senior

citizen households.

Although information concerning the distribution of the incomes

and rent-to-income ratios of senior citizen households is not directly

available, reasonable estimates can be derived from available information

from the Provincial Department of Finance. This information is provided

in Table V.1 which describes the income distribution of Manitoba senior

citizen households in 1977 (households with heads who are 65 years and

older), and Table V.2, which describes the rent payments of senior citizen

households gathered for claimants of the Manitoba Property Tax Credit.

TABLE V.1

AVERAGE INCOMES – MANITOBA SENIOR CITIZEN HOUSEHOLDS, 1977

Income Group	Homeowners Average Income		# of Households	Renters Average Income		# of Households
	Annual	Monthly		Annual	Monthly	
Single Individuals						
Under 5000	2809	234	10027	2499	208	17698
5000 – 7499	6096	508	1883	6185	515	3464
7500 – 9999	8315	693	1310	8441	703	1234
10000 –14999	11834	986	1014	12363	1030	1287
15000 –24999	18679	1557	597	19074	1590	400
25000 & Over	39989	3332	273	46486	3874	130
Total	5601	467	15104	4364	364	24213
Married Individuals						
Under 5000	3086	257	8773	2917	243	3758
5000 – 7499	6154	513	4213	6219	518	1598
7500 – 9999	8535	711	2848	8588	716	608
10000 –14999	12130	1011	3430	11876	990	1636
15000 –24999	19088	1591	2637	18292	1524	164
25000 & Over	46667	3889	792	46012	3834	200
Total	9087	757	22693	7252	604	7964

SOURCE: Special Tabulation, Manitoba Department of Finance

TABLE V.2

RENT & PROPERTY TAX PAYMENTS – MANITOBA SENIOR CITIZEN HOUSEHOLDS, 1977

Income Group	Homeowners Average Property Tax		# of Households	Renters Average Rent Payment			# of Households
	Annual	Monthly		Annual	Standard Deviation	Monthly	
Single Individuals							
Under 5000	470	39	10029	1335	766	111	17758
5000 – 7499	590	49	1883	1769	698	147	3464
7500 – 9999	635	53	1310	2045	814	170	1234
10000 – 14999	741	62	1011	1792	828	149	1287
15000 – 24999	845	70	442	2420	1111	202	400
25000 & Over	1285	107	93	4242	2168	354	130
Total	535	45	14768	1490	848	124	24273
Married Individuals							
Under 5000	524	44	8773	1602	829	134	3758
5000 – 7499	690	58	4213	1986	1018	166	1598
7500 – 9999	724	60	2848	2451	1524	204	608
10000 – 14999	769	64	3430	2668	1539	222	1636
15000 – 24999	865	72	2357	3442	1459	287	164
25000 & Over	1105	92	266	4642	2162	287	200
Total	664	55	21887	2077	1323	173	7964

SOURCE: Special Tabulation, Manitoba Department of Finance

The information on low-income senior citizen renters is especially important. In 1977 some 17,698 senior citizen households with annual incomes less than $5000 were renters. The average income was only $2499 ($208 monthly); the average rent for this group was $766 ($111 monthly). This would suggest an average rent-to-income ratio of over 50%. This result is disturbing enough; however, a large portion of this group would already be residing in public housing units, paying about 20% of their income in rent (according to the existing Public Housing Rent Scale). The rent payments, and therefore the rent-to-income ratios, of non-public housing tenants would tend to be at a level somewhat greater than the average for the entire low-income group. An estimate for the number of households eligible for an housing allowance program must take into account the number of currently subsidized households, this total will influence the total number of eligible households; it will also result in a distribution of rents at a level higher than the average level indicated in Table V.2.

An adjustment also has to be made to the information in Table V.1. The income levels described in this table reflect only the income of the individual claiming the Property Tax Credit. Married claimants will likely have spouses receiving at least the Basic Old Age Security Payment. This income must be included in the calculation of family income, which is generally used as the basis for the calculation of a housing allowance. This adjustment will be done on the assumption that the spouse's income will equal at least the level of the claimant's income, where the claimants income is less than $5000 ($243). This would likely under estimate the family income for higher income

individuals, but should not do so for the lowest income group. This latter group is likely dependent almost exclusively on Old Age Security, and incomes will likely not vary significantly from the basic amount.

It is assumed that the maximum claimable rents allowed by the SAFER program ($205 for one person households and $225 for two person households) are applicable. Then three groups of the senior citizen households described in Table V.1 are of interest. These are single individuals with incomes of under $5000, single individuals with incomes of between $5000 and $7500, and married individuals with incomes under $5000. This latter group would have an adjusted (family) income of $5834 (or $486 monthly), if it is assumed that the spouses income is equal to $243. These three groups would therefore have average incomes falling below the maximum allowed for SAFER participants, $8200 for single person households and $9000 for two person households.

An estimate for the number of households in public housing units in 1977 can be derived in the following way. At the end of March 1978, the Manitoba Housing and Renewal Corporation reported that it had developed 6786 senior citizen housing units.[1] However, some 373 units had been approved during the 1977-78 fiscal year; these would not have been available for occupancy during 1977. Therefore, approximately 6413 units were available in 1977. A further 1126 units in Non-Profit projects were occupied by senior households receiving Rent Supplement assistance. These households would have been paying rents based on their incomes, according to the Public Housing Rent Scale. Therefore a total of approximately 7500 senior citizen households would have been paying rents at 25% or less of their income, as this is the

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1 Annual Report 1977-78, Manitoba Housing and Renewal Corporation. Winnipeg, 1978, page 9.

maximum charged according to the Rent Scale. These households can be broken down by household size and income as follows. About 80% of all senior citizen households in public housing projects are one person households.[2] Further, public housing tenants are almost exclusively members of the group with incomes less than $5000, for single person households, and $5000 - $7500 for two person households.[3] It will be assumed here that 80% (or 6000) of the estimated 7500 public housing units in 1977 were occupied by one person households with incomes less than $5000. The remainder (1500 units) are assumed to have been occupied by two person households with family incomes of between $5000 and $7500 (with an average adjusted family income of $5834).

The distribution of rent payments for the three eligible income groups can be estimated in the following way. The distribution of the current rent payments of SAFER participants suggests that rents are distributed approximately normally. If it is assumed that the rents of Manitoba's senior citizens are distributed normally, the probability of rents at certain levels can be estimated, if the mean rent and standard deviation are known. It is assumed that the rent distribution of the non-subsidized single seniors with incomes less than $5000, is similar to that for the largely unsubsidized group with incomes of between $5000 and $7500. Similarly it is assumed that the rent distribution of the non-subsidized two person households with (unadjusted) incomes of under $5000 is similar to that for two person households with incomes

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2　A recent internal survey by CMHC suggested, for example, that 79.1% of the senior households in Non-Profit projects were single individuals.

3　A recent survey of Manitoba public housing tenants suggested that 82.1% of the tenants had incomes of less than $5000; 14.8% had incomes of between $5000-$7500. This distribution would conform with the household size distribution.

of between \$5000 and \$7500.[4] Then the number of senior citizen house-
holds eligible for housing allowances in 1977 can be estimated as in
Table V.3. A total of 13346 households would have eligible for SAFER-
like assistance in 1977; 10,447 of the eligible households would
have an average income of \$2499. Some 7,328 households would have
been paying 65% or more of their income for rent. It will be assumed
that all of these households had rent-to-income ratios of .65, as the
actual rent distribution is probably somewhat skewed to the right,
and the assumed normal distribution would likely result in an estimate
for the number of individuals with high rents which is biased upwards.

The estimated total eligible households compares with about 23000
in British Columbia in 1978. The analysis here will assume 100%
participation in a housing allowance scheme; in British Columbia about
70% of the eligible households are participating in the SAFER program.
Some 10% of the estimated eligible households in Manitoba would be two
person households. Two person households accounted for about 13% of the
SAFER recipients in September 1978.

It is interesting to compare the results described in Table V.3
with the results of the survey of Housing Units (SHU) conducted in
Winnipeg, by CMHC, in 1974. Some 81.2% of all rental households, with
incomes less than \$2500, had rent-to-income ratios of .46 and over;
29.2% of all senior households renters had rent-to-income ratios of .46
and over. Table V.3 suggests that 11,105 senior household renters, or
about 35% of the total renters had an expenditure ratio of .46 or over;

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4 It is interesting to note that if the subsidized seniors were paying
   rents of about 20% of their income, or about \$500 annually, the
   average rent for non-subsidized single households with incomes less
   than \$5000 would have been \$698, exactly the average rent for the
   \$5000 to \$7500 group.

TABLE V.3

ESTIMATED NUMBER OF MANITOBA SENIOR CITIZEN HOUSEHOLDS
ELIGIBLE FOR HOUSING ALLOWANCE BENEFITS, 1977

Single Renters

Average Income	# of Households (unsubsidized)	β= .35	.45	.55	.65	Total
2499	11258	709	1058	1362	7318	10447
6185	3464	1022	440	90	10	1562
Subtotals	14722	1731	1498	1452	7328	12009

Married Renters

5834[1]	2258	510	420	253	154	1337
Totals	16890	2241	1918	1705	7482	13346

[1] Adjusted Income

SOURCE: Compiled by the author.

senior households with family incomes under $5000 would have been

almost exclusively single person households; 9738, or about 55%

of these households would have had rent-to-income ratios of .46 or

over. This latter percentage would have been much higher (and more

in line with the 1974 total for all households), if not for the

6000 households occupying public housing in 1977. This total re-

presents about 34% of the single person households in this income

group. In any event the estimated distribution of the rents paid

by eligible households over the average income for each group seems

reasonable, and will be used in the following analysis.

Appendix G contains tables describing the results of the in-

troduction of various forms of the SAFER and RATE programs for

Manitoba senior citizens. Specifically examined are the SAFER and

RATE programs as they are presently structures, as well as the

SAFER program assumes the maximum claimable rents used for the RATE

program (this will correspond with the SAFER program as it was in-

troduced in 1977), and the RATE program assuming the current SAFER

maximum claimable rents. Both specifications for the utility function

of program participatns are examined.

Before examining the benefit patterns which emerge from the

various housing allowance program scenarios some interesting results

should be noted. As suggested earlier, it would appear that the

underlying assumption to the introduction of both the SAFER and RATE

programs was that the price elasticity of demand for housing for low-

income senior citizens would be close to zero. A housing allowance

program would therefore not effect housing consumption significantly;

senior citizens would be able to reduce their net expenditure in
housing. Table V.4 describes the costs associated with the SAFER
or RATE programs, if they were introduced in Manitoba, if the
housing consumption of program participants did not increase. The
SAFER program would have resulted in total monthly allowance pay-
ments of $561,111, or about $6.7 million in 1977; the RATE program,
because of its more stringent eligibility criteria would have resulted
in total monthly allowance payments of $479,354, or about $5.8 million
in 1977. These results, especially that for the SAFER program, suggest
Manitoba program costs quite similar to actual experience in British
Columbia in 1977 (about $7.9 million). British Columbia's experience
however suggested a penetration ratio of only some 70% of the eligible
households, although it is likely that eligible non-participating
households were entitled only to very small allowances.

It is somewhat more interesting to consider cases in which housing
consumption is affected by the availability of a housing allowance.
This assumption seems more plausible in the light of the European
and American experience to date, as well as the available estimates
for the price elasticity of demand for housing. Table V.5 compares
the cost estimates associated with the various housing allowance
program formats. If the housing consumption of senior citizen house-
holds is affected by the allowance program, the program costs described
in Table V.4 will seriously underestimate the funds required for the
program. In fact, if the price elasticity of demand is equal to one,
a housing allowance program would have resulted in the payment of $10.3
million to $14.2 million to senior citizen households in 1977. The

TABLE V.4

COST OF SAFER OR RATE PROGRAMS IN MANITOBA, 1977

ASSUMING NO INCREASE IN HOUSING CONSUMPTION

Single Person Households

Monthly Income	Total Households	β_0 β_1 (SAFER)	$h_0 = h_1$	A		Total Allowances (Monthly)	
				SAFER	RATE	SAFER	RATE
208	709	.35 .313	73	8	8	5672	5672
208	1058	.45 .337	94	24	24	25392	25392
208	1362	.55 .361	114	39	39	53118	53118
208	7318	.65 .389	135	54	54	395172	395172
Subtotal	10447					479354	479354
515	1022	.35 .313	180	19	--	19418	--
515	440	.45 .377	232	38	--	16720	--
515	90	.55 .476	283	38	--	3420	--
515	10	.65 .577	335	38	--	380	--
Subtotal	1562				--	39938	--
Total	12009					519292	479354

Two Person Households

Monthly Income	Total Households	β_0 β_1 (SAFER)	$h_0 = h_1$	SAFER	RATE	SAFER	RATE
486	510	.35 .312	205	22	--	11220	--
486	420	.45 .387	264	37	--	15540	--
486	253	.55 .486	322	37	--	9361	--
486	154	.65 .587	381	37	--	5698	--
Subtotal	1337				--	41819	--
Total	13346					561111	479354

SOURCE: Compiled by the author.

somewhat lower price elasticities associated with the C.E.S. utility

function would have resulted in allowance payments of $9.7 million

to $13.4 million, depending upon the allowance program adopted. The

initial form of the SAFER program (SAFER program rules, RATE maximum

claimable rents) would have resulted in allowance payments of $10.5

million or $11.1 million depending upon which specification for an

individual's utility function is more appropriate.[5]

Table V.6 describes in somewhat more detail the consumption

effects associated with a Manitoba housing allowance program. If the

Cobb-Douglas specification is appropriate, the full amount of the

housing allowance paid result in increased housing consumption. However,

if the price elasticity has an absolute value less than one, some

portion of the allowance paid will result in the increased consumption

of other goods. The proportion of the allowance used for housing

consumption results in the earmarking ratios described in Table V.7.

The ratios are similar to those observed in Kansas City for households

with initial rent-to-income ratios of .35 or .45, but somewhat higher

for households with higher levels of β_o (and higher price elasticities

of demand for housing). The effect of the various housing allowance

program formats on the net rent-to-income ratios is described in Table

V.8, for the C.E.S. specification for the utility function. (Rent-to-

income ratios will not change if the Cobb-Douglas specification is used).

Single person households with a monthly income of $208 will experience

the most significant decreases in β, especially those households with

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5   Not considered here is the length of time over which housing
    consumption is adjusted as a result of the introduction of a
    housing allowance program. The Kansas City results suggest
    that this adjustment can occur relatively quickly - within
    a two year period. De·Leeuw has estimated that this adjustment
    may take 8 to 10 years.

TABLE V.5

COST[1] OF A MANITOBA HOUSING ALLOWANCE PROGRAM, 1977

UNDER VARIOUS FORMS OF THE SAFER AND RATE PROGRAMS

	Cobb-Douglas Utility Function $ millions	C.E.S. Utility Function $ millions
SAFER Program Rules	14.2	13.4
RATE Program Rules	10.3	9.7
SAFER Program Rules, Rate Maximum Claimable Rents	11.1	10.5
RATE Program Rules, SAFER Maximum Claimable Rents	12.9	12.2

1 Includes only allowance payments made to program participants.

SOURCE: Compiled by the author.

TABLE V.6

CONSUMPTION EFFECTS, VARIONS HOUSING ALLOWANCE PROGRAM, MANITOBA 1977

	Cobb-Douglas Utility Function Increase in Consumption		C.E.S. Utility Function Increase in Consumption	
	Housing $ millions	Composite Good $ millions	Housing $ millions	Composite Good $ millions
SAFER Program Rules	14.2	--	11.1	2.3
RATE Program Rules	10.3	--	8.2	1.5
SAFER Program Rules, RATE Maximum Claimable Rents	11.1	--	8.7	1.8
RATE Program Rents SAFER Maximum Claimable Rents	12.9	--	10.2	2.0

SOURCE: Compiled by the author.

TABLE V.7

EARMARKING RATIOS – ALTERNATIVE HOUSING ALLOWANCE

PROGRAM FORMATS, MANITOBA 1977

Monthly Income	β_o	SAFER Rules	RATE Rules	SAFER Rules, RATE / MCR	RATE Rules, SAFER / MCR
			CES Consumption Function		
Single Person Households					
208	.35	.69	.69	.69	.69
208	.45	.76	.76	.76	.76
208	.55	.82	.82	.82	.82
208	.65	.85	.86	.86	.85
515	.35	.68	--	.73	--
515	.45	.74	--	.73	.75
515	.55	.79	--	.80	.83
515	.65	.82	--	.80	.83
Two Person Households					
486	.35	.68	--	.68	--
486	.45	.75	.73	.73	.74
486	.55	.80	.78	.78	.81
486	.65	.83	.80	.83	.85

SOURCE: Compiled by the author.

TABLE V.8

EFFECT OF A HOUSING ALLOWANCE PROGRAM ON β, MANITOBA 1977

Monthly Income	β_o	CES Consumption Function			
		SAFER Rules β_1	RATE Rules β_1	SAFER Rules, RATE MCR β_1	RATE Rules, SAFER MCR β_1
Single Person Households					
208	.35	.327	.327	.327	.327
208	.45	.389	.389	.389	.389
208	.55	.462	.476	.476	.462
208	.65	.572	.591	.591	.572
515	.35	.362	.35	.342	.35
515	.45	.431	.45	.443	.445
515	.55	.534	.55	.544	.547
515	.65	.637	.65	.645	.647
Two Person Households					
486	.35	.325	.350	.325	.350
486	.45	.420	.442	.428	.436
486	.55	.525	.543	.531	.539
486	.65	.630	.644	.636	.642

SOURCE: Compiled by the author.

the highest initial rent-to-income ratios. However, the drop in the level of β is much less than would occur if housing consumption is not effected by the introduction of a housing allowance program. For example, single person households with a monthly income of $208, and β_o equal to .65, would have a post-program (SAFER rules) level for β of .389, if their consumption of housing did not increase; however, if the C.E.S. utility function is appropriate, the post-program level of β would be .572. If the price elasticity is unitary, no reduction in β would occur.

Although a housing allowance program may result in an increase in housing consumption, program participants may still occupy substandard accomodation if the program does not explicitly control for housing quality. For example, the SAFER program would result in the increased consumption of housing by single individuals with monthly incomes of $208, and initial rent-to-income ratios of .35. However, the gross expenditure in housing would rise from $73 to $104, under the Cobb-Douglas assumption, and to $84, under the C.E.S. assumption. These households may continue to occupy inadequate accomodation, and other housing programs would be necessary to address this problem, or the housing allowance program would have to be modified from those presently in effect in British Columbia or New Brunswick.

It is also interesting to compare the efficiency of the various housing allowance program formats. This is examined in Table V.9 in terms of the applicable efficiency ratios. These ratios compare the total net benefits generated by the program with the total allowance payments made. The measured efficiency of a program is sensitive to

TABLE V.9

EFFICIENCY OF VARIOUS FORMS OF HOUSING ALLOWANCE PROGRAMS

	Cobb-Douglas Utility Function Efficiency Ratio[1] All Households	C.E.S. Utility Function Efficiency Ratio[1] All Households
SAFER Program Rules	0.89	0.934
RATE Program Rules	0.895	0.937
SAFER Program Rules, RATE Maximum		
Claimable Rents	0.899	0.940
RATE Program Rules, SAFER Maximum		
Claimable Rents	0.886	0.931

[1] The efficiency ratio is defined here as the total net benefits divided by the total allowance payments associated with a particular housing allowance program.

SOURCE: Compiled by the author.

the specified form of the utility function of program participants.
The Cobb-Douglas utility function would result in program efficiency
levels somewhat less than 90%; cash transfers with an aggregate level
of about 90% of the housing allowance level could be distributed so
as to make program participants as well off as they would be under
the housing allowance scheme. The C.E.S. utility function suggests
a level of program efficiency somewhat greater than 90%. Cash transfers
would still remain more efficient, however.

It is the pattern of benefits resulting from a housing allowance
program which is of particular interest here, however. These are
described for the four program options in Tables V.10 and V.11.

Table V.10 describes the incidence of net housing allowance
benefits over different income levels. Benefits are distributed in
the manner described in the previous two chapters. Net benefits are
progressive, for the lowest income groups, with respect to the initial
rent-to-income ratio. The SAFER program results in a more progressive
distribution of benefits than does the RATE program, because of the
former program's higher maximum claimable rents. This pattern is
unaltered by the alternative (C.E.S.) utility function specification.
This progressivity in benefit incidence is not apparent for the higher-
income households, either single or two-person, where benefits are
constrained by the maximum claimable rent. Two-person households
would be relatively better off, than single-person households with
similar incomes, because of the higher maximum claimable rents they
are allowed. The RATE program excludes the higher-income single-
person households.

TABLE V.10

NET BENEFITS/INCOME

MANITOBA HOUSING ALLOWANCE PROGRAM, 1977

Monthly Income	β_o	Cobb-Douglas Consumption Function				C.E.S. Consumption Function			
		SAFER Rules	RATE Rules	SAFER Rules, RATE M.C.R.	RATE Rules, SAFER M.C.R.	SAFER Rules	RATE Rules	SAFER Rules, RATE M.C.R.	RATE Rules, SAFER M.C.R.
Single Person Households									
208	.35	0.135	0.135	0.135	0.135	0.072	0.072	0.072	0.072
208	.45	0.365	0.337	0.356	0.365	0.240	0.240	0.240	0.240
208	.55	0.438	0.356	0.356	0.438	0.433	0.370	0.370	0.433
208	.65	0.462	0.370	0.370	0.462	0.481	0.380	0.380	0.481
515	.35	0.070	0.000	0.029	0.000	0.072	0.000	0.029	0.000
515	.45	0.070	0.000	0.029	0.023	0.072	0.000	0.029	0.023
515	.85	0.072	0.000	0.029	0.023	0.072	0.000	0.029	0.023
515	.65	0.072	0.000	0.029	0.023	0.074	0.000	0.029	0.023
Two Person Households									
486	.35	0.111	0.000	0.078	0.000	0.076	0.000	0.076	0.000
486	.45	0.113	0.031	0.080	0.056	0.117	0.031	0.082	0.053
486	.55	0.117	0.031	0.080	0.056	0.119	0.031	0.082	0.053
486	.65	0.119	0.031	0.082	0.056	0.119	0.031	0.082	0.056

SOURCE: Compiled by the author.

With the exception of two-person households, benefits are regressive with respect to household income, over fixed rent-to-income ratios. This progressivity is most apparent for households with high initial rent-to-income ratios. Very low income households with low initial rent-to-income ratios receive relatively low net benefits - this may be a problem for any of the program options as these households are the group most likely to be occupying substandard accomodation. For example, net benefits amount to 0.072 of households income for single person households with monthly incomes of $208 and an initial rent-to-income ratio of .35 (CES specification); single-person households with a monthly income of $515 and a rent-to-income ratio of .35 enjoy a similar benefit rate.

Table V.11 describes the pattern of benefit shares associated with the four program options, by household class, Again the distribution of benefit shares is similar to that described in the two previous chapters. All four program options result in a majority of the program benefits being directed to the lowest income groups, and in particular low income households with initial rent-to-income ratios of 0.65. This latter group accounts for 54.8% of the eligible households, but receive from 66.5% to 73.5% of the total benefits of the program, under the Cobb-Douglas assumption, and from 70.2% to 77.3% of the total benefits under the C.E.S. assumption. However, the anomoly discussed above remains present. Low-income households with relatively low initial rent-to-income ratios receive small benefit shares. For example, single person households with incomes of $208, and initial rent-to-income ratios of 0.35 account for 5.3% of all eligible households. They would receive only 1.9% to 2.6% of the total

TABLE V.11

BENEFIT SHARES BY HOUSEHOLD CLASS

MANITOBA HOUSING ALLOWANCE PROGRAM, 1977

Monthly Income	β_0	% of all Eligible Households	Cobb-Douglas Consumption Function				C.E.S. Consumption Function			
			SAFER Rules	RATE Rules	SAFER Rules, RATE M.C.R.	RATE Rules, SAFER M.C.R.	SAFER Rules	RATE Rules	SAFER Rules, RATE M.C.R.	RATE Rules, SAFER M.C.R.
			% of Total Benefits by Household Class							
Single Person Households										
208	.35	5.3	1.9	2.6	2.4	2.1	1.0	1.4	1.3	1.1
208	.45	7.9	7.6	9.6	8.9	8.4	5.1	7.0	6.4	5.6
208	.55	10.2	11.7	13.1	12.1	13.0	11.8	13.8	12.8	13.0
208	.65	54.8	66.5	73.1	67.6	73.5	70.2	76.2	70.3	77.3
515	.35	7.7	3.5	--	1.8	--	3.6	--	1.9	--
515	.45	3.3	1.5	--	0.8	0.6	1.6	--	0.8	0.6
515	.55	0.7	0.3	--	0.2	0.1	0.3	--	0.2	0.1
515	.65	0.1	--	--	--	--	--	--	--	--
Two Person Households										
486	.35	3.8	2.6	--	2.3	--	1.8	--	2.3	--
486	.45	3.1	2.2	0.8	2.0	1.2	2.3	0.8	2.1	1.2
486	.55	1.9	1.4	0.5	1.2	0.7	1.4	0.5	1.2	0.7
486	.65	1.2	0.8	0.3	0.7	0.4	0.9	0.3	0.7	0.4
Totals		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SOURCE: Compiled by the author.

benefits (Cobb-Douglas case) or 1.0% to 1.4% of the total benefits (C.E.S. case). The higher income single-person households, and the two-person households similarly receive relatively small benefit shares; however, the problem of housing inadequacy is not as likely to be present for these groups, as it is for the lowest income single-person households presently paying fairly low rents. In fact, the RATE program would exclude the higher income single-person households entirely, and pay very low allowances to the two-person households.

One final observation can be made with respect to the four program options described for a Manitoba housing allowance program. Table V.12 describes the predicted income elasticities associated with each program option. The definition implicitly used by Solomon and Fenton is used here; that is, the change in income represented by the housing allowance. As noted earlier, this is really a restatement of the earmarking ratio. The income elasticity measure stated in this way remains consistent with a underlying unitary income elasticity (in its more usual form). Again, it would appear that the C.E.S. utility function gives rise to income elasticities more in keeping with the level described by Solomon and Fenton for Kansas City (around 2.0). This is especially true for program participants with initial rent-to-income ratios of 0.35. It is possible therefore that the lower (in absolute value) price elasticities associated with the C.E.S. utility better reflect the demand function for housing allowance program participants, at least as far as short term adjustments in consumption in responce to a housing allowance program is concerned.

TABLE V.12

INCOME ELASTICITY OF HOUSING PROGRAM PARTICIPANTS MANITOBA, 1977

Income Elasticities
(Solomon & Fenton Definition)

Monthly Income	Cobb-Douglas				C.E.S.			
	SAFER Rules	RATE Rules	SAFER Rules, RATE M.C.R.	RATE Rules, SAFER M.C.R.	SAFER Rules	RATE Rules	SAFER Rules, RATE M.C.R.	RATE Rules, SAFER M.C.R.
Single Person Households								
208	2.85	2.85	2.85	2.85	1.96	1.96	1.96	1.96
208	2.21	2.21	2.21	2.21	1.68	1.68	1.68	1.68
208	1.82	1.82	1.82	1.82	1.50	1.50	1.50	1.50
208	1.54	1.54	1.54	1.54	1.31	1.32	1.32	1.31
515	2.86	--	2.86	--	1.96	--	2.10	--
515	2.22	--	2.22	2.22	1.64	--	1.63	1.66
515	1.82	--	1.82	1.82	1.44	--	1.46	1.52
515	1.54	--	1.54	1.54	1.25	--	1.23	1.28
Two Person Households								
486	2.86	--	2.86	--	1.96	--	1.96	--
486	2.22	2.22	2.22	2.22	1.65	1.63	1.62	1.64
486	1.82	1.82	1.82	1.82	1.45	1.46	1.42	1.48
486	1.54	1.54	1.54	1.54	1.28	1.23	1.28	1.31

SOURCE: Compiled by the author.

The results for the Manitoba example also support the lower income

elasticities, measured by Solomon and Fenton, for the lowest income

program participants. These households would tend to have higher

initial rent-to-income ratios, and subsequently lower measured income

elasticities than higher income households.

Conclusions

The main objective of this paper has been to illustrate how

fairly conventional economic theory could be applied to the analysis

of the benefits associated with a housing allowance program. It

followed a line of reasoning first suggested in rigourous form by

de Salve, although other writers had suggested a similar course of

analysis. This was that the benefits associated with a housing program

could be measured, in income terms, by determining the amount of income

required to reach the level of utility available to prospective housing

program participants. The distribution of net benefits, measured

in this way, is an important consideration in determining the merits

of a particular housing allowance program. Chapters III and IV

accomplished the major goal of this paper. Chapter III illustrated

how consumption theory could be applied to the analysis of the benefit

patterns associated with the SAFER and RATE programs. It used a

relatively simple Cobb-Douglas formulation to describe an individual's

utility function. Chapter IV illustrated that the application of a more

complex utility function would not alter the fundamental conclusions

of Chapter III. These conclusions can be summarized as follows:

1. A housing allowance program, such as the SAFER or the RATE program,

    will result in pattern of benefit incidence which is progressive

    with respect to the initial rent-to-income ratio (income fixed)

    for the lowest income group, but which is generally regressive

with respect to income (rent-to-income ratio fixed).

2. Such a housing allowance program will result in a distribution
    of benefit shares which is strongly progressive with respect
    to the initial rent-to-income ratio (income fixed), for the
    lowest income households. Benefit shares are generally re-
    gressive with respect to income (rent-to-income ratio fixed).

3. One possible source for concern associated with such a program
    is the relatively small benefit shares received by very low
    income households with relatively low initial rent-to-income
    ratios. .

4. The regressivity of program benefits with respect to household
    income observed for such a housing allowance program is strongly
    influenced by the level of the maximum claimable rent. In
    fact the regressivity of the benefits is dependent upon the
    existence of a ceiling on the housing allowance.

5. The RATE program compared with the SAFER program, achieves some-
    what more progessivity, in the distribution of benefits, with
    respect to the rent-to-income ratio, by using lower maximum
    claimable rents, and a more restrictive formula to calculate
    the available housing allowance. As a result, only households
    in the very lowest income group are eligible for housing allowance
    benefits.

A number of related objectives were also dealt with in this paper
in the course of the analysis described in Chapters III and IV. The
following conclusions can be made.

1. The distribution of the benefits associated with a housing allowance
    program seems fairly equitable as far as program participants are
    concerned. The chief criticism of such a program, on equity grounds

would appear to be the exclusion of other groups who also have affordability problems. Among senior citizens this may include low-income homeowners. Home operating costs are increasingly significant, while some 10,029 single-person senior citizen homeowners in Manitoba had incomes less than $5000 in 1977. The grounds for the exclusion of this group from housing allowance benefits should be closely examined. Similarly, certain other (non-senior citizen) households may be experiencing affordability problems. The Social Planning Council of Winnipeg recently suggested that single-parent families, in particular, experience this problem, with some 55% of all single parent families unable to pay the market cost of standard accommodation.[6]

2. A housing program is quite attractive on efficiency grounds, when compared to a traditional housing program, such as CMHC's Non-Profit Housing Program. A housing allowance program, however, is inefficient when compared to a cash transfer program. The various program options examined for Manitoba suggested the same utility gains offered, in aggregate, to housing allowance program participants could be obtained by a system of cash transfers at a funding level of some 90% of the allowances paid. This loss in efficiency must be justified by the existence of non-tenant benefits associated with the provision of subsidized housing.

3. The Non-Profit Program is compatible with a housing allowance program such as the SAFER program in the sense that it will not be attractive to most households eligible for housing allowance benefits. The analysis in Chapters III and IV suggested that

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6. Housing Conditions in Winnipeg, Report No. 1, Social Planning Council of Winnipeg, March 1979.

the benefits associated with the Non-Profit program are progressive
with respect to household income, but do not equal the housing
allowance benefits available through a SAFER-like program for
households with monthly incomes less than $500 to $550. The
Non-Profit program would therefore have, as its intended user
group, households with incomes above those benefiting from a
housing allowance program. It should be pointed out that the
Public Housing program did formerly address the housing problems
of the lowest income groups, and that the benefit patterns associated
with this program may be significantly different from those
available through a housing allowance program. The existence of
different benefit patterns may represent a problem, on equity
grounds, which should be dealt with by policy makers prior to the
introduction of a housing allowance program. This was certainly
a consideration in New Brunswick prior to the introduction of the
RATE program.

4. One of the most important administrative considerations associated
with a new program is its cost. The various program formats
applied to the Manitoba situation suggested an ultimate annual
cost of between $9.7 million and $14.2 million depending upon
the program rules adopted, as well as the appropriate specification
for the utility function of program participants. Administration
costs will likely amount to 5% to 10% of the total program costs,
if the European experience with the less complicated housing
allowance programs is used as a guideline. This would suggest
administrative costs of $.5 million to $.7 million (at 5%) or $1.1
million to $1.6 million (at 10%).

5. A housing allowance program, which has as its sole goal the
    reduction of the rent-to-income ratios of program participants,
    may be only partially successful. It will not be successful
    at all if the price elasticity of demand for housing is unitary,
    as seems to be the general case. There is some evidence to
    suggest that the demand for housing by low income households
    is somewhat price-inelastic. In this case a housing allowance
    program will have some downwards effect on the rent-to-income
    ratios of program participants, although not necessarily to the
    full extent of the allowance paid. There will likely be an
    increase in the consumption of both housing and other goals.

6. A housing allowance program will not necessarily result in a
    housing level for all participants at a standard (acceptable)
    level. To a certain degree a housing quality goal conflicts
    with the improved affordability goal central to both the SAFER
    and RATE programs, as it implies that participants increase their
    consumption of housing. It is likely that other measures, such
    as the direct construction of subsidized housing, will have to
    be taken to ensure that a minimum standard of housing is available
    to all households.

Recommendations For A Manitoba Housing Allowance Program

The following recommendations can be made in respect of the pro-
posed Manitoba housing allowance program.

1. The Manitoba housing allowance program should explicitly include
    a housing quality goal which would guarantee that all program
    participants occupy an adequate housing unit. This may be
    accomplished by adopting two variations from the present SAFER

(or RATE program). Firstly all program units may be inspected
and certified prior to the payment of allowances to otherwise
eligible households. Secondly bonuses could be paid to low-
income households who move to adequate accomodation. This
latter step may eliminate the problem with the relatively small
benefit shares received by very low-income ratios. These house-
holds are the most likely group to be currently residing in in-
adequate housing units.

2. The limitations of a Manitoba housing allowance program should
be explicitly recognized. Problems like housing inadequacy
may only be partially addressed by an allowance program, especially
if the previous recommendation is not accepted. Direct public
construction of subsidized units may be necessary for this reason.
It may also be necessary to resolve social or psychological problems
experienced by senior citizens who desire or need services avail-
able only in non-integrated senior citizen projects. Direct
construction may also be necessary in areas where the supply of an
adequate amount of private accomodation is constrained for one
reason or another.

3. The rationale behind the choice of the maximum claimable rents
must be carefully developed. The current SAFER maximums would
exceed the rents paid in 1977 by some 96% of the eligible single-
person households, but only some 38% of the eligible two person
households. This inbalance may not be desirable as it compresses
the benefits available to two-person households into a narrow
range. Moreover, the increased housing consumption likely to
occur as a result of the program may further limit the suitability

of the current SAFER maximum claimable rents. For example, if
the C.E.S. specification is used, only some 26% of the eligible
single-person households will pay rents less than the SAFER
maximum, based on the Manitoba information for 1977, once housing
consumption has been adjusted in response to a housing allowance
program.

4. Other groups requiring housing allowances should be identified.
The exclusion of groups such as single-parent families, as well
as low income senior citizen households, should be justified.

5. The benefit patterns of other programs available to senior
citizens, such as the public housing program, should be examined.
The benefits available to all senior citizen households, regardless
of the housing program, should be rationalized. This may involve
some amendment to the present Public Housing Rent Scale, or to
the housing allowance calculation, or both.

6. The effects of the Manitoba housing allowance program on the
housing consumption of program participants, and on the market
price of standard housing accommodation should be closely monitored.
The former will have a direct bearing on the success of the
program in guaranteeing a minimum level of housing for program
participants. The latter will measure the extent to which benefits
to program participants are eroded by increases in housing costs.

Directions for Further Research

A number of areas pertaining to the examination of the benefit
patterns associated with housing allowance programs should be pursued.
One involves the possibility of tenure shifts encouraged by a housing
allowance program targetted only to renters. It seems plausible to
suggest that some senior citizen households will shift from ownership

to rental units as a result of the availability of housing allowances.
The importance of such a shift should be determined, although the
information in Table V.1 suggests that it may not be too significant.
Some 36% of the single-person households with incomes less than
$5000 are homeowners; this compares with 35% of the households with
incomes between $5000 and $7499. A large portion of the former group
occupies public housing units; however, the rate of homeownership
is essentially the same as for a largely unsubsidized group. This
suggests that very little tenure movement has been encouraged by the
public housing program. It seems likely that a housing allowance
program will also have only a limited impact on household tenure.
The information for married individuals reveals a similar situation,
with 70% and 73% homeownership rates for the bottom two income groups.

Another issue which should be examined is the time frame over
which a household's consumption of housing is adjusted as a result
of the availability of housing allowances. De Leeuw has suggested
this may occur only over a relatively long period of time; much
of the analysis in this paper will therefore have long term in
character; additional work would have to be done to examine short
term benefit patterns associated with housing allowance programs. In
the short run consumption effects may be limited in importance, and
initial program costs may be lower than estimated in this paper. It
does not seem likely that the benefit patterns associated with a
housing allowance would be materially changed, however.

A third issue which should receive attention concerns the likely
inflationary pressures for the cost of housing which a housing allowance
program may introduce. De Leeuw has suggested that as much as one-third

of the increase in housing consumption, for a general housing allowance program, may be offset by increases in the price of housing. The analysis described in this paper may therefore significantly over- estimate the net benefits received by program participants. Any inflationary pressure associated with the Manitoba proposal will be limited if the program is targetted specifically for senior citizens; however, if the demand for housing, as a result of the program, is shifted to a particular form of housing, in particular areas, some short-run problems of this type may be experienced.

A fourth area which should be investigated concerns the available estimates for the price elasticity of demand for low-income households. The Kansas City results suggest that this elasticity may be less than one; the SAFER and RATE programs are both predicted on the assumption that this elasticity is close to zero; available empirical estimates suggest that the price elasticity is, in general, unitary. A reliable set of estimates for this parameter, at least as far as housing program participants are concerned, should be developed.

A final, and perhaps the most important, issue which requires considerable attention in the future is the estimation of the non- tenant benefits associated with a housing allowance program. Information concerning the distribution of non-tenant benefits is necessary before meaningful program evaluation can occur. It is useful to note recent work done concerning benefits accruing to donors through the provision of transfer payments. Dean, for example, suggests that transfer payments, to the extent that they represent voluntary contributions, will result in benefits to contributors in a manner similar to that which occurs

for private contributors to charity. Transfers would continue until
the $MRS_{y_p y_r} = 1$, that is, until the marginal rate of substitution of
income between the higher and lower income persons is equal to unity.

Although altruism is a possible motive which induces income
transfers, other possible motives exist. Brennan discusses the impl-
cations of the insurance motive. This likely has considerable rele-
vance for housing subsidies paid to senior citizens. Brennan considers
an example in which the probability (measured in lifetime terms) of
the occurence of an undesirable event determines the likely importance
of the insurance motive for income redistribution. In his example,
the probability of this event must be 1/20 before income redistribution
will occur. It seems possible that many individuals may assign a
probability greater than this to the possibility that they will experience
housing problems when they retire. For example, recent estimates
(Social Planning Council of Winnipeg) have suggested that some 27% of
Winnipeg's senior citizen households are currently experiencing an
affordability problem. While this may exaggerate the importance of
the problems these households are faming, it may influence the perceived
probability of similar problems occurring for any individual. The
insurance motive would then lead to income transfers for senior citizens;
more significantly, it may lead to a social preference for in-kind
transfers.

If the insurance motive is important, it leads to a further question
concerning the proper role for the government. It is possible that
private organizations may be able to provide an efficient level of
subsidized housing. There are at least two justifications for public
intervention, aside from any consideration of the free-rider problem.
Firstly, the scale of the subsidies involved probably implies

organizational constraints; it is unlikely that private contributions
will be a large or stable enough source of revenue. Further, divisions
between organizations in terms of selected client groups (on ethnic,
economic, religious, and other grounds) will fragment available sources
for contributions; and some senior citizen groups may be ignored.
Secondly, market pressures on costs leads to contributors' costs which
are much larger than tenant benefits, especially in the case of new
construction. It is likely that other benefits, besides those accuring
to contributors, will have to be considered. To the extent that other
benefits exist, the supply of subsidized housing, on a purely private
basis, will likely be less than optimal.

The existence of donor benefits should not be ignored, however.
These would result in benefits accruing to contributors equal (at
least) to the income equivalent benefits received by individuals
participating in a housing allowance program. Donor benefits would
exceed net tenant benefits if society also derives benefits from en-
forcing a minimum housing standard. Available estimates for the price
and income elasticities for charitable contributors suggest that
these donor benefits will be distributed proportionally over all income
classes. A comprehensive treatment of the total benefits generated
by housing allowance programs would have to consider the incidence of
these benefits.

APPENDIX A

HYPOTHETICAL NON-PROFIT SENIOR

CITIZENS HOUSING PROJECT

APPENDIX A

HYPOTHETICAL NON-PROFIT SENIOR CITIZEN HOUSING PROJECT

The following description of a hypothetical Winnipeg Non-Profit senior citizen project will serve as the basis for the comparison of the proposed Manitoba housing allowance program with the Non-Profit program in terms of program compatibility and relative efficiency. Construction costs of $30,000 per unit are assumed; this reflects current experience in Winnipeg in terms of recent construction, as well as requests for the approval of new Non-Profit projects. A mortgage rate of 11% is assumed; this also reflects recent market rates. A 35 year amortization period is used, this period being required by the Non-Profit program. Both the construction and operating costs will be generally representative of the current costs associated with the production and operation of a one-bedroom apartment unit.

1. Calculation of Federal Assistance

    a. Construction Cost (per unit) $30,000.00

    b. Monthly Debt Service

        i. at market rate of interest (per unit)   275.39

        ii. at Non-Profit rate - 2% (per unit)   99.25

    c. Total Federal Assistance (per unit)   176.14

2. Operating Costs

    These costs are derived from the budgetted costs of a recently approved Non-Profit project.

	MONTHLY COSTS
Property taxes	22.07
Insurance	2.50
Maintenance	12.50
Replacement reserve	12.78
General operation (including caretaker and utility costs)	47.20
Management	14.36
Contingency	10.93
TOTAL OPERATING COSTS	122.34 (120.00)

Operating costs will be assumed to be $120 per unit per month.

3. The debt service and operating costs described above yield the fol-
   lowing rent table for the hypothetical project:

TABLE A. 1

RENT LEVELS FOR HYPOTHETICAL NON-PROFIT SENIOR CITIZEN HOUSING PROJECT,
WINNIPEG

	MARKET RENT	FULL RECOVERY RENT (rounded)	MAXIMUM RENT/ MAXIMUM SUBSIDY (rounded)
1-BEDROOM APARTMENT	$280	$395	$220

The market rent is determined by CMHC appraisers by examining compar-
able units in the private rental merket. The full-recovery rent is
the level required to cover both the unassisted debt service and the
operating costs. The minimum rent with maximum assistance is the level
required to cover the assisted debt service and the operating costs.

APPENDIX B

EUROPEAN HOUSING ALLOWANCE PROGRAMS

APPENDIX B

EUROPEAN HOUSING ALLOWANCE PROGRAMS

Table B.1 describes, in tabular form, the current housing allowance programs operating in France, West Germany, Denmark, Sweden, the Netherlands, Great Britain, Finland, and Norway.

Table B.2 describes the formulas utilized by the various European plans to calculate housing allowance benefits.

TABLE B.1

A COMPARISON OF PROGRAM ELEMENTS - EUROPEAN HOUSING ALLOWANCE PROGRAMS

1. National housing context	2. Beneficiaries	3. Eligible housing	4. Amount of Subsidy
A - Population(in millions)	A - Residency requirements	A - Physical standards	A - Tenant contribution
B - Dwellings(in millions)	B - Family status	B - Tenure eligibility	B - Maximum rent
C - Tenure	C - No. of participating households	C - Income eligibility	C - Subsidy

FRANCE

1.	2.	3.	4.
A - 53	A - None	A - Must certify specific physical standards	A - Amount varies with income
B - 18	B - Must be receiving family allowance (elderly are exception)	B - Renters and Homeowners	B - Lesser of actual rent based on age & other factors
C - 44.4% renters	C - 6% of households - 1967 projection 6.6 million dwellings	C - Maximum income: 5.120 P - renters 6.850 P - owners	C - 60-85% of difference between rent and tenant's share % depends on number of children

SOURCE: FORMA CONSULTING LIMITED

A BRIEF REVIEW OF THE INTERNATIONAL EXPERIENCE WITH HOUSING ALLOWANCES, TABLE 1.

TABLE B.1 Continued

WEST GERMANY

A - 62
B - 24
C - 65% renters

A - None
B - All households
C - 7% of households 10% of renters

A - Suitable as place abode
B - Renters & homeowners

A - Amount varies with income (10 to 60%)
B - Lesser of actual rent or amount based on age, location and facilities of unit
C - Difference between rent & rent income ration. Tenant must pay a % of rent, % varies with income

DENMARK

A - 5.03
B - 1.6
C - 49.7% renters

A - None
B - Family with 1 or more children, elderly
C - 200,000 ('72) 10% of households and 25% of renters (half of these being old age pensioners)

A - Must certify certain physical standards
B - Renters only
C - Maximum income: 60,000 Kroner

A - Amount varies with income (expressed as statutory rent)
B - Economic rent must be less than 50% of income
C - Lesser of % of difference between rent & statutory rent, or an amount equal to % of rent. % varies directly with income & inversely with no. of children. Maximum income from which subsidy is calculated.

TABLE B.1 Continued

SWEDEN

A – 8.3
B – 3.2
C – 51.6% renters

A – None
B – All households
C – 90% one adult households 700,000 50% households with children ('76) 650,000

A – None (until '69 2 persons per room)
B – Renters & homeowners

A – Rent not a factor
B – Skr.350-1125 depending on household size
C – 80% of housing cost

NETHERLANDS

A – 14
B – 4.4
C – 53% renters

A – None
B – All households
C – 1% of all households

A – Subsidized dwellings built after 1960
B – Renters only
C – Income must be lower than 22,000 guilders & rent/income higher than 14-17%

A – Between 4/6 & 1/7 (lower income/lower ratio)
B – None
C – 1800 guilders per year (1974) calculated on prior years taxable income plus 5% upward adjustment

BRITAIN

A – 56
B – 20
C – 45% renters

A – None
B – All households
C – Jan. 1977, 200,000 households in England and Wales (housing allowances) 1 million (rent rebates)

A – None
B – Renters only
C – 75 pounds/week

A – 40% of the rent at minimum budget level, 17% above that amount
B – None
C – 13 pounds/week in London, 10 pounds elsewhere

TABLE B.1 Continued

FINLAND

A – 4.5
B – 1.5
C – 27.7% renters

A – None
B – Families with 2 or more children under 16
C – Not available

   – No taxable property. Income less than prescribed limit

A – Approximately 23% of income
B – Not available
C – 20% to 70% of the approved rent (with heating)

NORWAY

A – 4.07
B – 1.1
C – 42.0% renters

A – None
B – Families with children, elderly and disabled families on welfare
C – 75% households

A – Houses built after 1963 or with state loan
B – Renters & homeowners
C – "Reasonable Rent" Rebates to Income

A – Varies with income
B – None
C – Subsidy is 65% of the difference between actual housing expenses & what is considered reasonable. The higher the income the higher is the expected rent/income rate

TABLE B.1 Continued

5. Budget	6. Administrative Costs	7. Source of funds	8. Programs Starting Year
FRANCE			
About 1/3 of all housing subsidies	Estimate 12 - 15%	National government H.L.M. lending institutions employees	1971 (limited from 19480)
WEST GERMANY			
DM 1.6 billion	10%	50% federal 50% state	1965
DENMARK			
1975-76 D.kr. 1 billion D.kr. 2 billion homeowners tax relief	About 3%	2/3 national 1/3 local	1966
SWEDEN			
2.1 billion Skr.	About 5%	100% national Optional allowance whose cost is shared between national and local Elderly allowance 100% local	1930's

TABLE B.1 Continued

NETHERLANDS			
No current data available	No current data available	National Gov't	1970
BRITAIN			
256 million	17% approximately	Public units–local with national sharing of deficits. Private units – national with local share after 1975	1975
FINLAND			
No current data available	No current data available	National Gov't	1962
NORWAY			
1968 8.6 million kroner 1975 174.6 million kroner	No current data available	National Government Municipal share welfare families	1972

Table B.2 <u>HOUSING ALLOWANCE PAYMENT FORMULAE – EUROPEAN PROGRAMS</u>

1. France

Housing Allowance – K (L + C – Lo)

- where – K is weighing factor to reduce costs;

  between 0,95 and 0.65

  – L is maximum rent; a function of location

  and household size

  – C is contractual amount housing charge;

  about 2/3 of actual costs based on

  presence or absence of an elevator

  – Lo is minimum rent payable; increases as

  a function of net taxable income

2. Germany

Housing Allowance = Actual rent – recipient contri-

bution

- where the contribution is based on total household

  income minus one of three deductible amounts (15,

  22.5 and 30%) depending on socio-economic group and

  household size.

3. Denmark

Housing Allowance = lesser of

  i) .75 x (actual rent – tenant

     contribution)

  ii) percentage of rent plus an

     additional percentage for each

     child

- where contribution or percentage varies directly

  with income and inversely with number of children

4. Finland

Housing Allowance = 20-70% of approved rent with

heating

- where percentage depends on income and family size

5. Sweden   (State Plan Only)

Housing Allowance = (.80 x actual rent up to maximum)-

percentage of taxable income

. where - rent maximum is based on household size and

facilities - percentage of taxable income is based on

a sliding scale where the more you earn the higher

the percentage

6. Norway   Housing Allowance = .70 x ("Factual rent" - "reasonable

rent")

. where - factual rent is calcualted according to fixed

rules, but checked against actual costs - reasonable

rent is a percentage varying directly with income

7. Netherlands   Housing Allowance - Minimum to maximum grant based on

prior year's taxable income plus 5%

8. Britain   i) Tenant Contribution = .60 x rent

. where income equals needs allowance

ii) Tenant Contribution - (.60 x rent) - (.17 x income

needs allowance)

. where income exceeds needs allowance

iii) Tenant Contribution = (.60 x rent) - (.25 x needs

allowance - income)

. where income is less than needs allowance

SOURCE: Forma Consulting Limited, A Brief Review of the International
Experience with Housing Allowances, Table 2

APPENDIX C

CANADIAN HOUSING ALLOWANCE PROGRAMS

APPENDIX C

CANADIAN HOUSING ALLOWANCE PROGRAMS

Table C.1 describes, in tabular form, some of the current housing allowance programs operating in Canada.

Table C.2 describes the formulas utilized by the various Canadian schemes to calculate housing allowance benefits.

TABLE C.1   SUMMARY OF HOUSING ALLOWANCES, RENT SUPPLEMENTS AND OCCUPANCY COST REBATES

Program Examples

Program Elements	Shelter Component Social Assistance	Regional/Municipal Shelter Supplements		Provincial Allowance	
		Kitchener-Waterloo	Metro Toronto	Safer	Rate
BENIFICIARIES I					
Residency requirement	Minimum one year in province or country	1 year in province	1 year in province	Last 2 years residency in B.C. or 5 years continual residence any time previously	Last year residency in New Brunswick or consecutive five years at any time previously
Family Status	Social assistance recipient	G.W.A. recipient for 3 months	G.W.A. recipients/ FBA recipient in need	Senior citizen/O.A.S. recipient paying more than 30% of gross income in rent	Senior citizen (over 65) paying more than 30% to 35% of gross income in rent
HOUSING STANDARD II					
Quality	None	No minimum standard Maximum is regional "Concept of Adequacy"	None	None	Normal health and safety standards
Tenure	None	None	None	Rental	Rental
SUBSIDY & PROVISION III					
Maximum subsidy	Maximum subsidy provincially determined: - varies with family size	75% of difference GWA Shelter Allowance and lesser of actual rent or average rent for unit size Max. $20 singles Min. $50 couples	(Rent-shelter allowance) Singles $20 plus $5 per person	75% of amount by which rent exceeds 30% of gross income	50% to 75% of amount by which rent exceeds required household contribution to rent (30% to 35% of income) to maximum of $75

SOURCE: PATRICIA STREICH AND JANET McCLAIN, ARE HOUSING ALLOWANCES THE ANSWER? TABLE I.

TABLE C.1 Continued

Program Elements	Shelter Component Social Assistance	Regional/Municipal Shelter Supplements		Provincial Allowance	
		Kitchener-Waterloo	Metro Toronto	Safer	Rate
III SUBSIDY & PROVISION					
Maximum Rent	None	Regional average rent for unit size	None	Maximum claimable rent: $205 for singles and $225 for couples	Maximum claimable rent: $175 for singles and $200 for couples
Tenant contribution	Shelter allowance plus shortfall	Shelter allowance 25% of shortfall	Shelter allowance plus shortfall after subsidy	30% of gross income plus 25% of shortfall	Varies between 30% and 35% of income
IV PAYMENT					
Form & Frequency	Bi-monthly cash payment included in welfare cheque	Bi-monthly cash payment included in welfare cheque	Bi-monthly cash payment included in welfare	Monthly cash payment to recipient	Monthly cash payment to recipient
Agency	Municipal Dept. of Social Services	Regional Dept. of Social Services	Regional Dept. of Health & Social Services	Provincial Ministry of Housing	Provincial Ministry of Housing
V FUNDS					
Source of Funds	50% federal plus various provincial/ municipal cost-sharing arrange-ments	50%, 30%, 20% Federal/Provincial/Municipal for FBA Clients. 50%, 50% Federal/Municipal for GWA clients		100% provincial	100% provincial
Legislative authority	CAP and provincial social assistance acts	CAP GWA	CAP GWA	Not available	Not available

TABLE C.1 Continued

Program Elements	Shelter Component Social Assistance	Regional/Municipal Shelter Supplements		Provincial Allowance	
		Kitchener-Waterloo	Metro Toronto	Safer	Rate
VI Partici-pation Rate	100% social welfare assistance recipients	100% of GWA recipients (1051 households on July 1, 1977)	Approx. 16,000 households of which approx. 67% gets supplement	70% - 16,000 applications out of approx. 23,000 eligible households	Not available
VII Total dollars (per annum)	Estimated $925 million ($130 per unit per month)	$300,000 ($17 per unit per month)	Estimated $3.5 million ($20 per unit per month)	Estimated $7.8 million ($40 per unit per month)	Not available
VIII Procedural update	At discretion of province	Annually via rent survey	None - (at discretion of municipality)	None	None

PARTICIPATION — VI

EXPENDITURE — VII

VIII

TABLE C.2

EXISTING FORMULAE FOR HOUSING ALLOWANCES - CANADIAN PROGRAMS

Shelter Component of Social Assistance - Basic Rate Set by Provincial
Guidelines

- May be based on sliding scale according to family size, a flat
  rate or actual cost.

- Ceiling is maximum rate or actual shelter costs paid by recipient.

Provincial Shelter Supplement for Social Assistance Recipients in B.C.

- Shelter Cost - Basic Shelter Component x 75%.

- Ceiling $40 for families and $50 for people 60-64 years of age.

Metro Toronto Shelter Supplement to Social Assistance Recipients

- Actual Shelter Cost - Basic Shelter Allowance

- Ceiling is $20 a month for couples plus $5 per person.

Kitchener-Waterloo Shelter Supplement to Social Assistance Recipients

(a) Original 1977 formula - Rent for adequate unit - basic shelter
    component. Rent is derived from average rent for various sized
    units needed by different family sizes based on local rent survey.

(b) Revised 1978 formula = (Actual Rent - Basic shelter component)
    x 75% or 1977 formula
    or maximum of $20 per month for singles and $50 for others

- Ceiling is whichever of these three is the least amount

Guelph Municipal Shelter Supplement

- 50% x (Actual rent - basic shelter component)

- Ceiling are $20 for 1 person, $25 for 2 persons, $30 for (3),
  $40 for (4), $50 for (5)

- Automatic for GWA recipients

- Available on request by FBA recipients

TABLE C.2 Continued

Peel Supplement

- Actual Rent - Basic Shelter Component

- Ceiling $40 per month

- Not automatic, on request only for FBA clients

Hamilton Supplement

- Ceiling $20 all clients

- FBA clients

- Also seniors with OAS

SAFER Allowance for the Elderly in British Columbia

- Allowance = (Eligible Rent - 30% of income) x 75%

- Maximum allowance is $50 for couples, $70 for singles

- Maximum eligible rent in calculation is $225 for couples, $205 for singles

RATE Allowance for the Elderly in New Brunswick

- Allowance = (Eligible rent - required tenant contribution

  . 50% to 75%

- Eligible rent is $175 for singles, $200 for couples

- Required tenant contribution varies from: 30% for incomes under

    $3,500 to

    35% for incomes under $5,500

- Proportion of shortfall allowed varies from:

    75% for incomes under $3,500 to

    50% for incomes under $5,500

SOURCE: Patricia Streich and Janet McClain, Are Housing Allowances The Answer? Table II.

APPENDIX D

CHARACTERISTICS OF CURRENT SAFER RECIPIENTS

APPENDIX D

CHARACTERISTICS OF CURRENT SAFER RECIPIENTS

The following tables describe some of the characteristics of SAFER recipients as of September 1978.

TABLE D. 1

AGE GROUP REPRESENTATION FOR SAFER BENEFICIARIES, SEPTEMBER 1978

AGE	% OF SAFER BENEFICIARIES	% OF ELDERLY POPULATION	SAFER BENEFICIARIES AS % OF POPULATION
65-69	20.1	35.1	3.5
70-74	24.5	26.1	5.7
75-79	23.0	17.6	7.9
80-84	17.4	11.5	9.2
85-89	10.5	6.5	9.7
90-94	3.6	2.5	8.6
95+	0.9	0.7	7.3
	100.0	100.0	6.0

SOURCE: Profile of the SAFER Beneficiaries, p. 4.

TABLE D. 2

% DISTRIBUTION OF GROSS RENT PAYMENTS FOR SAFER RECIPIENTS, SEPTEMBER
1978

RENT LEVEL	SINGLES	SHARERS	COUPLES	TOTAL
$ 90	0.5%	1.1%	---	0.5%
91-100	4.9	12.0	0.1%	4.5
101-110	3.1	18.8	0.1	3.3
111-120	4.0	18.5	0.1	4.0
121-130	5.5	15.0	0.1	5.2
131-140	4.5	8.1	0.2	4.0
141-150	6.5	9.3	0.6	5.9
151-160	6.1	3.7	0.5	5.3
161-170	6.9	3.0	0.5	5.9
171-180	10.1	3.2	2.0	8.8
181-190	9.0	2.1	6.7	8.5
191-200	10.0	1.6	15.5	10.4
201-210	7.8	0.7	12.4	8.1
211-220	6.3	1.1	11.5	6.8
221-230	4.5	0.9	11.2	5.2
231-240	3.0	---	8.0	3.6
241-250	2.4	0.2	8.6	3.1
251-260	1.4	0.2	4.7	1.8
261-270	0.9	0.5	4.3	1.4
271-280	0.7	---	3.1	1.0
281-290	0.5	---	2.1	0.7
291-300	0.4	0.2	2.3	0.6
301 & Over	0.9	---	5.6	1.5
TOTAL RECIPIENTS	12234	568	1866	14668

SOURCE: Profile of SAFER Beneficiaries, p. 6.

TABLE D. 3

INCOME DISTRIBUTIONS FOR SAFER RECIPIENTS, SEPTEMBER 1978

INCOME LEVEL	SINGLES & SHARERS[1]	COUPLES[2]	TOTAL
301-350	69.6%	---	60.8
351-400	11.8	---	10.3
401-450	6.5	---	5.7
451-500	5.4	---	4.7
501-550	3.6	---	3.2
551-600	2.1	---	1.8
601-650	0.8	87.7	11.8
651-700	0.2	10.4	1.5
701-750	---	1.9	0.2
751 & Over	---	---	---
AVERAGE INCOME	$355	$639	$391

SOURCE: Profile of the SAFER Beneficiaries, p. 7.

[1] The minimum income for single senior citizens in September 1978 was $319.74; 6,502 or 51% of the SAFER recipients (singles and sharers) were at this level of income.

[2] The minimum income for senior citizen couples in September 1978 was $634.36; 1,289 or 69% of the SAFER recipients (couples) were at this level of income.

TABLE D. 4

SAFER PAYMENTS BY HOUSEHOLD TYPE, SEPTEMBER 1978

AMOUNT OF ALLOWANCE	SINGLES & SHARERS % OF HOUSEHOLDS	COUPLES % OF HOUSEHOLDS	TOTAL % OF HOUSEHOLDS
$ 0-10	7.8	16.3	8.9
11-20	10.8	23.8	12.5
21-30	10.7	22.0	12.1
31-40	10.1	30.8	12.7
41-50	11.7	2.6	10.5
51-85	48.7	4.4	43.1

SOURCE: Profile of the SAFER Beneficiaries, p. 10.

APPENDIX E

DERIVATION OF DEMAND FUNCTIONS FOR HOUSING

AND EXPRESSIONS FOR NET TENANT BENEFITS

APPENDIX E

DERIVATION OF DEMAND FUNCTIONS FOR HOUSING AND EXPRESSIONS FOR NET

TENANT BENEFITS

A) Cobb-Douglas Utility Function

1. The general expression for the net tenant benefits available

through the Non-Profit program can be obtained as follows, given

the utility function and associated demand functions described

in Chapter III.[1] The utility level reached through participation

in the Non-Profit program is

$$u = h_1{}^\beta \, x_1{}^{1-\beta}$$

where h_1 is the level of housing services available in a Non-

Profit unit and the consumption of the composite good is

$$x_1 = \frac{y_0 - \alpha p_h h_1}{p_x}$$

The housing program reduces the price of housing by the factor α;

$$u = h_1{}^\beta \left[\frac{y_0 - \alpha p_h h_1}{p_x} \right]^{1-\beta}$$

If market prices for housing and the composite good are changed,

this same utility level can be reached at income y_2 if

$$h_1{}^\beta \left(\frac{y_0 - \alpha p_h h_1}{p_x} \right)^{1-\beta} = \left(\frac{\beta y_2}{p_h} \right)^\beta \left[\frac{(1-\beta) y_2}{p_x} \right]^{1-\beta}$$

---

[1] Pre-program values for the parameters are denoted by the subscript 0; post-program values are denoted by the subscript 1.

Solving for y_2 yields

$$(\frac{h_1 p_h}{\beta})^\beta \quad (\frac{y_0 - \alpha p_h h_1}{1-\beta})^{1-\beta} \quad = y_2$$

Net tenant benefits will be $y_2 - y_0$, as shown in equation 4 in Chapter III.

2. The general expression for the net tenant benefits associated with a housing allowance program is derived in the same fashion. The utility level associated with the program is

$$u = (\frac{\beta y_0}{\alpha p_h})^\beta \left[\frac{(1-\beta)y_0}{p_x} \right]^{1-\beta}$$

If market prices are paid, the same utility level can be reached at income y_2 if

$$(\frac{\beta y_0}{\alpha p_h})^\beta \left[\frac{(1-\beta)y_0}{p_x} \right]^{1-\beta} \quad = \quad (\frac{\beta y_2}{p_h})^\beta \left[\frac{(1-\beta)y_2}{p_x} \right]^{1-\beta}$$

Solving for y_2 yields

$$(\frac{y_0}{\alpha})^\beta = y_2$$

Net tenant benefits will be $y_2 - y_0$, as shown in equation 5 in Chapter III.

3. The SAFER program results in the following values for α. For both one and two-person households paying less than the maximum claimable rent

$$\alpha = .25 + \frac{.225 y_0}{p_h h}$$

If more than the maximum claimable rent is paid

$$\alpha = .1 - (\frac{153.75 - .225 y_0}{p_h h})$$

for one-person households; and

$$\alpha = 1 - (\frac{168.75 - .225y_0}{p_h h})$$

for couples. Substituting these values for α into the demand function for housing yields the expressions described in equations 6 and 7, Chapter III. Similarly, the expressions for net tenant benefits, equations 8 and 9, are obtained by substituting the values for α defined above into the general expression for net tenant benefits.

4. The participant contribution rate and the percentage of the housing gap paid under the RATE program vary with household income, but otherwise the housing allowance is calculated in a manner similar to the SAFER program. The following tables describe the appropriate values for α for the demand equations and for the net tenant benefits for RATE program participants, which are sensitive to the variable RATE allowance formulae described in Table III. 5.

TABLE E. 1

RATE PROGRAM - VALUES FOR α, COBB-DOUGLAS UTILITY FUNCTION

POST-PROGRAM RENT BELOW MAXIMUM CLAIMABLE			POST-PROGRAM RENT ABOVE MAXIMUM CLAIMABLE	
INCOME GROUP	FORMULA NUMBER	α	SINGLE PERSON HOUSEHOLD	COUPLE α
3000-3499	1	$.25 + \dfrac{.225y_0}{p_h h}$	$1-\left(\dfrac{131.25-.225y_0}{p_h h}\right)$	$1-\left(\dfrac{150-.225y_0}{p_h h}\right)$
3500-3999	2	$.30 + \dfrac{.217y_0}{p_h h}$	$1-\left(\dfrac{122.50-.217y_0}{p_h h}\right)$	$1-\left(\dfrac{140-.217y_0}{p_h h}\right)$
4000-4499	3	$.35 + \dfrac{.208y_0}{p_h h}$	$1-\left(\dfrac{113.75-.208y_0}{p_h h}\right)$	$1-\left(\dfrac{130-.208y_0}{p_h h}\right)$
4500-4999	4	$.40 + \dfrac{.198y_0}{p_h h}$	$1-\left(\dfrac{105.00-.198y_0}{p_h h}\right)$	$1-\left(\dfrac{120-.198y_0}{p_h h}\right)$
5000-5499	5	$.45 + \dfrac{.187y_0}{p_h h}$	$1-\left(\dfrac{96.25-.187y_0}{p_h h}\right)$	$1-\left(\dfrac{110-.187y_0}{p_h h}\right)$
5500 to maximum	6	$.50 + \dfrac{.175y_0}{p_h h}$	$1-\left(\dfrac{87.50-.175y_0}{p_h h}\right)$	$1-\left(\dfrac{100-.175y_0}{p_h h}\right)$

SOURCE: Derived by the author.

TABLE E. 2

RATE PROGRAM - DEMAND EQUATIONS, COBB-DOUGLAS UTILITY FUNCTION

ANNUAL HOUSEHOLD INCOME	FORMULA NUMBER	POST-PROGRAM RENT BELOW MAXIMUM CLAIMABLE $h=$	POST-PROGRAM RENT ABOVE MAXIMUM CLAIMABLE	
			SINGLE PERSON HOUSEHOLDS $h=$	COUPLES $h=$
3000-3499	1	$y_0\left(\dfrac{\beta-.225}{.25p_h}\right)$	$\dfrac{(\beta-.225)y_0+131.25}{p_h}$	$\dfrac{(\beta-.225)y_0+150.00}{p_h}$
3500-3999	2	$y_0\left(\dfrac{\beta-.217}{.30p_h}\right)$	$\dfrac{(\beta-.217)y_0+122.50}{p_h}$	$\dfrac{(\beta-.217)y_0+140.00}{p_h}$
4000-4499	3	$y_0\left(\dfrac{\beta-.208}{.35p_h}\right)$	$\dfrac{(\beta-.208)y_0+113.75}{p_h}$	$\dfrac{(\beta-.208)y_0+130.00}{p_h}$
4500-4999	4	$y_0\left(\dfrac{\beta-.198}{.40p_h}\right)$	$\dfrac{(\beta-.198)y_0+105.00}{p_h}$	$\dfrac{(\beta-.198)y_0+120.00}{p_h}$
5000-5499	5	$y_0\left(\dfrac{\beta-.187}{.45p_h}\right)$	$\dfrac{(\beta-.187)y_0+96.25}{p_h}$	$\dfrac{(\beta-.187)y_0+110.00}{p_h}$
5500 to maximum	6	$y_0\left(\dfrac{\beta-.175}{.50p_h}\right)$	$\dfrac{(\beta-.175)y_0+87.50}{p_h}$	$\dfrac{(\beta-.175)y_0+100.00}{p_h}$

SOURCE: Derived by the author.

TABLE E. 3

RATE PROGRAM – NET TENANT BENEFITS, COBB-DOUGLAS UTILITY FUNCTION

ANNUAL HOUSEHOLD INCOME	FORMULA NUMBER	POST-PROGRAM RENT BELOW MAXIMUM CLAIMABLE	POST-PROGRAM RENT ABOVE MAXIMUM CLAIMABLE	
			SINGLE PERSON HOUSEHOLDS	COUPLES
3000–3499	1	$y_0\left(.25 + \dfrac{.225 y_0}{p_h^{\,h}}\right)^{-\beta} - y_0$	$y_0\left[1-\left(\dfrac{131.25 - .225 y_0}{p_h^{\,h}}\right)\right]^{-\beta} - y_0$	$y_0\left[1-\left(\dfrac{150 - .225 y_0}{p_h^{\,h}}\right)\right]^{-\beta} - y_0$
3500–3999	2	$y_0\left(.30 + \dfrac{.217 y_0}{p_h^{\,h}}\right)^{-\beta} - y_0$	$y_0\left[1-\left(\dfrac{122.50 - .217 y_0}{p_h^{\,h}}\right)\right]^{-\beta} - y_0$	$y_0\left[1-\left(\dfrac{140 - .217 y_0}{p_h^{\,h}}\right)\right]^{-\beta} - y_0$
4000–4499	3	$y_0\left(.35 + \dfrac{.208 y_0}{p_h^{\,h}}\right)^{-\beta} - y_0$	$y_0\left[1-\left(\dfrac{113.75 - .208 y_0}{p_h^{\,h}}\right)\right]^{-\beta} - y_0$	$y_0\left[1-\left(\dfrac{130 - .208 y_0}{p_h^{\,h}}\right)\right]^{-\beta} - y_0$
4500–4999	4	$y_0\left(.40 + \dfrac{.198 y_0}{p_h^{\,h}}\right)^{-\beta} - y_0$	$y_0\left[1-\left(\dfrac{105 - .198 y_0}{p_h^{\,h}}\right)\right]^{-\beta} - y_0$	$y_0\left[1-\left(\dfrac{120 - .198 y_0}{p_h^{\,h}}\right)\right]^{-\beta} - y_0$
5000–5499	5	$y_0\left(.45 + \dfrac{.187 y_0}{p_h^{\,h}}\right)^{-\beta} - y_0$	$y_0\left[1-\left(\dfrac{96.25 - .187 y_0}{p_h^{\,h}}\right)\right]^{-\beta} - y_0$	$y_0\left[1-\left(\dfrac{110 - .187 y_0}{p_h^{\,h}}\right)\right]^{-\beta} - y_0$
5500 to maximum	6	$y_0\left(.50 + \dfrac{.175 y_0}{p_h^{\,h}}\right)^{-\beta} - y_0$	$y_0\left[1-\left(\dfrac{87.50 - .175 y_0}{p_h^{\,h}}\right)\right]^{-\beta} - y_0$	$y_0\left[1-\left(\dfrac{100 - .175 y_0}{p_h^{\,h}}\right)\right]^{-\beta} - y_0$

SOURCE: Derived by the author.

B) C.E.S. Utility Function

The derivation of the demand function associated with the C.E.S. utility function specified in Chapter IV is straightforward, although somewhat involved. This derivation has been described in numerous textbooks. The general form of the demand function for housing associated with a housing program which reduces the price of housing by the proportion α is given by equation 1 in Chapter IV.

General expressions for the net tenant benefits associated with the Non-Profit program and for a housing allowance program can be obtained as follows:

1. The utility level reached through participation in the Non-Profit program is

$$u = (Ah_1^{-1} + Bx_1^{-1})^{-1}$$

as specified in Chapter IV. As before, h_1 is the level of housing services provided by a Non-Profit unit and

$$x_1 = \frac{y_0 - \alpha p_h h_1}{p_x}$$

if market prices are paid. This utility level will be reached at income y_2 if

$$(Ah_1^{-1} + Bx_1^{-1})^{-1} = \left\{ A \left(\frac{\beta_0}{p_h} y_2 \right)^{-1} + B \left[(\frac{1-\beta_0}{p_x}) y_2 \right]^{-1} \right\}^{-1}$$

solving for y_2 yields

$$Ah_1^{-1} + Bx_1^{-1} = y_2^{-1} \left\{ A(\frac{\beta_0}{p_h})^{-1} + B \left[\frac{(1-\beta_0)}{p_x} \right]^{-1} \right\}$$

and

$$\frac{A(\frac{\beta_0}{p_h})^{-1} + B\left[\frac{(1-\beta_0)}{p_x}\right]^{-1}}{Ah_1^{-1} + Bx_1^{-1}} = y_2$$

Net tenant benefits will be $y_2 - y_0$ as shown in equation 3 in Chapter IV.

2. Similarly, the utility level associated with a housing allowance program will equal the utility level, if market prices are paid, at income y_2, if

$$\left\{A\left(\frac{\beta_1}{\alpha p_h}y_0\right)^{-1} + B\left[\frac{(1-\beta_1)}{p_x}y_0\right]^{-1}\right\}^{-1}$$

$$= \left\{A\left(\frac{\beta_0}{p_h}y_2\right)^{-1} + B\left[\frac{(1-\beta_0)}{p_x}y_2\right]^{-1}\right\}^{-1}$$

Solving for y_2 yields

$$\frac{A\left(\frac{\beta_0}{p_h}\right)^{-1} + B\left[\frac{(1-\beta_0)}{p_x}\right]^{-1}}{A\left(\frac{\beta_1}{\alpha p_h}y_0\right)^{-1} + B\left[\frac{(1-\beta_1)}{p_x}y_0\right]^{-1}} = y_2$$

Net tenant benefits will be $y_2 - y_0$ as shown in equation 4 in Chapter IV.

3. The general expression for the demand for housing under either the SAFER or RATE programs (equation 5 in Chapter IV) can be derived as follows. The demand function(equation 1 in Chapter IV) can be rewritten as

$$h = \frac{k_1/\alpha^{\frac{1}{2}}}{k_2\alpha^{\frac{1}{2}} + k_3} = \frac{k_1}{k_2\alpha + k_3\alpha^{\frac{1}{2}}}$$

where $k_1^2 = \dfrac{Ay_0^2}{p_h}$, $k_2^2 = Ap_h$, $k_3 = (\beta p_x)^{\frac{1}{2}}$

given the assumed value for the elasticity of substitution (.5);
but α can be rewritten for both the SAFER and RATE programs as

$$\alpha = a + b/h$$

Substituting this expression into the demand function and expanding the expression yields

$$(k_1 - k_2 b)^2 \frac{1}{h^2} + \left[2k_2 a \; (k_2 b - k_1 a) \; -k_3^2 b \right] \frac{1}{h}$$

$$+ (k_2^2 a^2 - k_3^2 a) = 0$$

This can be rewritten in the form

$$\frac{c_1}{h^2} + \frac{c_2}{h} + c_3 = 0$$

Then h can be shown equal to

$$h = \frac{2c_1}{-c_2 \pm \sqrt{c_2^2 - 4c_1 c_3}}$$

Substituting for k_1, k_2, and k_3, and for c_1, c_2, and c_3 yields

equation 5 in Chapter IV. The expression has two roots, one of

which results in a negative value for h.

APPENDIX F

BENEFIT INCIDENCE PATTERNS - SAFER,

RATE, AND NON-PROFIT PROGRAMS -

C.E.S. UTILITY FUNCTION

APPENDIX F

BENEFIT INCIDENCE PATTERNS – SAFER, RATE, AND NON-PROFIT PROGRAMS – C.E.S. UTILITY FUNCTION

Tables F. 1 to F. 6 describe the benefit patterns associated with the SAFER, RATE, and Non-Profit programs, as a result of specifying the C.E.S. utility function described in Chapter IV.

TABLE F. 1

BENEFIT INCIDENCE FOR SINGLE PERSON HOUSEHOLDS, $y_0 = 400$

SAFER PROGRAM – C.E.S. UTILITY FUNCTION

β_0^1	h_0	β_1	h_1	α	A	NET BENEFITS	NET BENEFITS INCOME	BENEFIT SHARE %
.30	120.00	.300	120.00	1.0000	0.00	0.00	.0000	0.0
.32	128.00	.310	136.03	.9116	12.02	11.83	.0296	4.5
.35	140.00	.326	161.61	.8069	31.21	30.08	.0752	11.3
.37	148.00	.337	179.66	.7509	44.75	42.63	.1066	16.1
.40	160.00	.357	206.39	.6911	63.75	59.98	.1500	22.6
.42	168.00	.378	214.88	.7033	63.75	60.28	.1507	22.7
.45	180.00	.410	227.66	.7200	63.75	60.66	.1517	22.8
				TOTALS		279.23	265.46	.0948	100.0

SOURCE: Compiled by the author.

TABLE F.2

BENEFIT INCIDENCE FOR SINGLE PERSON HOUSEHOLDS, $\beta=.35$

SAFER PROGRAM - C.E.S. UTILITY FUNCTION

Monthly Income	h_0	β_1	h_1	α	A	NET BENEFITS	NET BENEFITS INCOME	BENEFIT SHARE %
300	105.00	.326	121.21	.8069	23.41	22.56	.0752	11.4
350	122.50	.326	141.41	.8069	27.31	26.32	.0752	13.3
400	140.00	.326	161.61	.8069	31.21	30.08	.0752	15.2
450	157.50	.326	181.81	.8069	35.11	33.84	.0752	17.1
500	175.00	.326	202.01	.8069	39.01	37.60	.0752	19.0
550	192.50	.333	213.12	.8592	30.00	29.25	.0532	14.8
600	210.00	.340	222.79	.9158	18.75	18.49	.0308	9.3
			TOTALS		204.80	198.14	.0629	100.0

SOURCE: Compiled by the author.

TABLE F.3

BENEFIT INCIDENCE FOR SINGLE PERSON HOUSEHOLDS, $y_0=400$

RATE PROGRAM - C.E.S. UTILITY FUNCTION

β_0	h_0	β_1	h_1	α	A	NET BENEFITS	NET BENEFITS INCOME	BENEFIT SHARE %
.30	120.00	.300	120.00	1.0000	0.00	0.00	0.0000	0.0
.32	128.00	.320	128.00	1.0000	0.00	0.00	0.0000	0.0
.35	140.00	.344	145.51	.9443	8.11	8.03	0.0201	8.0
.37	148.00	.357	159.50	.8969	16.44	16.15	0.0404	16.2
.40	160.00	.381	178.36	.8553	25.80	25.19	0.0631	25.2
.42	168.00	.402	186.60	.8703	25.80	29.23	0.0631	25.3
.45	180.00	.433	198.95	.8703	25.80	25.30	0.0633	25.3
			TOTALS		101.95	99.90	0.0357	100.0

SOURCE: Compiled by the author.

TABLE F.4

BENEFIT INCIDENCE FOR SINGLE PERSON HOUSEHOLDS, $\beta=.35$

RATE PROGRAM - C.E.S. UTILITY FUNCTION

Monthly Income	h_0	β_1	h_1	α	A	NET BENEFITS	NET BENEFITS / INCOME	BENEFIT SHARE %
300	105.00	.333	116.12	.8607	16.18	15.77	.0526	39.6
350	122.50	.339	130.88	.9063	12.27	12.06	.0345	30.3
400	140.00	.344	145.51	.9443	8.11	8.03	.0201	20.2
450	157.50	.347	160.10	.9754	3.94	3.92	.0087	9.9
500	175.00	.350	175.00	1.0000	0.00	0.00	.0000	0.0
550	192.50	.350	192.50	1.0000	0.00	0.00	.0000	0.0
600	210.00	.350	210.00	1.0000	0.00	0.00	.0000	0.0
			TOTALS		40.50	39.78	.0126	100.0

SOURCE: Compiled by the author.

TABLE F.5

BENEFIT INCIDENCE FOR HOUSEHOLDS, $y_0=400$

NON-PROFIT HOUSING PROGRAM - C.E.S. UTILITY FUNCTION

β	R_0	PREFERRED h_1 (α=.7857142)	NP RENT	TENANT SUBSIDY	NET BENEFITS	NET BENEFITS / INCOME	BENEFIT SHARE %
.30	120.00	140.15	220.00	60.00	-71.44	-.1786	0.0
.32	128.00	149.85	220.00	60.00	-59.24	-.1481	0.0
.35	140.00	164.48	220.00	60.00	-40.90	-.1023	0.0
.37	148.00	174.29	220.00	60.00	-28.79	-.0720	0.0
.40	160.00	189.10	220.00	60.00	-11.11	-.0278	0.0
.42	168.00	199.03	220.00	60.00	.18	.0005	1.1
.45	180.00	214.01	220.00	60.00	16.01	.0400	98.9
			TOTALS	420.00	-195.29 (16.19)	-.0697	100.0

SOURCE: Compiled by the author.

TABLE F.6

BENEFIT INCIDENCE FOR HOUSEHOLDS, β=.35

NON-PROFIT HOUSING PROGRAM - C.E.S. UTILITY FUNCTION

Monthly Income	R_0	PREFERRED h_1 (α=.7857142)	NP RENT	TENANT SUBSIDY	NET BENEFITS	NET BENEFITS INCOME	BENEFIT SHARE %
300	105.00	123.36	220.00	60.00	-125.14	-.4138	0.0
350	122.50	143.92	220.00	60.00	- 78.81	-.2252	0.0
400	140.00	164.48	220.00	60.00	- 40.90	-.1023	0.0
450	157.50	185.04	220.00	60.00	- 10.33	-.0230	0.0
500	175.00	205.60	220.00	60.00	13.76	.0276	15.2
550	192.50	226.16	220.00	60.00	32.14	.0584	35.6
600	210.00	246.72	220.00	60.00	44.44	.0741	49.2
			TOTALS	420.00	-164.84 (90.34)	-.0523	100.0

SOURCE: Compiled by the author.

APPENDIX G

BENEFIT INCIDENCE PATTERNS FOR A MANITOBA

HOUSING ALLOWANCE PROGRAM FOR SENIOR CITIZENS

APPENDIX G

BENEFIT INCIDENCE PATTERNS FOR A MANITOBA HOUSING ALLOWANCE PROGRAM

FOR SENIOR CITIZENS

Tables G.1 to G.8 describe the benefit patterns associated with

the four housing allowance program formats discussed in Chapter 5, for

Manitoba in 1977. Specifically these tables examine the implications

of the following four program options, under both the Cobb-Douglas

and C.E.S. utility function assumptions.

1. SAFER program rules

2. RATE program rules

3. SAFER program rules;

RATE PROGRAM maximum claimable rents.

4. RATE program rules;

SAFER PROGRAM maximum claimable rents

TABLE G.1

BENEFIT INCIDENCE FOR MANITOBA SENIOR CITIZEN HOUSEHOLDS – SAFER RULES

COBB-DOUGLAS UTILITY FUNCTION

MONTHLY INCOME	TOTAL HOUSEHOLDS	β_0	h_0	h_1	α	A	NET BENEFITS	TOTAL ALLOWANCES	TOTAL NET BENEFITS
SINGLE PERSON HOUSEHOLDS									
208	709	.35	73	104	.702	31	28	21979	19852
208	1058	.45	94	187	.503	93	76	98394	80408
208	1362	.55	114	221	.516	107	91	145734	123942
208	7318	.65	135	242	.558	107	96	783026	702528
SUBTOTAL	10447							1049133	926730
515	1022	.35	180	218	.826	38	36	38836	36792
515	440	.45	232	270	.859	38	36	16720	15840
515	90	.55	283	321	.882	38	37	3420	3330
515	10	.65	335	373	.898	38	37	380	370
SUBTOTAL	1562							59356	56332
TOTAL	12009							1108489	983062
TWO PERSON HOUSEHOLDS									
486[1]	510	.35	170	229	.742	59	54	30090	27540
486	420	.45	219	278	.788	59	55	24780	23100
486	253	.55	267	326	.819	59	57	14927	14421
486	154	.65	316	375	.843	59	58	9086	8932
SUBTOTAL	1337							78883	73993
TOTAL	13346							1187372	1057955

1 Adjusted (family) income

SOURCE: Compiled by the author.

TABLE G.2

BENEFIT INCIDENCE FOR MANITOBA SENIOR CITIZEN HOUSEHOLDS – RATE RULES

COBB-DOUGLAS UTILITY FUNCTION

MONTHLY INCOME	TOTAL HOUSEHOLDS	β_0	h_0	h_1	α	A	NET BENEFITS	TOTAL ALLOWANCES	TOTAL NET BENEFITS
SINGLE PERSON HOUSEHOLDS									
208	709	.35	73	104	.702	31	28	21979	19852
208	1058	.45	94	178	.528	84	70	88872	74060
208	1362	.55	114	199	.573	85	74	115770	100788
208	7318	.65	135	220	.614	85	77	622030	563486
SUBTOTAL	10447							848651	758186
515	1022	.35	180						
515	440	.45	232	Not eligible for housing allowance benefits.					
515	90	.55	283						
515	10	.65	335						
SUBTOTAL	1562								
TOTAL	12009							848651	758186
TWO PERSON HOUSEHOLDS									
486[1]	510	.35	170	170	1.000	-	-	-	-
486	420	.45	219	234	.936	15	15	6300	6300
486	253	.55	267	282	.947	15	15	3795	3795
486	154	.65	316	331	.945	15	15	2310	2310
SUBTOTAL	1337							12405	12405
TOTAL	13346							861056	770591

1 Adjusted (family) income

SOURCE: Compiled by the author.

TABLE G.3

BENEFIT INCIDENCE FOR MANITOBA SENIOR CITIZEN HOUSEHOLDS

SAFER RULES - RATE MAXIMUM CLAIMABLE RENTS

COBB-DOUGLAS UTILITY FUNCTION

MONTHLY INCOME	TOTAL HOUSEHOLDS	β_0	h_0	h_1	α	A	NET BENEFITS	TOTAL ALLOWANCES	TOTAL NET BENEFITS
SINGLE PERSON HOUSEHOLDS									
208	709	.35	73	104	0.702	31	28	21979	19852
208	1058	.45	94	178	0.528	84	70	88872	74060
208	1362	.55	114	199	0.573	85	74	115770	100788
208	7318	.65	135	220	0.614	85	77	622030	563486
SUBTOTAL	10447							848651	758186
515	1022	.35	180	195	0.923	15	15	15330	15330
515	440	.45	232	247	0.939	15	15	6600	6600
515	90	.55	283	298	0.950	15	15	1350	1350
515	10	.65	335	350	0.957	15	15	150	150
SUBTOTAL	1562							23430	23430
TOTAL	12009							872081	781616
TWO PERSON HOUSEHOLDS									
486[1]	510	.35	170	211	0.806	41	38	20910	19380
486	420	.45	219	260	0.842	41	39	17220	16380
486	253	.55	267	308	0.867	41	39	10373	9867
486	154	.65	316	357	0.885	41	40	6314	6160
SUBTOTAL	1337							54817	51787
TOTAL	13346							926898	833403

1 Adjusted (family) income

SOURCE: Compiled by the author.

TABLE G.4

BENEFIT INCIDENCE FOR MANITOBA SENIOR CITIZEN HOUSEHOLDS

RATE RULES - SAFER MAXIMUM CLAIMABLE RENTS

COBB-DOUGLAS UTILITY FUNCTION

MONTHLY INCOME	TOTAL HOUSEHOLDS	β_0	h_0	h_1	α	A	NET BENEFITS	TOTAL ALLOWANCES	TOTAL NET BENEFITS
SINGLE PERSON HOUSEHOLDS									
208	709	.35	73	104	0.702	31	28	21979	19852
208	1058	.45	94	187	0.503	91	76	98394	80408
208	1362	.55	114	221	0.516	107	91	145734	123942
208	7318	.65	135	242	0.558	107	96	783026	702528
SUBTOTAL	10447							1049133	926730
515	1022	.35	180	180	1.000	-	-	-	-
515	440	.45	232	244	0.951	12	12	5280	5280
515	90	.55	283	295	0.959	12	12	1080	1080
515	10	.65	335	347	0.965	12	12	120	120
SUBTOTAL	1562							6480	6480
TOTAL	12009							1055613	933210
TWO PERSON HOUSEHOLDS									
486[1]	510	.35	170	170	1.000	-	-	-	-
486	420	.45	219	246	0.890	27	27	11340	11340
486	253	.55	267	294	0.908	27	27	6831	6831
486	154	.65	316	343	0.921	27	27	4158	4158
SUBTOTAL	1337							22329	22329
TOTAL	13347							1077942	955539

1 Adjusted (family) income

SOURCE: Compiled by the author.

TABLE G.5

BENEFIT INCIDENCE FOR MANITOBA SENIOR CITIZEN HOUSEHOLDS - SAFER RULES

MONTHLY INCOME	TOTAL HOUSEHOLDS	C.E.S. UTILITY FUNCTION							TOTAL ALLOWANCES	TOTAL NET BENEFITS
		β	h_0	β_1	h_1	α	A	NET BENEFITS		
SINGLE PERSON HOUSEHOLDS										
208	709	.35	73	0.327	84	0.810	16	15	11344	10635
208	1058	.45	94	.389	135	.600	54	50	57132	52900
208	1362	.55	114	.562	196	.490	100	90	136200	122580
208	7318	.65	135	.572	226	.527	107	100	783026	731800
SUBTOTAL	10447								987702	917915
515	1022	.35	180	.326	206	.816	38	37	38836	37814
515	440	.45	232	.431	260	.854	38	37	16720	16280
515	90	.55	283	.534	313	.879	38	37	3420	3330
515	10	.65	335	.637	366	.896	38	38	380	380
SUBTOTAL	1562								59356	57804
TOTAL	12009								1047958	975719
TWO PERSON HOUSEHOLDS										
486[1]	510	.35	170	.325	196	.806	38	37	19380	18870
486	420	.45	219	.420	263	.776	59	57	24780	23940
486	253	.55	267	.525	314	.812	59	58	14927	14674
486	154	.65	316	.630	365	.883	59	58	9086	8932
SUBTOTAL	1337								68173	66416
TOTAL	13346								1115231	1042135

1 Adjusted (family) income

SOURCE: Compiled by the author.

TABLE G.6

BENEFIT INCIDENCE FOR MANITOBA SENIOR CITIZEN HOUSEHOLDS – RATE RULES

MONTHLY INCOME	TOTAL HOUSEHOLDS	β	h_0	C.E.S. UTILITY FUNCTION					TOTAL ALLOWANCES	TOTAL NET BENEFITS
				β_1	h_1	α	A	NET BENEFITS		
SINGLE PERSON HOUSEHOLDS										
208	709	.35	73	0.327	84	0.810	16	15	11344	10635
208	1058	.45	94	0.389	135	0.600	54	50	57132	52900
208	1362	.55	114	0.476	183	0.541	84	77	114408	104874
208	7318	.65	135	0.591	297	0.594	84	79	614712	578122
SUBTOTAL	10447								797596	746531
515	1022	.35	180							
515	440	.45	232		Not eligible for housing allowance benefits.					
515	90	.55	283							
515	10	.65	335							
SUBTOTAL	1562									
TOTAL	12009								797596	746531
TWO PERSON HOUSEHOLDS										
486[1]	510	.35	170	.350	170	1.000	–	–	–	–
486	420	.45	219	.442	230	0.935	15	15	6300	6300
486	253	.55	267	.543	279	0.946	15	15	3795	3795
486	154	.65	316	.644	328	0.954	15	15	2310	2310
SUBTOTAL	1337								12405	12405
TOTAL	13346								810001	758936

1 Adjusted (family) income.

SOURCE: Compiled by the author.

TABLE G.7

BENEFIT INCIDENCE FOR MANITOBA SENIOR CITIZEN HOUSEHOLDS

SAFER RULES – RATE MAXIMUM CLAIMABLE RENTS

C.E.S. UTILITY FUNCTION

MONTHLY INCOME	TOTAL HOUSEHOLDS	β	h_0	β_1	h_1	α	A	NET BENEFITS	TOTAL ALLOWANCES	TOTAL NET BENEFITS
SINGLE PERSON HOUSEHOLDS										
208	709	.35	73	.327	84	.810	16	15	11344	10635
208	1058	.45	94	.389	135	.600	54	50	57132	52900
208	1362	.55	114	.476	183	.541	84	77	114408	104874
208	7318	.65	135	.591	207	.594	84	79	614712	578122
SUBTOTAL	10447								797596	746531
515	1022	.35	180	.342	191	.921	15		15330	15330
515	440	.45	232	.443	243	.938	15		6600	6600
515	90	.55	283	.544	295	.949	15		1350	1350
515	10	.65	335	.645	347	.957	15		150.	150
SUBTOTAL	1562								23430	23430
TOTAL	12009								821026	769961
TWO PERSON HOUSEHOLDS										
486[1]	510	.35	170	.325	196	.806	38	37	19380	18870
486	420	.45	219	.428	249	.835	41	40	17220	16800
486	253	.55	267	.531	299	.863	41	40	10373	10120
486	154	.65	316	.636	350	.883	41	40	6314	6120
SUBTOTAL	1337								53287	51910
TOTAL	13346								874313	821871

1 Adjusted (family) income

SOURCE: Compiled by the author.

TABLE G.8

BENEFIT INCIDENCE FOR MANITOBA SENIOR CITIZEN HOUSEHOLDS

RATE RULES — SAFER MAXIMUM CLAIMABLE RENTS

MONTHLY INCOME	TOTAL HOUSEHOLDS	β	h_0	β_1	h_1	α	A	NET BENEFITS	TOTAL ALLOWANCES	TOTAL NET BENEFITS
						C.E.S. UTILITY FUNCTION				
SINGLE PERSON HOUSEHOLDS										
208	709	.35	73	.327	84	.810	16	15	11344	10635
208	1058	.45	94	.389	135	.600	54	50	57132	52900
208	1362	.55	114	.462	196	.490	100	90	136200	122580
208	7318	.65	135	.572	226	.527	107	100	783026	731800
SUBTOTAL	10447								987702	917915
515	1022	.35	180	.350	180	1.000	-	-	-	-
515	440	.45	232	.445	241	.950	12	12	5280	5280
515	90	.55	283	.547	293	.959	12	12	1080	1080
515	10	.65	335	.647	345	.965	12	12	120	120
SUBTOTAL	1562								6480	6480
TOTAL	12009								994182	924395
TWO PERSON HOUSEHOLDS										
486[1]	510	.35	170	.350	170	1.000	-	-	-	-
486	420	.45	219	.436	239	.887	27	26	11340	10920
486	253	.55	267	.539	289	.907	27	26	6831	6578
486	154	.65	316	.642	339	.920	27	27	4158	4158
SUBTOTAL	1334								22329	21656
TOTAL	13346								1016511	946051

1 Adjusted (family) income.

SOURCE: Compiled by the author.

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