Final Report

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Public housing: shifting client profiles and public housing revenues

authored by

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EXECUTIVE SUMMARY

Since the mid-1990s a number of pressures have combined to fundamentally change the client profile of most Australian State public housing authorities (SHAs). During the early part of that decade, the client base of most authorities was dominated by couples with children, and almost a third of households were in full-time employment and paying market rents.

With the introduction of the 1996 Commonwealth State Housing Agreement and the introduction of targeting to 'most in need', SHAs have been confronted in the past decade with the twin pressures of a static or declining stock base, and persistent, growing demand.

These factors have reshaped the client profiles of most SHAs in Australia. As the higher-income (predominately two-income) clients have left public housing they have been replaced by mostly pension- and benefit-dependent, single-income households.

The aims of this research project are therefore to:

- clarify some of the implications of changing client profiles for the program management of public housing authorities;
- document and quantify the recent historical impact of changing client profiles on operating revenues;
- using the trends quantified above, conduct reliable forecasts of future public housing recurrent income given existing allocation priorities;
- identify the implications of policy changes (a range of alternative rent-setting options, new allocations income mixes, changing scale of operations etc) on future recurrent income;
- provide a basis for more informed anticipation of future trends in public housing authority recurrent income and, therefore, assist with anticipatory expenditure policy changes.

Related objectives are:

- to understand the historical impact of changing client profiles on the development of a forecasting approach for operating revenues;
- to enable SHAs to better anticipate the impact on their recurrent income of various housing management alternatives; and
- to provide a management tool for SHAs in operational policy setting.

This report:

- documents and quantifies the recent historical impact of changing client profiles in South Australia and Victoria;
- forecasts public housing recurrent income given existing allocation priorities;
- assesses the long-term cost to SHAs of pursuing a policy of allocating to those 'most in need';
- identifies the implications of policy changes for future recurrent income; and
- provides a quantitative modelling tool and relevant information for SHAs to inform current CSHA negotiations.

The research project also has two other outputs; a financial model that accompanies this report, and a Model Manual that is available from AHURI Limited on request.

Policy makers throughout Australia recognise that one of the most pressing housing policy issues is the need to increase the supply of appropriate and affordable housing for low- to moderate-income households. In the past two years, housing ministers have entrusted the Policy Research Working Group (a group of SHA senior policy officers) with the task of developing a Framework For National Action On Affordable Housing.

Yates, Wulff and Reynolds (2004) have documented how the supply of low-cost housing has fallen, while Berry and Hall (2001), and Yates and Gabriel (2006) have documented the extent of the demand for affordable housing. From this research there can be no question that the supply of appropriate affordable housing in the private rental sector is diminishing and the demand is growing rapidly.

Moreover, base funding under the CSHA has fallen by 30 per cent in real terms and base funding for public housing even further. Public and community owned housing stock has fallen by approximately 9 per cent.

From 1995/96 the Commonwealth Government gave considerably greater priority to ensuring that new public and community housing allocations were targeted to those most in need, that is, those with the lowest incomes and/or in dire or emergency situations. Many SHAs responded by introducing segmented waiting lists whereby 'priority applicants' received first call on available allocations.

Targeting has had three key consequences.

- Accelerating the targeting of allocations to those in greatest need has meant that those on single and the very lowest incomes (almost all of these households depend almost entirely on pension and benefit payments) now dominate allocations. Even with changes in rent-charging policies, it is likely that the medium-term real rent received per tenancy may fall.
- While the trend to priority allocations has been rapid, there is still room for a substantial increase in the proportion of total new allocations to households whose sole source of income is pension and benefit entitlements. Moreover, double-income households are being consistently replaced by single-income clients. It is probable that the average real rent received per tenant could decline in the immediate future.
- Increasingly, households receiving priority allocations have non-housing-related problems that require service support, adding to the average real costs per household of providing services to these clients. This trend is likely to continue in the foreseeable future.

This research project has its genesis in earlier AHURI research. The project Operating Deficits and Public Housing: Policy Options For Reversing the Trend (Hall and Berry, 2004) was completed and published by AHURI in 2004. That report provides the context for the current research. The report proposed that further work be done to:

- 'prepare detailed forecasts of the likely Net Income of all Australian Housing Authorities given no change to targeting policy;
- examine other options by which Net Incomes for Housing Authorities can grow in real terms, including;
  - relaxation of affordability benchmarks and abolition of current Productivity Commission targeting indicators;
  - abandonment of current targeting policies;
  - growing the housing stock to diversify the income base;
  - other relevant options'

Chapters 3 and 4 describe the research method and Model development.

Policy implications

Changes to household incomes, market rents and vacancy rates are not significant

Changes in these variables only have a minor impact on revenues, with a 1 per cent change in any of the variables only increasing or decreasing net rents by less than 1 per cent. Consequently, exogenous variables outside the control of SHAs appear to pose little risk to operating revenue.

Changes to percentage of income paid substantially changes the revenue equation

Increasing the percentage of income paid by rebated tenants raises major equity and consistency issues, but purely from a revenue standpoint, small changes to the proportion of income paid by rebated tenants dramatically improves annual rent received.

For example, in the two cases examined, simply bringing all rebated tenants to 25 per cent of income would increase the amount of annual rent received by $20 million and $24 million for the South Australian Housing Trust (SAHT) and the Office Of Housing Victoria (OoHV) respectively, an increase of 12.6 per cent and 9.6 per cent respectively.

Increasing payments for all rebated tenants to 30 per cent of income would raise revenue by $52.5 million and $73 million for the SAHT and the OoHV respectively, an increase of 33 per cent and 29 per cent respectively.

Extreme arrears risk is a potential problem

In both jurisdictions, a 5 per cent increase in average arrears would have a negligible effect on net rents. However, if the current arrears of the 'worst' household groups within each of the rebated and unrebated tenants categories applied to the remaining client profile, revenues would be reduced substantially. In the case of SAHT, the 'worst case' arrears for a rebated household group is some 88 per cent above the average for all rebated tenants, and the 'worst case' unrebated group is some 118 per cent above the average for unrebated tenants. In the OoHV's case, 'worst case' arrears are 111 per cent for rebated tenants and 59 per cent for unrebated tenants. Although the number of households in these worst-case groups are relatively small and therefore do not have a significant impact on revenues, the possibility of worsening arrears outcomes exists.

As noted in the report, if these outliers transferred to the totality of the rebated and unrebated tenant list, the impact would be a loss of 16 per cent and 15.7 per cent of net rents respectively for SAHT and the OoHV.

Targeting to most in need inexorably erodes annual revenues- over time by a large amount

The indicative analysis suggests that while movements in the client profile over the short term (1 to 3 years) do not have a major impact, the shift since the early 1990s (averages of 70 per cent rebated tenants) to a fully rebated tenant portfolio will have a large and continuing impact on the revenues of SHAs.

In South Australia and Victoria the cost is estimated at approximately $40 million and nearly $56 million per annum respectively, or $915 and $894 per current tenant

household. If the average of $904 per household were representative of all SHAs nationally then the cost would be in excess of $250 million per annum.

This is not the worst potential outcome. These estimates have been produced on the basis of the existing unrebated tenants being replaced by rebated tenants in the same proportions and rent payment configurations as the current rebated portfolios. If the unrebated groups were replaced by the lowest-paying rebated groups then the result could potentially be another 6 per cent to 10 per cent worse.

1 INTRODUCTION

1.1 Background

Since the mid-1990s a number of pressures have combined to fundamentally change the client profile of most Australian state public housing authorities (SHAs). During the early part of that decade, the client base of most authorities was dominated by couples with children, and almost a third of households were in full-time employment and paying market rents.

With the introduction of the 1996 Commonwealth State Housing Agreement and the introduction of targeting to 'most in need', SHAs have been confronted in the past decade with the twin pressures of a static or declining stock base, and persistent, growing demand.

These factors have reshaped the client profiles of most SHAs in Australia. As the higher-income (predominately two-income) clients have left public housing they have been replaced by mostly pension- and benefit-dependent, single-income households.

The South Australian Housing Trust (SAHT), and the Office of Housing, Victoria (OoHV), participated in this research and provided detailed information on the client profiles of their organisations.

Table 1.1 shows the trends in allocations in South Australia and Victoria.

Table 1.1: Trends in new allocations, South Australia and Victoria, 1994/95 to 2003/04

Year	*Allocations to those most in need (% of total allocations)*		*Real average weekly household income of new tenants ($2004)*	
	South Australia	*Victoria*	*South Australia*	*Victoria*
94/95	14.8	33	312	339.7
95/96	14.2	44	312	345.4
96/97	17.3	50.1	305	345.3
97/98	19.1	43.7	309	348.5
98/99	26.0	55.5	297	345.2
99/00	35.6	67.9	292	344.9
00/01	52.5	70.7	308	337.3
01/02	51.0	69.9	313	343.8
02/03	46.6	70	306	349.8
03/04	43.3	71.5	305	345.3

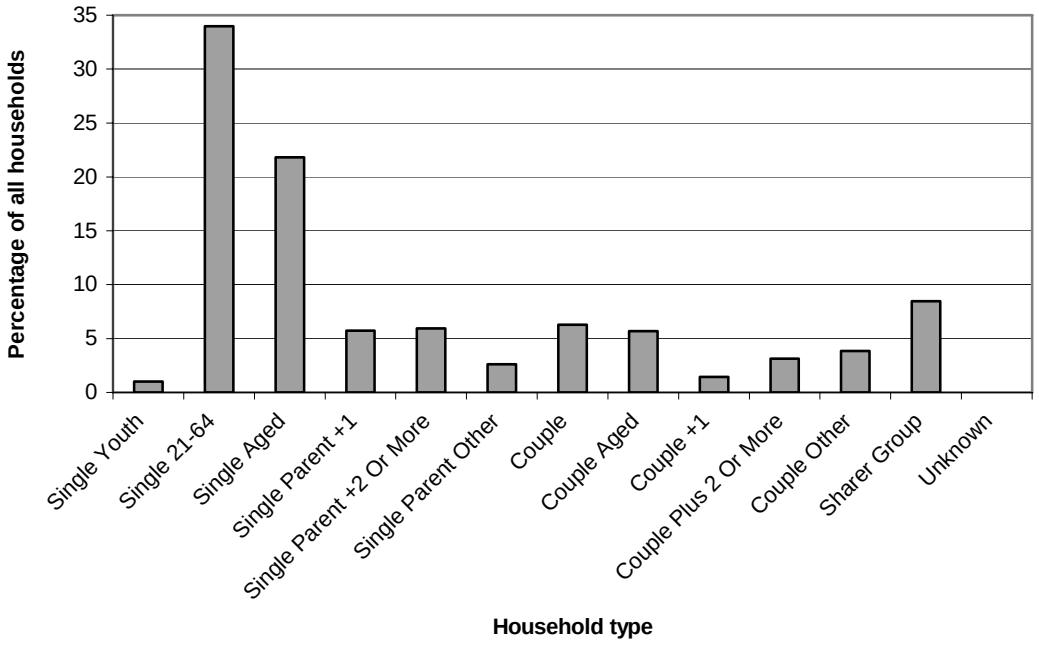
Sources: South Australian Housing Trust, 2005, Trust In Focus, pp.14, 15; Office Of Housing: Victoria: unpublished internal reports

Figures 1.1 and 1.2 set out the composition of the tenant portfolio for both South Australia and Victoria as at the end of 2004/05. These graphs, and other data supplied by the two authorities, indicate how far the client profiles have shifted in the past ten years.

In the mid-1990s, couples (with or without children) were the majority household type in both portfolios. In 2004-05, single-income households comprised 73 per cent of the OoHV's and 71 per cent of the SAHT's clients. Rebated (market rent subsidised) tenants in both portfolios have increased from around 70 per cent to 88 per cent of all tenant households.

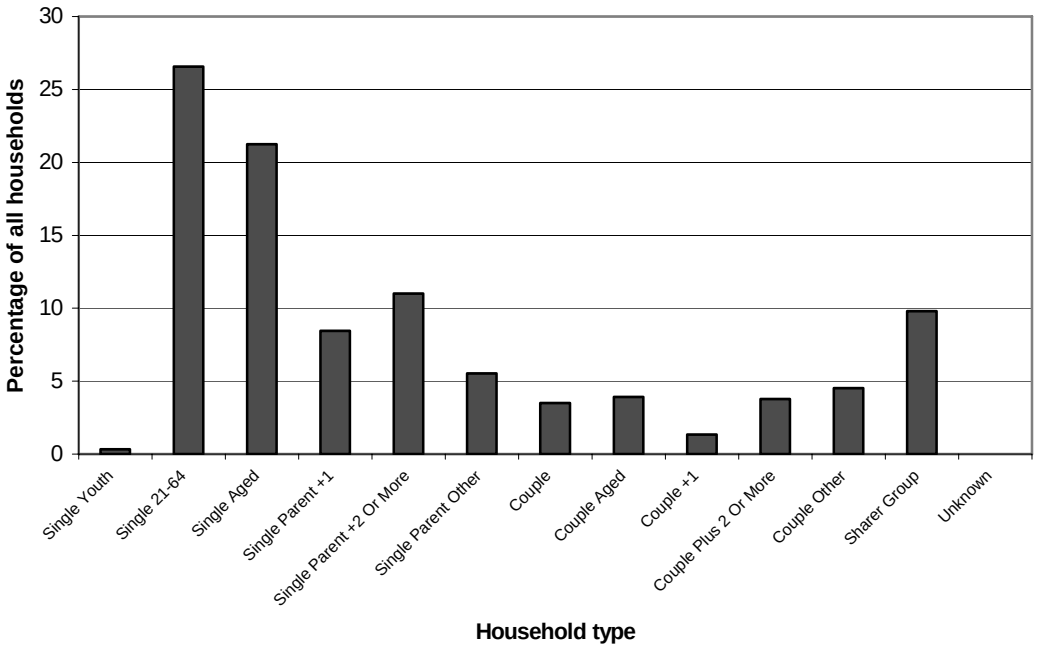
As a consequence of the twin pressures of the shift from unrebated (paying market rent) to rebated households and from dual-income to single-income units, SHAs have become increasingly concerned about the impact of declining total net rent revenues on operating outcomes.

Figure 1.1: South Australia: client profiles: all tenants: 2004/05



Source: South Australian Housing Trust, 2006, Special Data Supply

Figure 1.2: Victoria: client profiles: all tenants: 2004/05



Source: Office Of Housing Victoria, 2006, Special Data Supply

1.2 Research aims and objectives

1.2.1 Aims

The aims of this research project are therefore to:

- clarify some of the implications of changing client profiles for the program management of public housing authorities;
- document and quantify the recent historical impact of changing client profiles on operating revenues;
- using the trends quantified above, conduct reliable forecasts of future public housing recurrent income given existing allocation priorities;
- identify the implications of policy changes (a range of alternative rent-setting options, new allocations income mixes, changing scale of operations etc) on future recurrent income;
- provide a basis for more informed anticipation of future trends in public housing authority recurrent income and, therefore, assist with anticipatory expenditure policy changes.

1.2.2 Objectives

Related objectives are:

- to understand the historical impact of changing client profiles on the development of a forecasting approach for operating revenues;
- to enable SHAs to better anticipate the impact on their recurrent income of various housing management alternatives; and
- to provide a management tool for SHAs in operational policy setting.

1.3 Scope of the work and structure of this report

This report:

- documents and quantifies the recent historical impact of changing client profiles in South Australia and Victoria;
- forecasts future public housing recurrent income given existing allocation priorities;
- assesses the long-term cost to SHAs of pursuing a policy of allocating to those 'most in need';
- identifies the implications of policy changes for future recurrent income; and
- provides a quantitative modelling tool and relevant information for SHAs to inform current CSHA negotiations.

Section 2 discusses some key developments and elements of the national policy context, focusing on:

- the supply of and demand for affordable housing;
- trends in public housing and the CSHA context that have shaped the revenue outcomes for SHAs; and
- how this project emerged from the previous AHURI research on operating deficits in public housing authorities.

Section 3 discusses the process established for the research, and provides details of the methodology used, including:

- assessment method
- assessment development
- assessment process.

Section 4 discusses the modelling, including:

- model development
- model architecture
- state data, data inputs and modelling constraints
- model operation.

Section 5 sets out the results of the analysis, including:

- the application of the 2004/05 client distribution against 2002/03 data to test and isolate the impact of changes in client distribution on net rental revenue;
- the application of the 2002/03 average payment percentage of income for each rebated household type against 2004/05 data to test and isolate the impact of changes in rental payment on net rental revenue;
- for each household type, by rebated and unrebated tenants, a 5 per cent increase in average per household for:
  - arrears
  - vacancy costs
  - market rents
  - household incomes of rebated tenants.

The research also tested:

- an increase in average rent to 25 per cent, and 30 per cent, of income for all rebated household types;
- a change in the client profile to 100 per cent rebated tenants given current average rent charged, average arrears, vacancy costs and net rents for all rebated tenants;
- a comparison of 30 per cent unrebated tenants with a fully rebated portfolio;
- two possible 'worst case' outcomes, where:
  - the application of the highest percentage of rent lost in arrears for any household type was applied to the whole of the portfolio; and
  - all existing unrebated tenants were replaced by single youth households. Single youth, although a small proportion of current portfolios, pay on average some 20 per cent and 33 per cent less per household than any other group, in South Australia and Victoria respectively.

The modelling work provides the analytical basis for evaluation of the options outlined above and assists housing authorities with an 'early warning' system of possible impending Income difficulties.

Section 6 draws the principal conclusions and observations arising from the analysis, and outlines the potential long-term cost to revenue of targeting to those most in need.

The research project also has two other outputs: a financial model that accompanies this report, and a Model Manual that is contained in Volume 2.

2 NATIONAL POLICY CONTEXT

2.1 Supply of, and demand for, affordable housing

Policy makers throughout Australia recognise that one of the most pressing housing policy issues is the need to increase the supply of appropriate and affordable housing for low- to moderate-income households. In the past two years, housing ministers have entrusted the Policy Research Working Group (a group of SHA senior policy officers) with the task of developing a Framework For National Action On Affordable Housing.

2.1.1 Low-cost supply

The most significant recent report on the supply of low-cost dwellings is that of Yates, Wulff and Reynolds (2004), who looked at the supply of low-cost housing across Australia over the period 1991–2001. They found:

- "An increase in proportion of low rent dwellings occupied by other than low income households. By 2001, 61 per cent of low rent dwellings were occupied by households with incomes in the top four income categories. This represents an increase from 58 per cent in 1996. …
- A shortfall of 134,000 dwellings affordable and available for low income households (with incomes less than $335 per week). …
- A shortfall of 138,000 dwellings affordable and available to the combined lowest two income groups (private renter households with incomes less than $558 per week). …
- Only about 40 per cent of households living in low rent stock actually have a low income; a proportion that is fairly similar in metropolitan and non-metropolitan regions. …
- In the capital cities, the low rent segment of the rental market continued to disappear in Sydney and steadily decline in Melbourne."

2.1.2 Demand for affordable housing

Berry and Hall (2001) found that low-income tenants have extremely limited affordable housing choices, in location and dwelling type. Moreover, even where a small degree of choice appears to exist – for example renting a one-bedroom unit on the fringe of a metropolitan area – those choices may be equally inappropriate.

Similarly,

> "some higher income households will choose to commit a higher proportion of their incomes to housing and be able to afford it. However, other higher income tenants may be struggling and reasonably said to be suffering housing stress. This suggests that housing affordability problems may be climbing the income ladder, affecting not only unemployed and under-employed people but those who have been described as the 'working poor' and, even middle income households" (Berry and Hall, 2001, pp. 65–6).

Yates and Gabriel (2006), in the most recent examination of the dimensions of the demand for affordable housing, found that:

> "data from the 2002–03 Survey of Income and Housing show that, of the 7.6 million households in Australia, 1.2 million or 15.8 per cent of all households in Australia paid 30 per cent or more of gross household income in meeting their housing costs. Of these:

862,000 of these were lower income households in 'housing stress'[1], so that 11.3 per cent of all households and 28.2 per cent of all lower income households were in housing stress.

In addition, 454,000 or 5.9 per cent of all households in Australia paid 50 per cent or more of gross household income in meeting their housing costs. Of these:

- 413,000 lower income households paid 50 per cent or more of their gross household income in meeting their housing costs,
- so that, 5.5 per cent of all households and 13.7 per cent of all lower income households paid at least 50 per cent of their incomes in meeting their housing costs.

At an aggregate level, these results are consistent with long trend data on affordability, which show:

- a steady increase in household numbers paying 30 per cent or more of their gross household incomes in meeting their housing costs since 1995 and

Based on a low cost budget standard estimate of non-housing needs:

- 1.4 million lower income households have insufficient income after meeting their housing needs to maintain a frugal standard of living
- these represent 44 per cent of all lower income households (compared with the 28 per cent estimate derived from a 30/40 rule)

Based on an after housing poverty line estimate of non-housing needs:

- 947,000 lower income households, representing 31 per cent of all lower income households, have insufficient income to meet their non-housing needs." (Yates and Gabriel, 2006, page v).

So there is no question that the supply of appropriate affordable housing in the private rental sector is diminishing and demand is growing rapidly.

In Melbourne and Sydney, where demand for affordable housing is greatest, public housing represents the principal means by which affordable housing is provided to those households with incomes in the bottom two income quintiles. While rent assistance may significantly improve affordability in the other capital cities of Australia, it has very limited effectiveness in Melbourne and Sydney because of the dwelling price and rent characteristics of these housing markets (see Berry and Hall, 2001). In the immediate future, supply side measures such as public housing are likely to remain the most effective means of providing affordable housing to very low-income households. For this reason, issues that affect the operating viability of public housing are central to any solution to the problems of long-term demand for affordable housing.

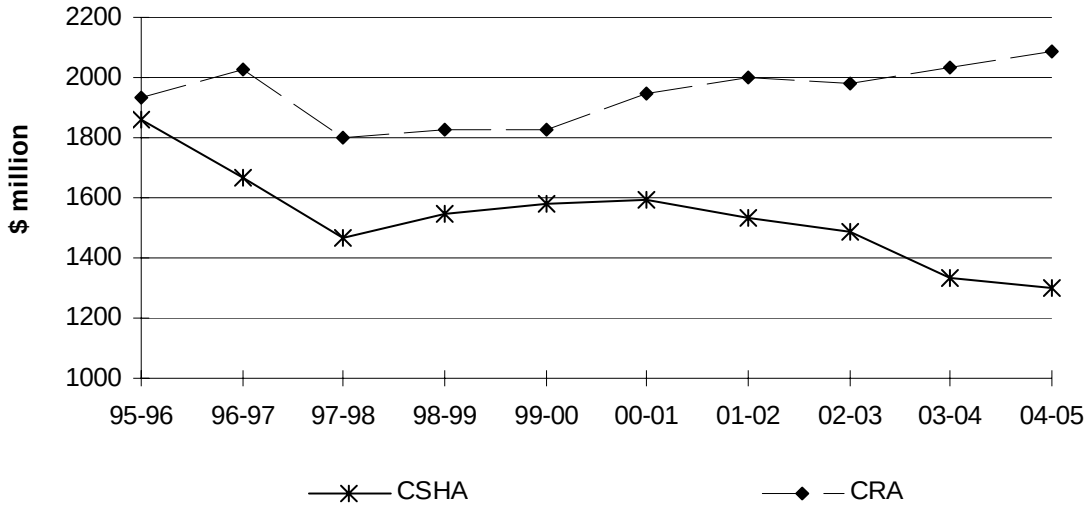
[1] Here housing stress is defined by the 30/40 rule, with equivalent disposable income used to determine the lowest two income quintiles with equivalent disposable incomes below $367 per week. These numbers are robust to the way in which lower-income households are defined, but are reduced by the ABS practice of discarding all observations in the first decile of the income distribution. A discussion of the advantages and disadvantages of this practice is provided in this chapter.

2.2 Key trends in public housing and the Commonwealth State Housing Agreement (CSHA)

2.2.1 Funding trends

The Productivity Commission (2005) found that real expenditure on CSHA assistance declined by 30.0 per cent between 1995/96 and 2004/05 (Figure 2.1). Real expenditure on Commonwealth Rent Assistance (CRA) increased by 7.8 per cent over the same period.

Figure 2.1: Real government expenditure on CSHA assistance and CRA (2004/05 dollars)



Source: Figure 16.2. Productivity Commission of Australia, 2006

Non-specific funding for public housing has fallen even further, as the base funding grant item in Table 2.1 shows.

Table 2.1: CSHA funding, 2002/03 and 2003/04

Funding arrangements	***2002/03 ($ million)***	***2003/04 ($ million)***
Base funding grants[a]	824.2	725.2
Aboriginal Rental Housing Program	100.0	100.7
Crisis Accommodation Program	39.7	39.7
Community Housing Program	64.0	64.0
State matching grants	359.5	355.0
	1 387.4	1 284.5

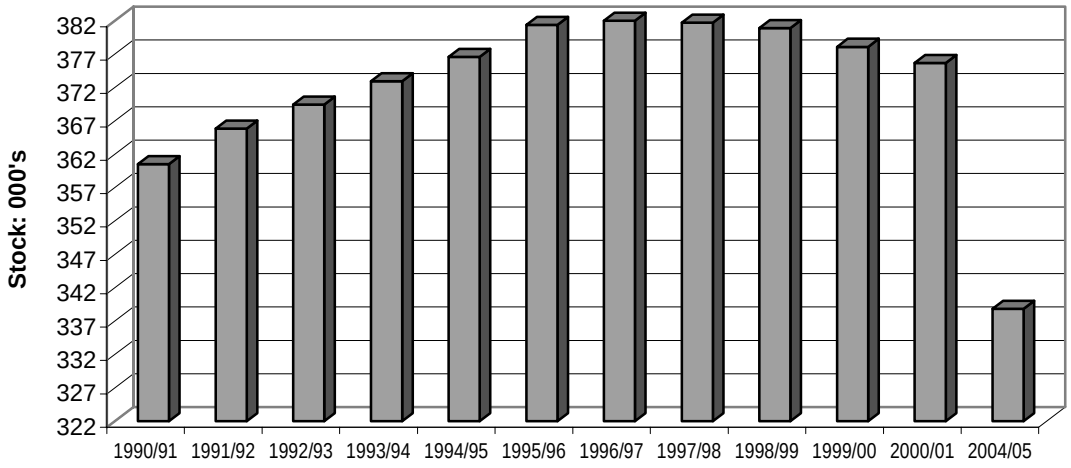
Note: a: Includes Public Housing, Home Purchase Assistance and Private Rental Assistance Programs.

Source: Table 16.2 pg 16.17 Productivity Commission of Australia, 2006

2.2.2 Provision of public housing stock 1990/91 – 2005/06

Figure 2.2 sets out the owned (net of headleasing and net of intra-governmental transfers), public and community housing stock in Australia between 1990/91 and 2000/01.

Figure 2.2: Public and community owned housing stock: Australia 1990/91 – 2004/05



Note: The 2004/05 figures also contain a component of headleased stock, and do not include some 4,000 dwelling units transferred to community housing.

Source: Chief Financial Officers Of State Housing Authorities Questionnaire Returns to the Operating Deficits Project: Productivity Commission Report On Government Services, 2006.

Recast in this way, stock numbers appear to have declined by almost 9 per cent between 2000/01 and 2004/05.

2.2.3 Trends in the CSHA

According to the Housing Assistance Act 1996 Annual Report, a major policy shift in thinking on housing assistance occurred in the final years of the 1989 CSHA. Discussions centered on longer-term reform proposals, in which the Commonwealth would take responsibility for providing cash subsidies for private and public tenants, and state governments would be responsible for managing and funding public housing at market rents. Discussions were, however, not finalised before the 1989 CSHA was replaced.

These themes were taken up by officials in a report to the Council of Australian Governments (COAG) on 14 June 1996. The report noted that:

> "The existing CSHA, and the transitional CSHA to apply from July 1996, imposes three key conditions:
>
> (a) Public housing assets must be used to provide housing assistance:
>
> (b) Public housing assets cannot be diverted to other uses, for example, if a public house is sold, the proceeds must be used to acquire or upgrade other public housing.
>
> (c) CSHA funds that are not required to fund recurrent expenses or subsidies must be used to fund investment in public housing."

When, however, the 1996 CSHA Agreement was finalised, only the third condition was adopted, with the Commonwealth withdrawing from a commitment to important condition (b).

Although the 1996 CSHA was an interim agreement, it represented a major shift from previous arrangements, introducing greater flexibility, increased accountability, new planning requirements and a greater focus on client outcomes.

Many controls that had characterised previous CSHAs were removed. The 1996 CSHA offered the states and territories more flexibility in using funds to address housing needs as part of their key responsibility for managing housing assets and delivering services.

The 1996 Agreement permitted funds to be used for a broader array of uses than was the case in the 1989 CSHA. This meant that, subject to agreement through the Commonwealth–state planning process, states had more flexibility to allocate funds between capital and recurrent purposes and for non-capital expansion such as headleasing.

Performance indicators were established for the first time, and national measures of performance in relation to the achievement of consumer and administrative efficiency outcomes were agreed. Customer focus was given more prominence and the interim agreement required each state and territory to develop a code of practice for housing assistance funded under the CSHA.

To summarise, the 1996 Interim Agreement effectively eliminated the separation between capital and recurrent purposes to which the grants could be applied, and focused on greater accountability in regard to the quality, timeliness and appropriateness of the service provided, and provided explicit measures of consumer satisfaction and client rights.

2.2.4 The CSHA and client targeting

From 1995/96 the Commonwealth Government gave considerably greater priority to ensuring that new public and community housing allocations were targeted to those most in need – that is, experiencing the lowest incomes and/or in dire or emergency situations. Many State Housing Authorities responded by introducing segmented waiting lists whereby 'priority applicants' received first call on available allocations.

Targeting has had three key consequences of the targeting outcomes:

- Accelerating the targeting of allocations to those in greatest need has meant that those on single and the very lowest incomes (almost all of these households depend almost entirely on pension and benefit payments) now dominate allocations. Even with changes in rent-charging policies, it is likely that the medium-term real rent received per tenancy may fall.
- While the trend to priority allocations has been rapid, there is still room for a substantial increase in the proportion of total new allocations to households whose sole source of income is pension and benefit entitlements. Moreover, double-income households are being consistently replaced by single-income clients. It is probable that the average real rent received per tenant could decline in the immediate future.
- Increasingly, households receiving priority allocations have non-housing-related problems that require service support, adding to the average real costs per household of providing services to these clients. This trend is likely to continue in the foreseeable future.

2.3 The operating deficits research project

The *Operating deficits* research project (Hall and Berry, 2004) was completed and published by AHURI in 2004. That report provides the context for the current research.

The report found that:

- In 1990/91 all SHAs except one were in surplus. However, ten years later, only Victoria and South Australia were in that position. Overall, the (weighted) average operating result fell from $621 surplus at the beginning of the decade to $269 deficit at the end.
- Net incomes after rebates do not pay for the operational costs in seven out of eight Australian SHAs. The evidence from that study is that the trend to operational deficits may worsen in the future if there is no change to current policy settings and cost structures.
- If these trends and the already heavy reliance on CSHA grants to support operations continue, grants may be insufficient to fund the shortfalls.

In the context of this research, the report identified that the weakening income position appeared to be due to tighter targeting of public stock to low-income households with multiple support needs and that there is an almost perfect co-variance (or inverse correlation) between the rate of net revenue growth of SHAs and the rate of growth in the proportion of its tenants who are rebated and/or receiving priority allocations.

The report proposed that further work be done to:

- "prepare detailed forecasts of the likely Net Income of all Australian Housing Authorities given no change to targeting policy;
- examine other options by which Net Incomes for Housing Authorities can grow in real terms, including;
  - relaxation of affordability benchmarks and abolition of current Productivity Commission targeting indicators;
  - abandonment of current targeting policies;
  - growing the housing stock to diversify the income base;
  - other relevant options"

3 METHODOLOGY

3.1 Research control and management

This project depended completely on data supplied by SHAs. A User Group was therefore established, and comprised representatives of the Office Of Housing Victoria, the Department for Families and Communities South Australia, the Queensland Department of Housing, and AHURI.

3.2 User group participation

A short paper was circulated to User Group members suggesting some possible key questions that needed to be answered in the research process. These are given in Attachment 1.

Following responses from User Group members, a discussion paper was circulated that defined the proposed analysis process and method. The paper is provided in Attachment 2.

The User Group has:

- clarified the key analysis questions
- agreed on and finalised the method of analysis
- provided the data in the appropriate form
- agreed on the model architecture and structure
- reviewed the preliminary findings
- suggested additional cases for the modelling analysis.

3.3 Analysis method

3.3.1 Primary purpose of the analysis

The primary purpose of this research is to analyse how changes to the household and income composition of the tenant profile have affected the net rental revenues of public housing authorities. A second major objective is to develop a modelling tool that public housing authorities can use for their own analysis of these effects.

3.3.2 Project plan requirements

Data availability and the cost of Visual Basic programming necessitated some minor changes to the project plan.

3.3.3 Method development

Data scoping

The two participating housing authority representatives in the User Group were asked to provide the researchers with a sample of their tenancy data base containing all the data fields and components. The User Group representatives asked the tenancy data base managers to provide this sample to the researchers. The sample data base was reviewed (a copy is provided in Attachment 3). Set out below are the researchers' questions of the data base managers, and the managers' answers.

1. Can all of the tenancy data be organised into household groupings? How should the household groupings be organised?

"All the tenancy data can be organised into household groupings but data regarding assets, i.e. relating to costs, cannot. We will determine the household categories."

2. Over what historical period can comprehensive data be obtained?

   "Continuous data cannot be provided. We can provide a consistent weekly snapshot of the tenancy information for the last week of the financial year for each of the past three years."

3. Can the data be separated into rebated (i.e. concessional rent) tenants, and unrebated tenants?

   "For each household category the data can be organised into rebated, (concessional) and unrebated tenants."

4. What income data is available for both rebated and unrebated tenants?

   "Because rebated tenants pay rent based on measures of capacity to pay (typically public tenants pay a fixed 25 per cent of income in rent), it can be assumed that the household income data provided is in fact current, or based on the most recent rent review.

   However, the household incomes recorded for unrebated tenants only reflect the household income at either the time the household was allocated public housing or the last time the tenant received a rebate. It will, in most cases, not be consistent with the remaining snapshot data. Any market rent option analysis needs to assume that the change will not shift a unrebated tenant into a rebated position (which may be quite likely)."

5. Can any pension and benefit payment, including the amount of the payment, be identified to the household?

   "The available data does not identify the type of pension or benefit, or the component of total income that consists of the pension or benefit payments. More importantly, the systems only record the pension or benefit payment applying at the time the tenant first entered the system, not their current entitlements."

6. How can we convert the arrears data into a form that will be consistent with the weekly period of the other data?

   "South Australia has advised that the only way to do this would be, for each household group, both rebated and unrebated tenants, to take the total arrears as at the week prior to the snapshot and then the total arrears for the week of the snapshot and subtract 1 from 2 to obtain the weekly arrears cost."

7. What data is available that will enable the potential cost of vacancies to be identified?

   "For each household category we can provide the number of households who left during the year and the average vacant time for the properties previously occupied by tenants within that category."

Table 3.1 sets out the data provided to the researchers to review.

Table 3.1: State Housing Authorities: vacancy cost data

Household type	*Number of households*	*Average turnaround time (days)*	*Left public housing*	*Transferred*
Single youth	126	39.48	47	5
Single 21–64	2,412	45.10	1,439	672
Single aged	935	44.84	1,504	449
Single parent + 1	1,271	33.23	809	252
Single parent + 2	1,633	34.39	1,006	437
Single parent other	440	31.05	299	180
Couple	222	33.54	115	79
Couple aged	208	34.42	98	74
Couple + 1	183	32.50	109	47
Couple + 2	410	32.29	328	138
Couple other	193	31.37	208	85
Sharer/group	641	35.71	393	279
Table total	8,674	38.10	6,355	2,697

Source: Office of Housing Victoria, Unpublished Unit Records, 2006

8. If we multiply the weekly results by 52, will that be statistically representative of what is or would occur?

   "Yes, the error factor should be within 1 per cent to 3 per cent."

Final data inputs for modelling

Table 3.2 sets out the final data inputs table for each year's 'snapshot'. The two participating SHAs provided data in a form compatible with this table for the years 2002/03 to 2004/05 inclusive.

Data definitions: Table 3.2

- Column A is a descriptor of the 13 different household categories used in the analysis.
- Column B separates the household category by whether they are receiving or not receiving a rebate (i.e. a rent concession).
- Column C is the number of households in each household sub-category (e.g. single youth rebated) resident in the last week of the financial year.
- Column D is the number of households in this subcategory who left the dwelling (including transfers) during the whole financial year.
- Column E is the sum of all household incomes for each rebated household category for the week ending the financial year.
- Column F is the sum of the weekly rent charged for the week ending the financial year for each household subcategory.
- Column G is the total estimated market rent for the household sub-category.
- Column H is the total weekly arrears for the subcategory. Weekly arrears has been calculated by subtracting the sum of all arrears – i.e. one payment, two payments, more than two payments etc as at the end of the week preceding the

last week of the financial year – from the sum of all arrears for the week ending the financial year.

- Column I is Column D divided by Column C.
- Column J is the average number of days for which all dwellings vacated by households in the subcategory remained vacant within the year (including weekend days).

This information can be repeated for Years 2 through 5.

The basic set of calculations

The data base permits the following basic set of calculations for each year of data provided.

Table 3.2: Final weekly 'snapshot' data inputs for modelling client profile options: first year

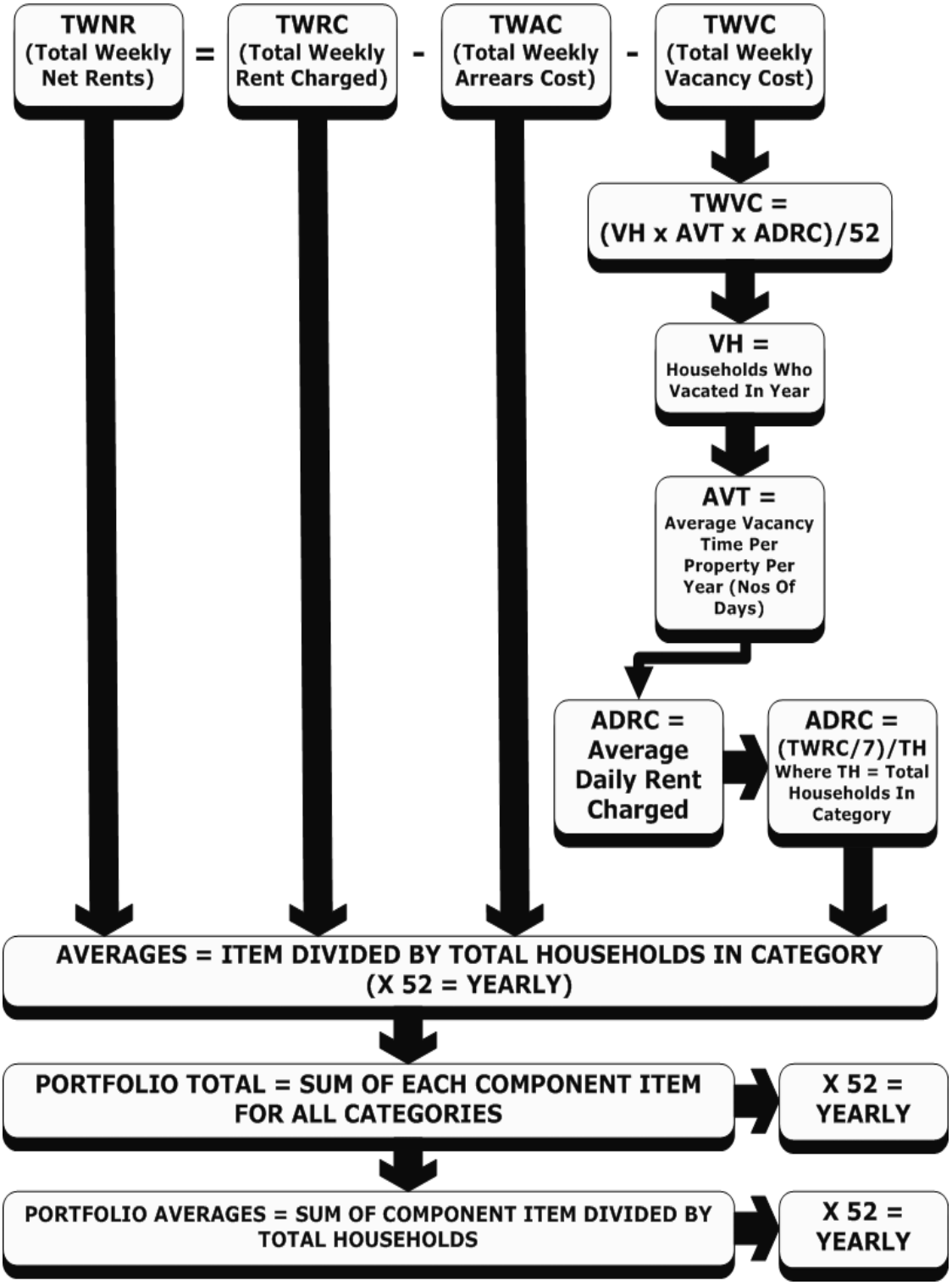
A	B	C	D	E	F	G	H	I	J	K
Household Type	Full Or Rebated Renter	Nos Of Households End Of Year	Nos Of Households Left During Year	Total Weekly Household Income: $: Rebated Tenants	Total Weekly Rent Charged: $	Total Weekly Market Rent: $	Total Weekly Arrrears: $	% Of Households Leaving In Year	Average Vacancy Time: Days	Average Vacancy Time Total
Single Youth	Rebated Renter	329	46	54,086	12,008	35,556	3,235	14.0%	51	2,351
Single Youth	Full Renter	15	2	0	1,458	1,458	556	14.0%	51	107
Single 21-64	Rebated Renter	13,621	1,903	2,931,822	788,458	1,715,192	106,966	14.0%	51	97,330
Single 21-64	Full Renter	3,738	522	0	508,890	508,890	75,938	14.0%	51	26,710
Single Aged	Rebated Renter	10,660	1,489	2,414,898	583,418	1,217,620	8,710	14.0%	51	76,172
Single Aged	Full Renter	667	93	0	82,552	82,552	1,762	14.0%	51	4,766
Single Parent +1	Rebated Renter	2,628	247	869,185	187,927	366,614	34,870	9.4%	34	8,311
Single Parent +1	Full Renter	49	5	0	6,456	6,456	1,546	9.4%	34	155
Single Parent +2 Or More	Rebated Renter	2,683	252	1,077,445	217,967	383,518	58,566	9.4%	34	8,485
Single Parent +2 Or More	Full Renter	47	4	0	5,954	5,954	1,800	9.4%	34	149
Single Parent Other	Rebated Renter	1,010	95	549,670	90,221	153,189	16,247	9.4%	34	3,194
Single Parent Other	Full Renter	70	7	0	9,720	9,720	2,265	9.4%	34	221
Couple	Rebated Renter	1,823	88	702,246	168,440	253,485	17,070	4.8%	31	2,769
Couple	Full Renter	129	6	0	17,336	17,336	2,500	4.8%	31	196
Couple Aged	Rebated Renter	2,536	122	994,450	238,993	341,456	4,952	4.8%	31	3,852
Couple Aged	Full Renter	48	2	0	5,443	5,443	137	4.8%	31	73
Couple +1	Rebated Renter	451	24	197,982	44,655	63,990	9,728	5.4%	33	796
Couple +1	Full Renter	49	3	0	6,818	6,818	716	5.4%	33	86
Couple Plus 2 Or More	Rebated Renter	874	47	443,233	95,304	129,217	23,594	5.4%	33	1,542
Couple Plus 2 Or More	Full Renter	147	8	0	19,782	19,782	5,464	5.4%	33	259
Couple Other	Rebated Renter	808	43	504,682	91,686	125,557	12,472	5.4%	33	1,426
Couple Other	Full Renter	179	10	0	25,722	25,722	5,130	5.4%	33	316
Sharer Group	Rebated Renter	2,594	59	1,215,229	217,492	374,678	25,404	2.3%	42	2,450
Sharer Group	Full Renter	215	5	0	29,658	29,658	4,774	2.3%	42	203
Unknown	Rebated Renter	5	0	0	311	648	0	2.3%	42	5
Unknown	Full Renter	2	0	0	296	296	0	2.3%	42	2
TOTALS		*45,377*	*5,083*		3,456,964	5,880,803	424,402	11.2%	47.60	241,926

Source: Office of Housing Victoria and South Australian Housing Trust, 2006, unpublished unit record data.

3.3.4 Basic calculations

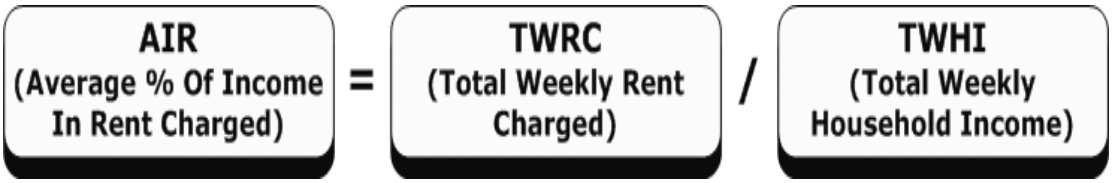
Figures 3.1, 3.2 and 3.3 set out the basic calculations, which are derived from the Table 3.2 data. These calculations can be completed for any household category, the portfolio and for any year.

Figure 3.1: Basic calculation: rebated tenants



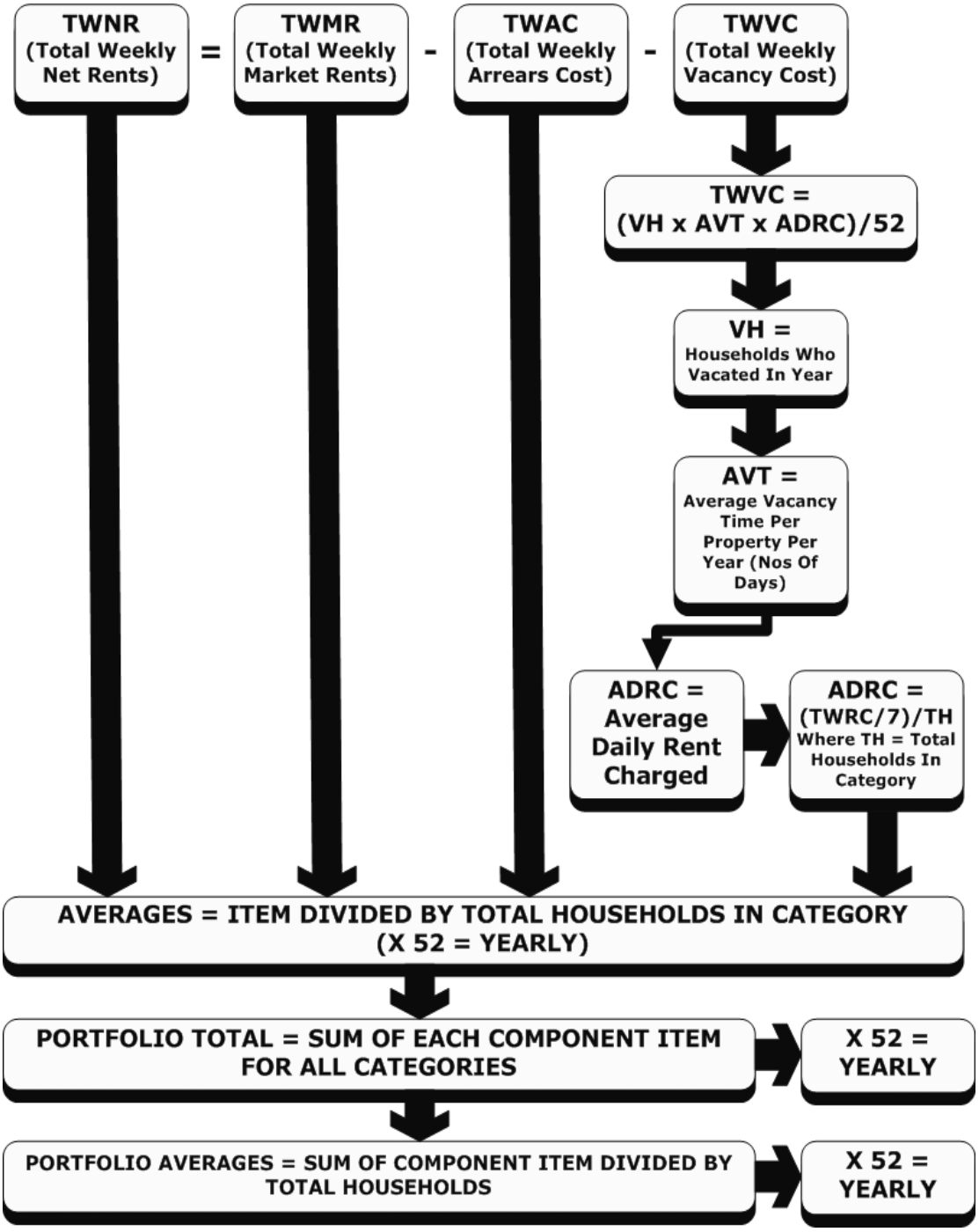
Source: Hall and Berry, 2006 Unpublished Client Profiles Model

Figure 3.2: Average percentage of income: rebated tenants



Source: Hall and Berry, 2006 Client Profiles Model, AHURI

Figure 3.3: Basic calculation: unrebated tenants



Source: Hall and Berry, 2006 Unpublished Client Profiles Model

3.4 Matters that can be assessed with the available data

With appropriate modelling, the data permits quantitative assessment of the impact of changes to:

- portfolio size
- client mix (i.e. proportion of new lettings to different households, and rebated/unrebated tenants etc)
- average income by household type
- alternative rent-setting options
- rent charged as a proportion of income for rebated tenants
- average market rents
- escalation factors – i.e. the rate at which various components increase/decrease each year

on average and total net rental revenue.

The data also permits modelling, which can review the historical impact of compositional change on net average and total rent revenues.

3.5 Matters that cannot be assessed with the available data

The data could not be used to analyse the impact of changes to:

- pensions and benefits
- the incomes of unrebated (non-concessional) tenants
- client composition on other cost components such as maintenance.

3.6 An example of option testing: the historical impact of changes to the compositional mix

One of the objectives of the analysis was to isolate the impact of changes to rent-charging policies in the historical period. The best way to do this is to keep all other variables the same and impose the current year's household distribution on the first year of the analysis.

For example, say there are 1000 rebated tenants in the first year, and the Youth category is 5 per cent of that 1000 – i.e. 50 households. If, in the current distribution, youth represented 10 per cent of all rebated tenants, we would then apply that proportion to the first year's numbers – i.e. Youth equals 10 per cent of 1000 households = 100, and so on through the 13 household categories. All other inputs, such as average per household rent charged, average arrears, and average vacancy losses per household, are all kept the same as in the first year's data. We then calculate the total and average net rent by category, sum the results and compare this outcome to the original first year's distribution. This isolates the impact of compositional change.

Tables 3.3 and 3.4 set out an example of the original first year data and then the result with the intervening compositional change grafted in.

The Modelling section of this report (chapter 4) explains in more detail the way in which the various other change options function.

Table 3.3: First year data

Household Type	Full Or Rebated Renter	Nos Of Households End Of Year	Nos Of Households Left During Year	Total Weekly Household Income: $: Rebated Tenants	Total Weekly Rent Charged: $	Total Weekly Market Rent: $	Total Weekly Arrrears: $	% Of Households Leaving In Year	Average Vacancy Time: Days	Average Vacancy Time Total
Single Youth	Rebated Renter	221	51	33,859	8,050	28,032	1,484	22.9%	39	1,999
Single Youth	Full Renter	6	1	0	566	566	105	22.9%	39	54
Single 21-64	Rebated Renter	14,786	2,020	3,282,578	785,771	2,091,853	1,311	13.7%	45	91,093
Single 21-64	Full Renter	668	91	0	79,360	79,360	124	13.7%	45	4,115
Single Aged	Rebated Renter	12,674	1,897	2,894,890	674,896	1,566,005	14	15.0%	45	85,072
Single Aged	Full Renter	373	56	0	27,396	27,396	959	15.0%	45	2,504
Single Parent +1	Rebated Renter	5,142	998	1,758,699	355,002	825,463	46,850	19.4%	33	33,173
Single Parent +1	Full Renter	323	63	0	45,299	45,299	17,968	19.4%	33	2,084
Single Parent +2 Or More	Rebated Renter	6,784	1,356	3,061,510	555,015	1,146,661	51,654	20.0%	34	46,627
Single Parent +2 Or More	Full Renter	436	87	0	66,424	66,424	8,950	20.0%	34	2,997
Single Parent Other	Rebated Renter	2,768	391	1,376,373	262,166	511,315	6,674	14.1%	31	12,128
Single Parent Other	Full Renter	627	88	0	98,225	98,225	17,689	14.1%	31	2,747
Couple	Rebated Renter	1,961	166	715,570	168,184	321,746	5,779	8.5%	34	5,562
Couple	Full Renter	333	28	0	43,297	43,297	372	8.5%	34	944
Couple Aged	Rebated Renter	2,191	150	819,236	189,773	347,725	6,903	6.8%	34	5,152
Couple Aged	Full Renter	327	22	0	30,408	30,408	770	6.8%	34	769
Couple +1	Rebated Renter	740	122	313,290	67,848	120,053	21	16.5%	33	3,958
Couple +1	Full Renter	208	34	0	29,133	29,133	1,344	16.5%	33	1,112
Couple Plus 2 Or More	Rebated Renter	1,885	324	1,069,693	206,469	328,721	43,887	17.2%	32	10,470
Couple Plus 2 Or More	Full Renter	824	142	0	122,766	122,766	2,288	17.2%	32	4,577
Couple Other	Rebated Renter	1,659	167	954,527	199,981	319,762	50,372	10.1%	31	5,232
Couple Other	Full Renter	1,256	126	0	207,376	207,376	15,048	10.1%	31	3,961
Sharer Group	Rebated Renter	4,615	525	1,833,955	419,920	818,606	460	11.4%	36	18,739
Sharer Group	Full Renter	1,294	147	0	196,799	196,799	13,771	11.4%	36	5,254
Unknown	Rebated Renter	0	0	0	0	0	0	0.0%	0	0
Unknown	Full Renter	0	0	0	0	0	0	0.0%	0	0
TOTALS		62,101	9,052		4,840,126	9,372,991	294,796	14.6%	38.70	350324

Source: Unpublished Data provided by Office Of Housing Victoria and South Australian Housing Trust

Table 3.4: Third year household distribution applied to first year averages and incidences

Household Type	Full Or Rebated Renter	Nos Of Households End Of Year	Nos Of Households Left During Year	Total Weekly Household Income: $: Rebated Tenants	Total Weekly Rent Charged: $	Total Weekly Market Rent: $	Total Weekly Arrrears: $	% Of Households Leaving In Year	Average Vacancy Time: Days	Average Vacancy Time Total
Single Youth	Rebated Renter	349	80	53,483	12,715	44,278	2,344	22.9%	39	3,157
Single Youth	Full Renter	23	5	0	2,184	2,184	406	22.9%	39	209
Single 21-64	Rebated Renter	13,970	1,908	3,101,464	742,416	1,976,436	1,238	13.7%	45	86,067
Single 21-64	Full Renter	780	106	0	92,615	92,615	144	13.7%	45	4,803
Single Aged	Rebated Renter	13,115	1,963	2,995,576	698,369	1,620,471	14	15.0%	45	88,031
Single Aged	Full Renter	417	62	0	30,660	30,660	1,074	15.0%	45	2,802
Single Parent +1	Rebated Renter	6,686	1,298	2,286,889	461,620	1,073,374	60,921	19.4%	33	43,136
Single Parent +1	Full Renter	448	87	0	62,855	62,855	24,932	19.4%	33	2,891
Single Parent +2 Or More	Rebated Renter	9,154	1,830	4,131,232	748,942	1,547,316	69,702	20.0%	34	62,919
Single Parent +2 Or More	Full Renter	656	131	0	99,867	99,867	13,456	20.0%	34	4,505
Single Parent Other	Rebated Renter	2,852	402	1,418,303	270,153	526,892	6,877	14.1%	31	12,497
Single Parent Other	Full Renter	777	110	0	121,717	121,717	21,919	14.1%	31	3,404
Couple	Rebated Renter	990	84	361,125	84,877	162,375	2,916	8.5%	34	2,807
Couple	Full Renter	197	17	0	25,594	25,594	220	8.5%	34	558
Couple Aged	Rebated Renter	1,238	85	462,740	107,192	196,410	3,899	6.8%	34	2,910
Couple Aged	Full Renter	189	13	0	17,605	17,605	446	6.8%	34	445
Couple +1	Rebated Renter	695	114	294,230	63,721	112,749	19	16.5%	33	3,717
Couple +1	Full Renter	220	36	0	30,827	30,827	1,423	16.5%	33	1,177
Couple Plus 2 Or More	Rebated Renter	2,013	346	1,142,137	220,452	350,983	46,859	17.2%	32	11,179
Couple Plus 2 Or More	Full Renter	957	165	0	142,649	142,649	2,659	17.2%	32	5,318
Couple Other	Rebated Renter	905	91	520,561	109,062	174,386	27,471	10.1%	31	2,853
Couple Other	Full Renter	879	88	0	145,108	145,108	10,530	10.1%	31	2,771
Sharer Group	Rebated Renter	3,450	392	1,371,028	313,924	611,974	344	11.4%	36	14,009
Sharer Group	Full Renter	1,141	130	0	173,500	173,500	12,141	11.4%	36	4,632
Unknown	Rebated Renter	0	0	0	0	0	0	0.0%	0	0
Unknown	Full Renter	0	0	0	0	0	0	0.0%	0	0
TOTALS		*62,101*	*9,544*		4,778,625	9,342,825	311,954	14.6%	38.70	366,801

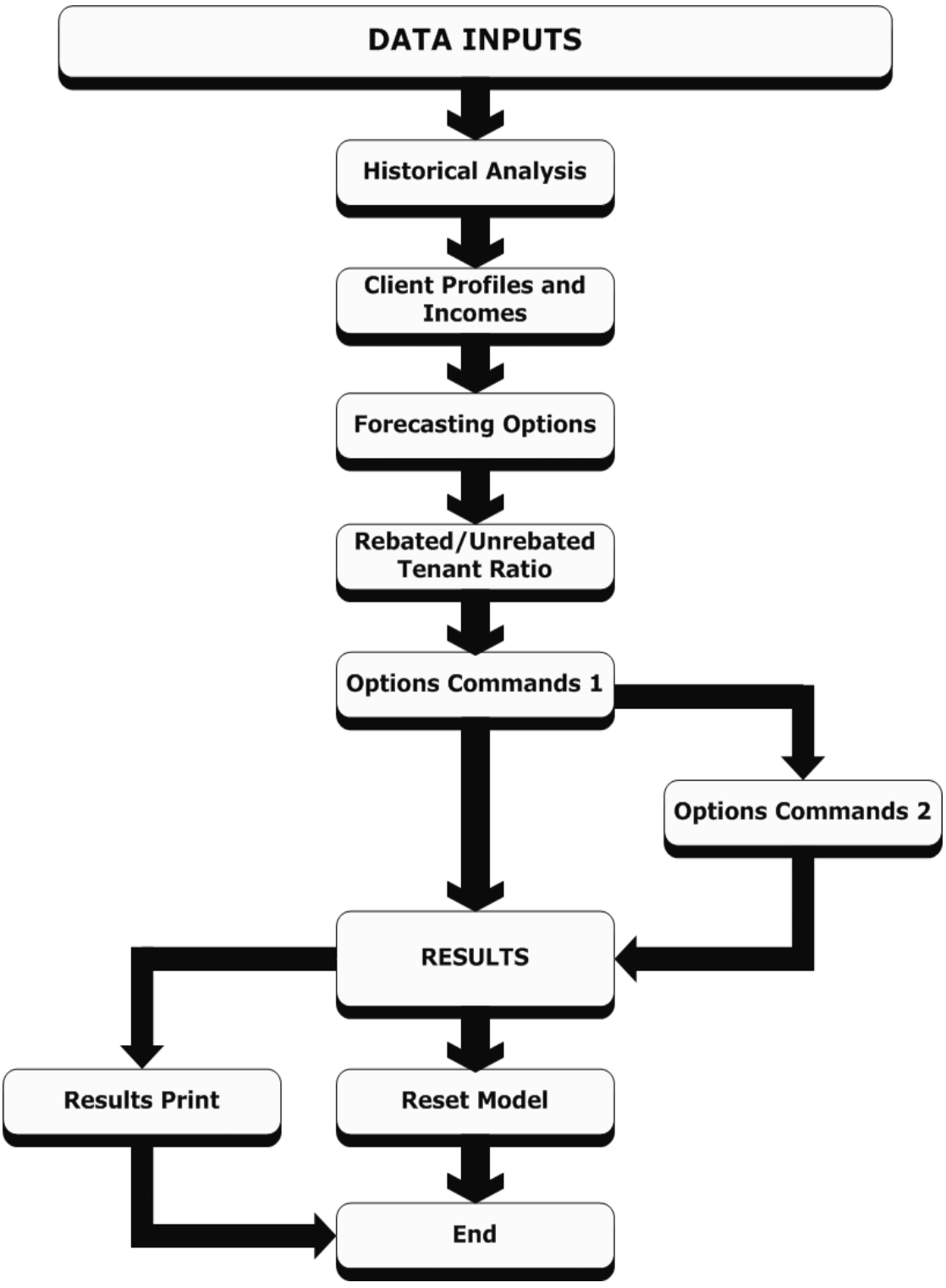
Source: Hall and Berry: Client Profiles Model, 2006.

4 MODEL DEVELOPMENT AND OPERATION

4.1 Model architecture

Figure 4.1 sets out the Model's architecture.

Figure 4.1: Model architecture



4.2 Model objectives

The User Group agreed that the policy and forecasting model needs to be:

- flexible – able to handle different:
  - household groups
  - incomes
  - rents charged
  - rents as percentage of incomes
  - market rents
  - pension and benefit changes
  - vacancy/replacement rates
  - arrears incidences and durations
  - cost variations
  - rent and cost escalation factors
  - economic scenarios
- explicit – able to disaggregate the relative impact of different assumptions for the key variables
- comprehensive – able to deal satisfactorily with the range of probable assumptions about future client profiles and characteristics
- logically consistent – illogical combinations are eliminated
- user friendly.

For a range of client profiles, the modelling needs to:

- quantify the rent impact of changes to the client profiles
- quantify the revenue impact of different scenarios of arrears outcomes
- quantify the revenue impact of different scenarios of vacancy/replacement outcomes
- assess the sensitivity of the revenue impact to each of the components tested.

4.3 Model operation

The Model analyses the impact of changes to the variables outlined in the Methodology section on total and average rent charged, and on average arrears and vacancy losses.

The Model can both review the historical impact of compositional change on net total and average rent revenues, and forecast the possible financial consequences of future changes.

It enables up to five years of historical data to be analysed and up to 13 different household types or categories can be accommodated. The model has been used in a real situation to analyse the impact of compositional change on net rent revenues for both the Office of Housing Victoria and the South Australian Housing Trust.

When forecasting, changes to any one or more of the following variables can be accommodated:

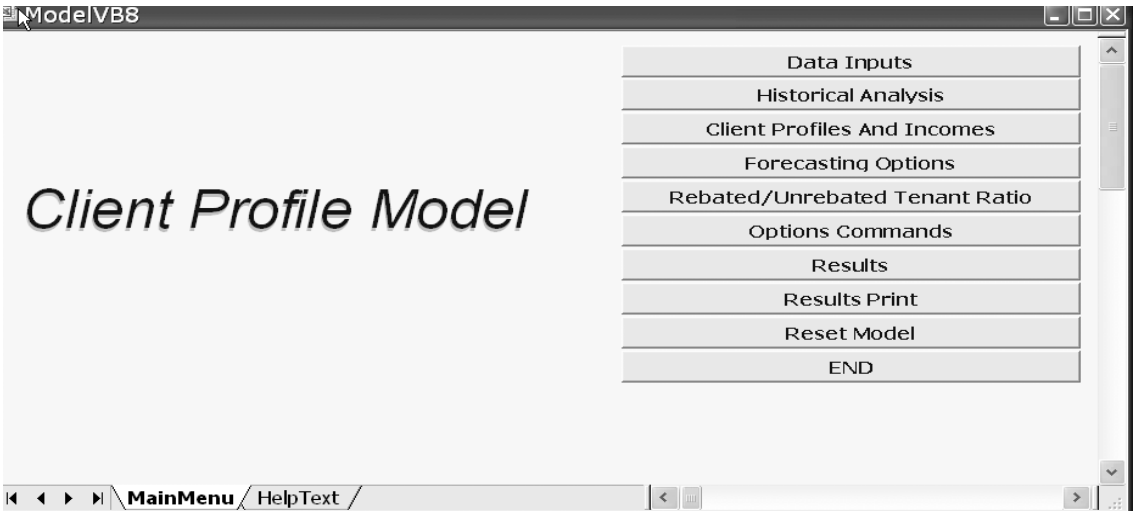
- composition of the total tenant households – i.e. numbers in each household category by rebated and unrebated tenants
- household income of rebated tenants
- proportion of income charged in rent to rebated tenants
- market rents
- arrears
- vacancies.

Changes to any of the variables can be applied to any or all of the 13 household categories. It is also possible to change these categories, provided not more than 13 new categories are chosen.

To the extent that forecasts of payments of unrebated tenants can be assessed, the Model presumes that these tenants will be able to pay any forecast increase in market rents, should that occur.

Figure 4.2 shows the Model's operating menu.

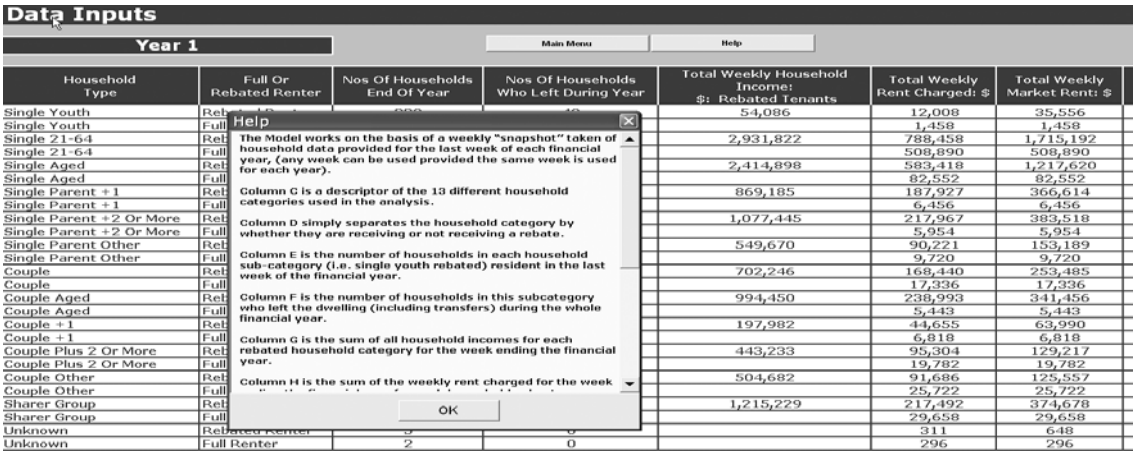
Figure 4.2: Model operating menu



4.4 Help menus

Each menu item has a help box that explains the purpose and method of the commands in that menu. Figure 4.3 shows the Help box contents for the Data Inputs menu.

Figure 4.3: Data Inputs Help menu



4.5 Data inputs

The Model provides for up to five years of input data. Figure 4.4 shows the Data Inputs form for one year.

Figure 4.4: Data Inputs

Data Inputs

Year 1

Main Menu | Help

Household Type	Full Or Rebated Renter	Nos Of Households End Of Year	Nos Of Households Who Left During Year	Total Weekly Household Income: $: Rebated Tenants	Total Weekly Rent Charged: $	Total Weekly Market Rent: $	Total Weekly Arrrears: $	% Of Households Leaving In Year	Average Vacancy Time: Days
Single Youth	Rebated Renter	329	40	54,086	12,008	35,556	3,235	14%	51
Single Youth	Full Renter	15	2		1,458	1,458	556	14%	51
Single 21-64	Rebated Renter	13,621	1,903	2,931,822	788,458	1,715,192	106,966	14%	51
Single 21-64	Full Renter	3,738	522		508,890	508,890	75,938	14%	51
Single Aged	Rebated Renter	10,660	1,489	2,414,898	583,418	1,217,620	8,710	14%	51
Single Aged	Full Renter	667	93		82,552	82,552	1,762	14%	51
Single Parent +1	Rebated Renter	2,628	247	869,185	187,927	366,614	34,870	9%	34
Single Parent +1	Full Renter	49	5		6,456	6,456	1,546	9%	34
Single Parent +2 Or More	Rebated Renter	2,683	252	1,077,445	217,967	383,518	58,566	9%	34
Single Parent +2 Or More	Full Renter	47	4		5,954	5,954	1,800	9%	34
Single Parent Other	Rebated Renter	1,010	95	549,670	90,221	153,189	16,247	9%	34
Single Parent Other	Full Renter	70	7		9,720	9,720	2,265	9%	34
Couple	Rebated Renter	1,823	88	702,246	168,440	253,485	17,070	5%	31
Couple	Full Renter	129	6		17,336	17,336	2,500	5%	31
Couple Aged	Rebated Renter	2,536	122	994,450	238,993	341,456	4,952	5%	31
Couple Aged	Full Renter	48	2		5,443	5,443	137	5%	31
Couple +1	Rebated Renter	451	24	197,982	44,655	63,990	9,728	5%	33
Couple +1	Full Renter	49	3		6,818	6,818	716	5%	33
Couple Plus 2 Or More	Rebated Renter	874	47	443,233	95,304	129,217	23,594	5%	33
Couple Plus 2 Or More	Full Renter	147	8		19,782	19,782	5,464	5%	33
Couple Other	Rebated Renter	808	43	504,682	91,686	125,557	12,472	5%	33
Couple Other	Full Renter	179	10		25,722	25,722	5,130	5%	33
Sharer Group	Rebated Renter	2,594	59	1,215,229	217,492	374,678	25,404	2%	42
Sharer Group	Full Renter	215	5		29,658	29,658	4,774	2%	42
Unknown	Rebated Renter	5	0		311	648		2%	42
Unknown	Full Renter	2	0		296	296		2%	42

As outlined earlier, the Model works on the basis of a weekly "snapshot" of household data provided for the last week of each financial year (any week can be used, provided the same week is used for each year). With the exception of vacancy rate data, which requires annual inputs to determine a weekly cost, all data is for the week ending 30 June each year. From these inputs a close approximation of yearly rent revenue can be calculated.

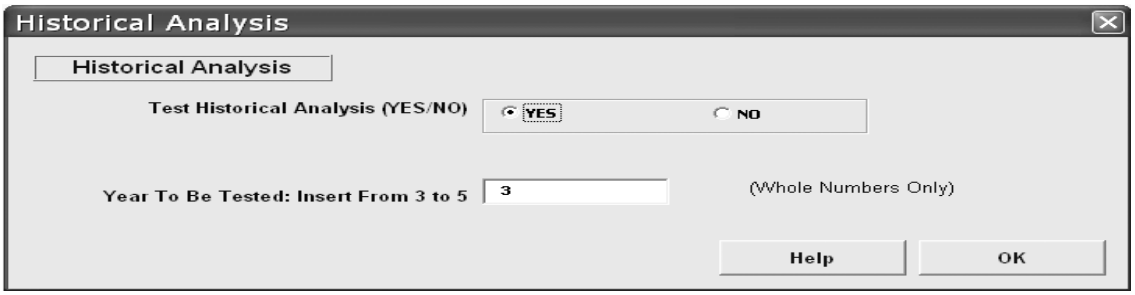
This information can be repeated for Years 2 through 5.

All calculations are performed separately for each household type and by rebated and unrebated renters.

4.6 Historical analysis

Figure 4.5 shows the menu for the Historical Analysis commands.

Figure 4.5: Historical Analysis menu



The Model enables a quick comparison of the first year's anticipated net rent revenue outcomes with any of the third, fourth or fifth years. It does this by converting the weekly data (other than vacants) to yearly outcomes.

When you enter a Yes and the year you wish to compare to the first year's results, the Model will show, in the first Result Table for that nominated test year, average per household:

- rent charged
- arrears
- vacancy loss
- net rents

for rebated tenants, unrebated tenants and the total.

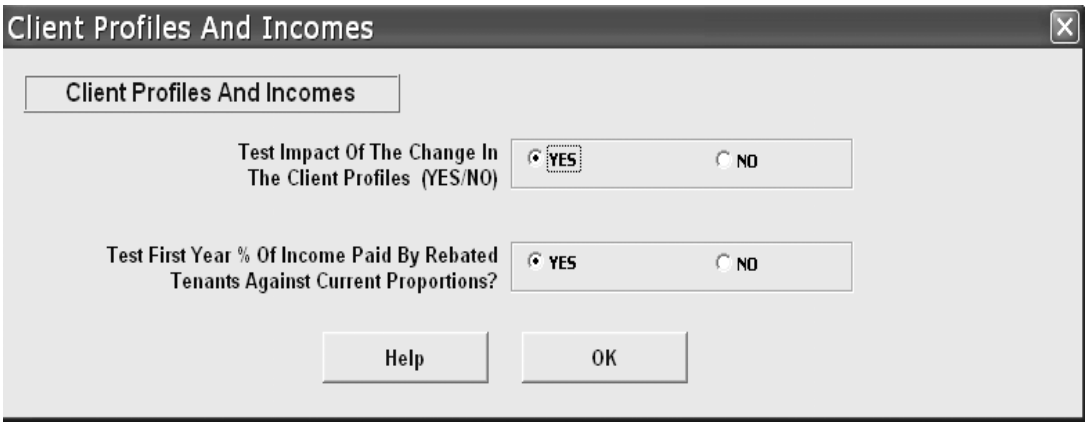
It will also calculate and display the absolute change in the averages from the first year and also the percentage change. The Model will also display the proportion of the total households occupied by each household category for both rebated and unrebated tenants (see section 4.12, Results).

Finally, it will display a summary table of the numbers of tenants (rebated, unrebated and total) for the initial year and the test year.

4.7 Client profiles and incomes

Figure 4.6 shows the menu for the Client Profiles and Incomes commands.

Figure 4.6: Client Profiles and Incomes



The Client Profiles command inserts the household profile for the test year into the initial year's data and holds all other variables constant. It then calculates the impact on net rental revenue. The results will display the average:

- rent charged
- arrears
- vacancy loss
- net rents

for rebated tenants, unrebated tenants and the total for both the original year and the original year with the test year's client profile.

It will also display the net total annual rental gain/loss resulting from the change in profile.

In this way the Model isolates and excludes the impact of any rent-charging policy changes and changes to arrears and vacancy loss profiles that might have occurred between the initial year and the test year.

The Client Incomes command conducts the same test in reverse. It inserts the average proportion of household income paid by rebated tenants in rent for each household group in the initial year in the test or current year's data and holds all other variables constant.

The Results table will display the same data as per the client profiles analysis, i.e. average:

- rent charged
- arrears
- vacancy loss
- net rents

for rebated tenants, unrebated tenants and the total, for both the test year and the test year with the original year's income profile.

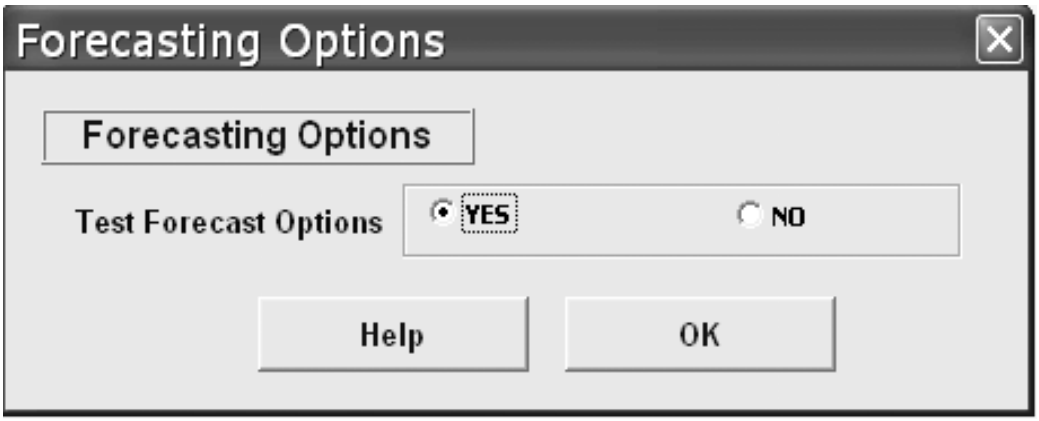
It will also display the net total annual rental gain/loss resulting from the change in proportion of income paid.

The question of why the Model doesn't paste the first year's household proportions into the current year's data was raised by one of the initial users. The difficulty with configuring the Model in this way is that it will also capture changes in rent-charging policy and so it will not correctly isolate the impact of household group or category change. The Client Incomes command attempts to isolate only the impact of rent-charging policy change.

4.8 Forecasting options

Figure 4.7 shows the menu for the Forecasting Options command.

Figure 4.7: Forecasting Options

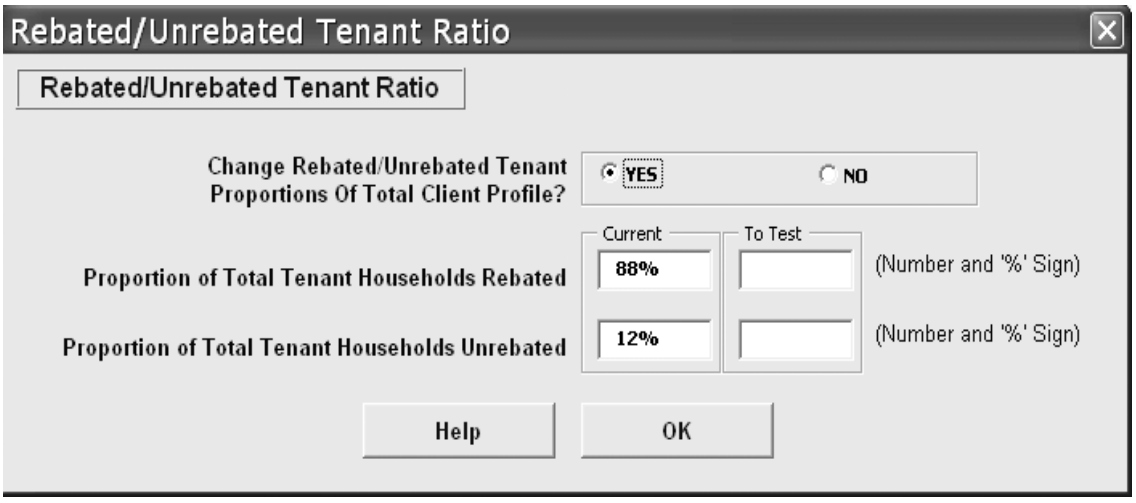


The command in this box simply releases the Model to undertake any of the range of forecasting options you may wish to assess. These forecasting options are set out in detail in the Rebated/Unrebated Tenant Ratio, Options Command 1 and Options Command 2 menus.

4.9 Rebated/Unrebated tenant ratio

Figure 4.8 shows the menu for the Forecasting Options command.

Figure 4.8: Rebated/Unrebated Tenant Ratio



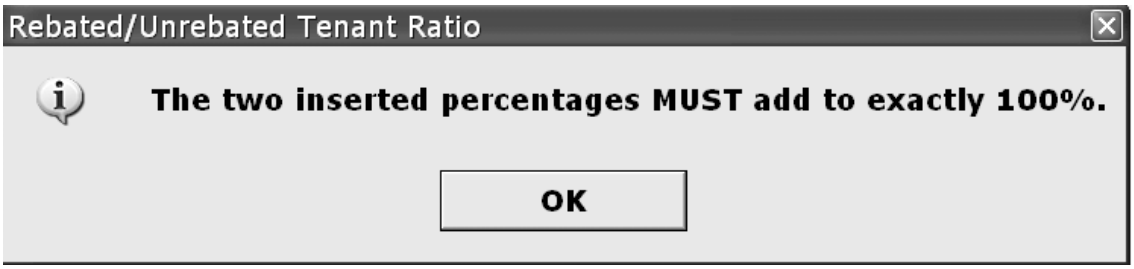
This command allows you to change the ratio of rebated to unrebated tenants in order to assess the impact of continuing trends towards a fully rebated tenant portfolio. It takes the

- rent charged
- arrears
- vacancy loss
- net rents

for all rebated and unrebated tenants for the last year in which data has been inserted in the Model. Total net rent revenue is then recalculated using the test assumptions. It should be noted that the percentages inserted in each of the two boxes must add to exactly 100 per cent. If the percentages in the test boxes do not add to 100 per cent,

the pop-up box shown in Figure 4.9 will appear, prompting any correction required in the test boxes.

Figure 4.9: Percentage correction pop-up



The output will be a table within the Results that summarises the average:

- rent charged
- arrears
- vacancy loss
- net rents

for the last year of the data compared to the test option for both rebated and unrebated tenants. It will also show the total increase/decrease in net rent revenue compared to the last year of data.

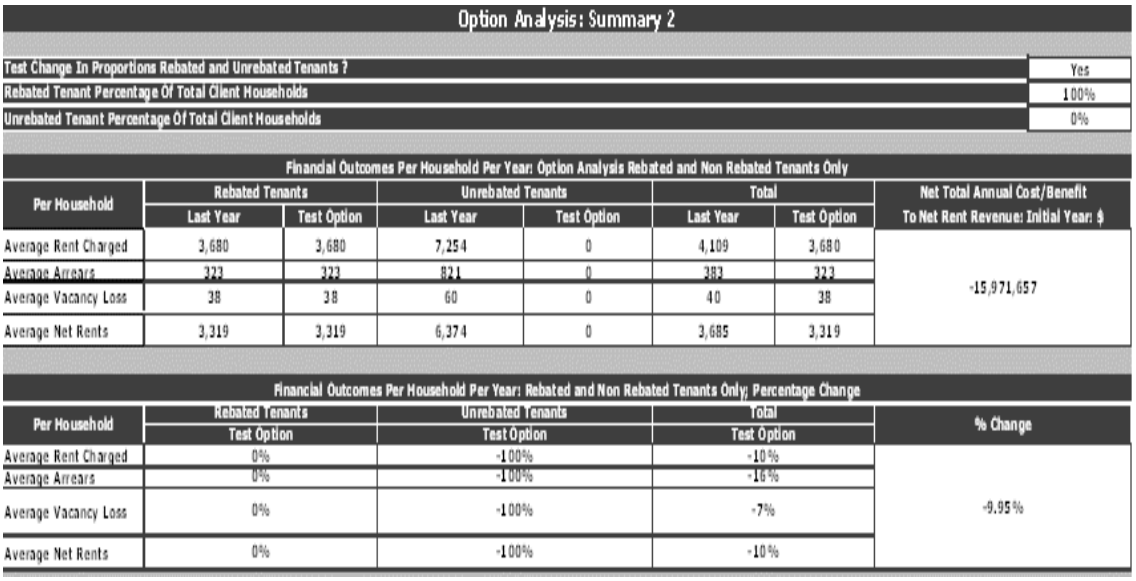
Following this summary table is a table that sets out all the percentage changes for all the components of the last year compared to the test option, i.e. the average:

- rent charged
- arrears
- vacancy loss
- net rents
- increase/decrease in net annual rent revenue

for both rebated and unrebated tenants.

Figure 4.10 shows the part of the Results table that sets out the rebated/unrebated tenant analysis.

Figure 4.10: Rebated/unrebated test results



Option Analysis: Summary 2

Test Change In Proportions Rebated and Unrebated Tenants ?	Yes
Rebated Tenant Percentage Of Total Client Households	100%
Unrebated Tenant Percentage Of Total Client Households	0%

Financial Outcomes Per Household Per Year: Option Analysis Rebated and Non Rebated Tenants Only

Per Household	Rebated Tenants		Unrebated Tenants		Total		Net Total Annual Cost/Benefit To Net Rent Revenue: Initial Year: $
	Last Year	Test Option	Last Year	Test Option	Last Year	Test Option	
Average Rent Charged	3,680	3,680	7,254	0	4,109	3,680	-15,971,657
Average Arrears	323	323	821	0	383	323	
Average Vacancy Loss	38	38	60	0	40	38	
Average Net Rents	3,319	3,319	6,374	0	3,685	3,319	

Financial Outcomes Per Household Per Year: Rebated and Non Rebated Tenants Only; Percentage Change

Per Household	Rebated Tenants	Unrebated Tenants	Total	% Change
	Test Option	Test Option	Test Option	
Average Rent Charged	0%	-100%	-10%	-9.95%
Average Arrears	0%	-100%	-16%	
Average Vacancy Loss	0%	-100%	-7%	
Average Net Rents	0%	-100%	-10%	

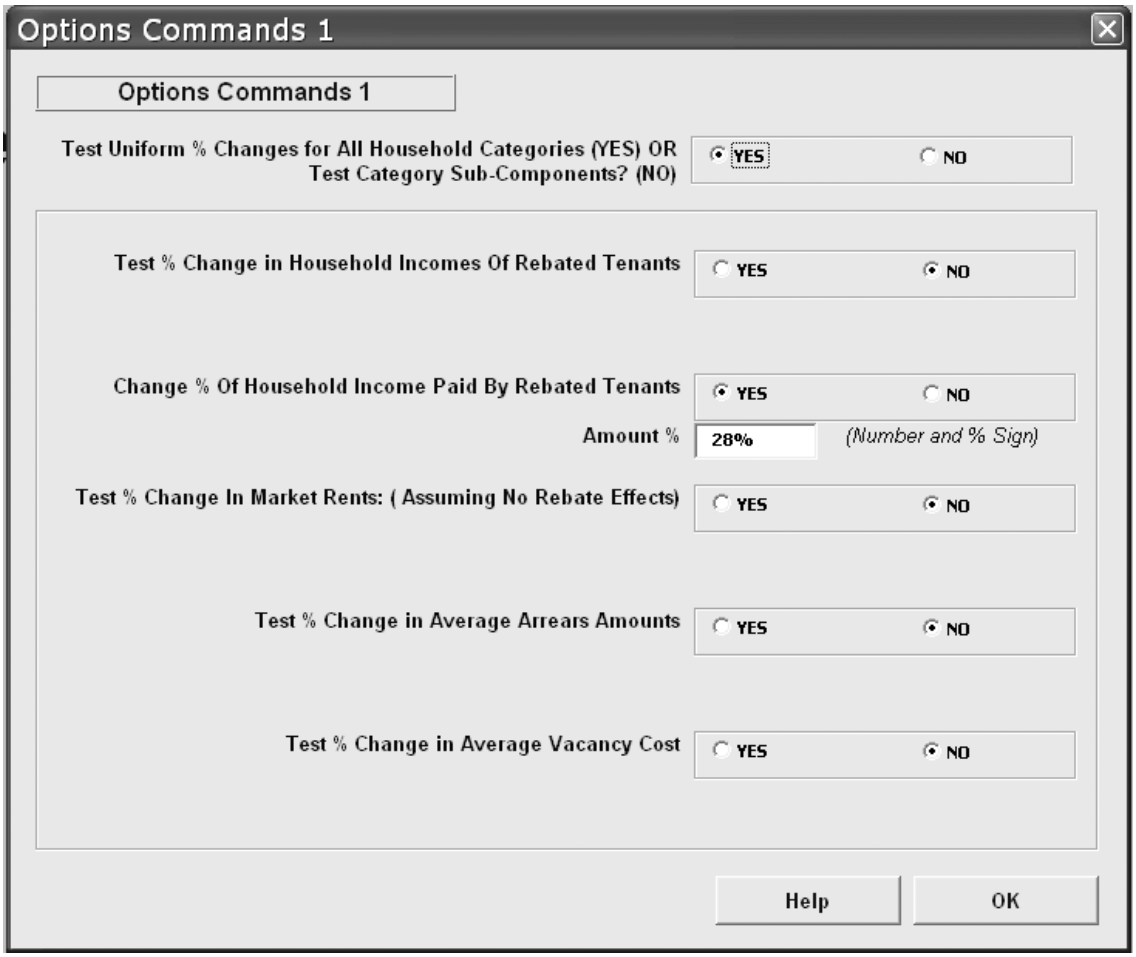
4.10 Options commands

The commands for the option analysis allow for three applications:

1. to analyse the impact of changes to one or more variables without changing the client profile
2. to analyse changes to one or more variables for any part of the client profile, i.e. household types
3. to simultaneously analyse changes to the client profile itself and the impact of changes to one or more variables applied to any household type or range of household types.

Figure 4.11 shows the menu for Options Commands 1.

Figure 4.11: Options Commands 1 menu



If “Yes” is selected for the first command, a drop-down menu will appear with the five commands as listed. Selected “Yes” for each of these commands opens a value box into which specific percentages can be inserted.

These commands permit you to increase or decrease averages per household by a specified percentage for:

- rebated tenants household incomes
- rebated tenants percentage of income paid
- market rents
- average arrears costs
- average vacancy costs

either singly or together to assess the impact on net rental revenues.

With the exception of the second command, “Change % of Household Income Paid By Rebated Tenants”, all the options permit the current amounts or percentages to be increased or decreased by a specific percentage.

When a percentage change for any variable is inserted, the Model takes the last year’s data for that variable and increases or decreases the numbers by the specified percentage for each and all household categories or types.

The second option requires you to insert the actual test total average percentage of income projected to be charged in rent to rebated tenants, e.g. in the Diagram above 28 per cent.

The output will be a table of results titled Options Analysis Summary 1, which summarises the average:

- rent charged
- arrears
- vacancy loss
- net rents

for the last year of the data compared to the test option for both rebated and unrebated tenants. It also shows the total increase/decrease of net rent revenue compared to the last year of data.

Following this summary table is a table that sets out all the percentage changes for all the components of the last year compared to the test option, i.e. average:

- rent charged
- arrears
- vacancy loss
- net rents
- increase/decrease in net annual rent revenue

for both rebated and unrebated tenants.

Figure 4.12 shows the results table output.

Figure 4.12: Results: Options Analysis Summary 1

Option Analysis: Summary 1

Test Percentage Changes Across All Household Categories Only ?	Yes	
Test Percentage Change In Household Incomes Of Rebated Tenants ?	Yes	Amount %
		0%
Change Percentage Of Household Income Paid By Rebated Tenants ?	Yes	Amount %
		28%
Test Percentage Change In Market Rents:(Assumming No Rebate Effects) ?	Yes	Amount %
		0%
Test Percentage Change In Average Arrears Amount Per Household ?	Yes	Amount %
		0%
Test Percentage Change In Average Vacancy Cost Per Household ?	Yes	Amount %
		0%

Financial Outcomes Per Household Per Year: Option Analysis

Per Household	Rebated Tenants		Unrebated Tenants		Total		Net Total Annual Cost/Benefit To Net Rent Revenue: Initial Year: $
	Last Year	Test Option	Last Year	Test Option	Last Year	Test Option	
Average Rent Charged	3,680	4,713	7,254	7,254	4,109	5,018	39,607,941
Average Arrears	323	323	821	821	383	383	
Average Vacancy Loss	38	38	60	60	40	40	
Average Net Rents	3,319	4,352	6,374	6,374	3,685	4,595	

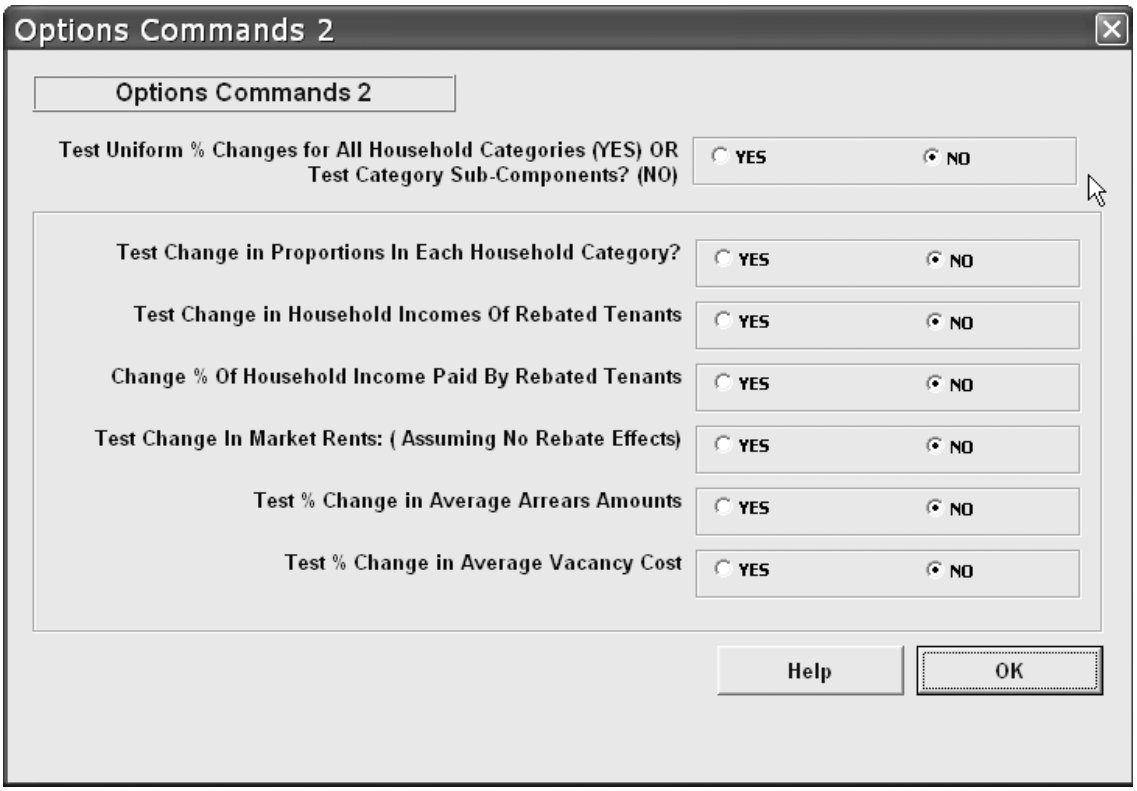
Financial Outcomes Per Household Per Year: Option Analysis: Percentage Change

Per Household	Rebated Tenants	Unrebated Tenants	Total	% Change
	Test Option	Test Option	Test Option	
Average Rent Charged	28.1%	0.0%	22.1%	24.67%
Average Arrears	0.0%	0.0%	0.0%	
Average Vacancy Loss	0.0%	0.0%	0.0%	
Average Net Rents	31.1%	0.0%	24.7%	

The results table summarises the composite range of options that have been tested and the outcomes of the analysis.

If “No” is selected in Options Commands 1, Options Commands 2 remains on screen. Figure 4.13 shows the menu for Options Commands 2.

Figure 4.13: Options Commands 2



When “Yes” is selected for any command, a menu will appear allowing you to increase or decrease by any percentage or amount any of the variables for any, some or all of the household groups. The options available are:

- proportions of the total client profile occupied by particular household groups whether rebated or unrebated
- rebated tenants household incomes
- rebated tenants percentage of income paid
- market rents
- average arrears costs
- average vacancy costs

either singly or together.

When the changes for any variable are inserted, the Model takes the last year’s data for that variable and increases or decreases the numbers by the changes specified for the household categories specified.

Figure 4.14 shows an example for household category change where single rebated youth are increased from less than 1 per cent to 12 per cent of the total portfolio.

Figure 4.14: Options 2: household category change

B	C	D	E	F
Proportion Of Households	Current		To Test	
Back to Options	Rebated Tenants	Unrebated Tenants	Rebated Tenants	Unrebated Tenants
Single Youth	0.96%	0.05%	12.96%	0.00%
Single 21-64	31.04%	2.95%	31.04%	0.00%
Single Aged	21.47%	0.35%	21.47%	0.00%
Single Parent +1	5.34%	0.39%	5.34%	0.00%
Single Parent +2 Or More	5.53%	0.43%	5.53%	0.00%
Single Parent Other	2.17%	0.43%	2.17%	0.00%
Couple	4.73%	1.54%	4.73%	0.00%
Couple Aged	5.11%	0.59%	5.11%	0.00%
Couple +1	0.99%	0.47%	0.99%	0.00%
Couple Plus 2 Or More	2.15%	0.99%	2.15%	0.00%
Couple Other	1.96%	1.88%	1.96%	0.00%
Sharer Group	6.55%	1.92%	6.55%	0.00%
Unknown	0.01%	0.02%	0.01%	0.00%
TOTAL	88.00%	12.02%	100%	0.00%

The output will be a table within the Results titled Options Analysis Summary 2.

Figure 4.15 shows the equivalent results table.

Figure 4.15: Options 2: results table

Test Change In Proportions In Each Household Category?	Yes
Test Change In Household Incomes Of Rebated Tenants ?	No
Change Percentage Of Household Income Paid By Rebated Tenants ?	No
Test Percentage Change In Market Rents:(Assumming No Rebate Effects) ?	No
Test Change In Average Arrears Amount Per Household ?	No
Test Change In Average Vacancy Cost Per Household ?	No

Household Type	Proportion Of Households		Average Incomes: Wkly	% Incomes Paid	Market Rents: Wkly	Aver. Wkly Arrears Amount		Aver. Wkly Vacancy Loss	
	Rebated Tenants	Unrebated Tenants	Rebated Tenants: Amount Per Week	Rebated Tenants	UnRebated Tenants	Rebated Tenants	Unrebated Tenants	Rebated Tenants	Unrebated Tenants
Single Youth	12.96%	0.00%	0.00	0.00%	0.00	0.00	0.00	0.00	0.00
Single 21-64	31.04%	0.00%	0.00	0.00%	0.00	0.00	0.00	0.00	0.00
Single Aged	21.47%	0.00%	0.00	0.00%	0.00	0.00	0.00	0.00	0.00
Single Parent +1	5.34%	0.00%	0.00	0.00%	0.00	0.00	0.00	0.00	0.00
Single Parent +2 Or More	5.53%	0.00%	0.00	0.00%	0.00	0.00	0.00	0.00	0.00
Single Parent Other	2.17%	0.00%	0.00	0.00%	0.00	0.00	0.00	0.00	0.00
Couple	4.73%	0.00%	0.00	0.00%	0.00	0.00	0.00	0.00	0.00
Couple Aged	5.11%	0.00%	0.00	0.00%	0.00	0.00	0.00	0.00	0.00
Couple +1	0.99%	0.00%	0.00	0.00%	0.00	0.00	0.00	0.00	0.00
Couple Plus 2 Or More	2.15%	0.00%	0.00	0.00%	0.00	0.00	0.00	0.00	0.00
Couple Other	1.96%	0.00%	0.00	0.00%	0.00	0.00	0.00	0.00	0.00
Sharer Group	6.55%	0.00%	0.00	0.00%	0.00	0.00	0.00	0.00	0.00
Unknown	0.01%	0.00%	0.00	0.00%	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00%	0.00%	0.00	0.00%	0.00	0.00	0.00	0.00	0.00

Financial Outcomes Per Household Per Year: Option Analysis							
Per Household	Rebated Tenants		Unrebated Tenants		Total		Net Total Annual Cost/Benefit To Net Rent Revenue: Initial Year: $
	Last Year	Test Option	Last Year	Test Option	Last Year	Test Option	
Average Rent Charged	3,680	3,527	7,254	0	4,109	3,527	-21,779,908
Average Arrears	323	305	821	0	383	305	
Average Vacancy Loss	38	37	60	0	40	37	
Average Net Rents	3,319	3,185	6,374	0	3,685	3,185	

Financial Outcomes Per Household Per Year: Option Analysis: Percentage Change				
Per Household	Rebated Tenants	Unrebated Tenants	Total	% Change
	Test Option	Test Option	Test Option	
Average Rent Charged	-4.15%	-100.00%	-14.16%	-13.57%
Average Arrears	-5.71%	-100.00%	-20.41%	
Average Vacancy Loss	-2.25%	-100.00%	-8.67%	
Average Net Rents	-4.02%	-100.00%	-13.57%	

As with Options Commands 1, the Options 2 results table summarises the composite range of options that have been tested and the financial outcomes.

The table summarises the average:

- rent charged
- arrears
- vacancy loss
- net rents

for the last year of the data compared to the test option for both rebated and unrebated tenants. It also shows the total increase/decrease in net rent revenue compared to the last year of data.

Following this summary table is a table that sets out all the percentage changes for all the components of the last year compared to the test option. In this way the user can test the impact on the total results of changes to only one household group.

4.11 Model check

Figure 4.16 shows the first five menus in the first window of the Model.

Figure 4.16: Initial command menus

If a “Yes” value is not inserted in one of these menus, the Model will display the prompt shown in Figure 4.17.

Figure 4.17: Pop-up check window

This provides the user with a check that they have inserted a test value at least once in the Model.

4.12 Results

When all commands have been completed, the Model will automatically display the results tables, which can be printed by using the “Results Print” command. Depending on the user’s commands, the Model will display one of five possible result outcomes.

If the user has chosen to test:

- only the historical part of the Model – the first results table will be displayed as shown in Figure 4.18.
- the historical part of the Model plus Option Commands 1 – the first results table and the results table shown in Figure 4.12 will be displayed
- the historical part of the Model plus Options Command 2 – the first results table and the results table shown in Figure 4.15 will be displayed
- only Options Command 1 – the results table shown in Figure 4.12 will be displayed
- only Options Command 2 – the results table shown in Figure 4.15 will be displayed.

If any of the sub-options (such as client profiles) are tested, these will be displayed in the Historical Analysis results table, as shown in Figure 4.18.

Figure 4.18: Results: historical analysis

Client Profiles: Rent Revenue Results

Historical Analysis

Client Distribution: Test Year			3
Household Type	Rebated Tenants	Unrebated Tenants	Total
Single Youth	0.96%	0.05%	1%
Single 21-64	31.12%	2.91%	34%
Single Aged	21.52%	0.34%	22%
Single Parent +1	5.35%	0.38%	6%
Single Parent +2 Or Mor	5.54%	0.42%	6%
Single Parent Other	2.18%	0.42%	3%
Couple	4.74%	1.51%	6%
Couple Aged	5.12%	0.88%	6%
Couple +1	1.00%	0.46%	1%
Couple Plus 2 Or More	2.15%	0.98%	3%
Couple Other	1.96%	1.85%	4%
Sharer Group	6.57%	1.89%	8%
Unknown	0.01%	0.00%	0%
TOTALS	88%	12%	100%

Financial Outcomes Per Household Per Year:			3
Per Household	Rebated Tenants	Unrebated Tenants	Total
Average Rent Charged	3,680	7,254	4,109
Average Arrears	323	821	383
Average Vacancy Loss	38	60	40
Average Net Rents	3,319	6,374	3,685

Change In Average Amounts Received: Original Yr Versus Test Yr			
Per Household	Rebated Tenants	Unrebated Tenants	Total
Average Rent Charged	123.6	261.6	147.1
Average Arrears	-94.9	-175.5	-103.4
Average Vacancy Loss	-7.7	-59.5	-13.8
Average Net Rents	226.2	496.6	264.3

Percentage Change: Original Year Versus Test Year			3
Client Distribution			
Per Household	Rebated Tenants	Unrebated Tenants	Total
Single Youth	26.4%	53.3%	27.6%
Single 21-64	-0.7%	-65.6%	-14.7%
Single Aged	-12.3%	-77.4%	-16.1%
Single Parent +1	-11.6%	242.9%	-6.9%
Single Parent +2 Or Mor	-10.2%	297.9%	-4.9%
Single Parent Other	-6.3%	168.6%	5.0%
Couple	13.0%	420.2%	39.9%
Couple Aged	-12.3%	427.5%	-2.9%
Couple +1	-4.0%	214.2%	27.2%
Couple Plus 2 Or More	7.0%	194.6%	34.0%
Couple Other	5.4%	358.1%	69.4%
Sharer Group	10.0%	289.8%	31.4%
Unknown	0.0%	-50.0%	-14.3%
TOTALS	-4.2%	-2.4%	-4.0%

Financial Outcomes Per Household			
Per Household	Rebated Tenants	Unrebated Tenants	Total
Average Rent Charged	3.47%	3.74%	3.71%
Average Arrears	-22.69%	-17.62%	-21.26%
Average Vacancy Loss	-17.09%	-50.00%	-25.57%
Average Net Rents	7.31%	8.45%	7.72%

Total Households: Original Year & Test Year		
Household Type	Original Year	Test Year
Rebated Tenants	40,022	38,327
Unrebated Tenants	5,355	5,228
Total	45,377	43,555

Historical Analysis: Client Profile Change Outcomes

Financial Outcomes Per Household Per Year							
Per Household	Rebated Tenants		Unrebated Tenants		Total		Net Total Annual Cost/Benefit To Net Rent Revenue: Initial Year: $
	Original Year	Initial Year With Current Client Profile	Original Year	Initial Year With Current Client Profile	Original Year	Initial Year With Current Client Profile	
Average Rent Charged	3,556	3,577	6,992	7,037	3,962	3,986	-90,340
Average Arrears	418	429	996	1,202	486	520	
Average Vacancy Loss	45	45	119	62	54	47	
Average Net Rents	3,093	3,104	5,877	5,772	3,421	3,419	

RESULTS 2

Historical Analysis: First Year % Of Income Paid

Test First Year % Of Income Paid By Rebated Tenants Against Current Proportions?	Yes

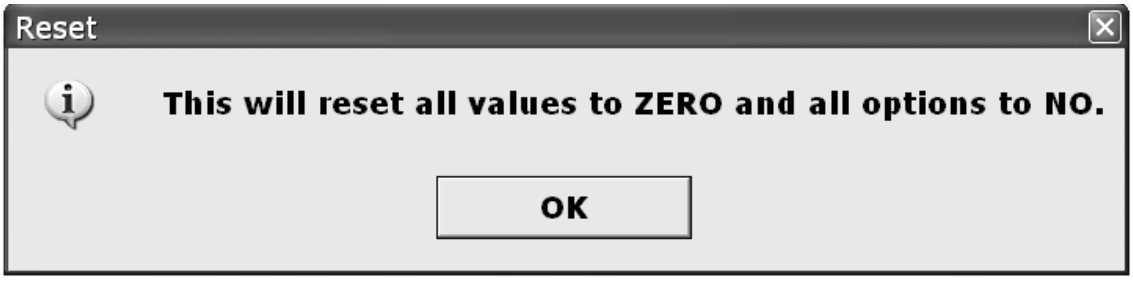
Financial Outcomes Per Household Per Year: Client Profile Change							
Per Household	Rebated Tenants		Unrebated Tenants		Total		Net Total Annual Cost/Benefit To Net Rent Revenue: Initial Year: $
	Last Year	Test Option	Last Year	Test Option	Last Year	Test Option	
Average Rent Charged	3,680	3,869	7,254	7,254	4,109	4,275	7,262,268
Average Arrears	323	323	821	821	383	383	
Average Vacancy Loss	38	38	60	60	40	40	
Average Net Rents	3,319	3,508	6,374	6,374	3,685	3,852	

Financial Outcomes Per Household Per Year: Client : Percentage Change				
Per Household	Rebated Tenants	Unrebated Tenants	Total	% Change
	Test Option	Test Option	Test Option	
Average Rent Charged	5.1%	0.0%	4.1%	4.52%
Average Arrears	0.0%	0.0%	0.0%	
Average Vacancy Loss	0.0%	0.0%	0.0%	
Average Net Rents	5.7%	0.0%	4.5%	

4.13 Reset

The Reset menu button clears all the cases last tested, and resets all values to zero and all options to “NO” so that a new case can be examined. Figure 4.19 shows the Reset function.

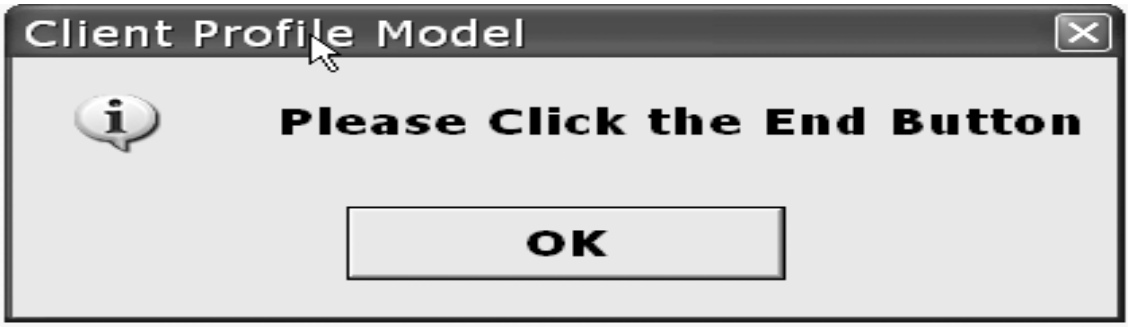
Figure 4.19: Reset function



4.14 End

When the user has completed the analysis and attempts to close the Model, a further prompt will appear as shown in Figure 4.20.

Figure 4.20: End



When the End button is clicked, all values are set to zero and all options to “NO” so that the user can be sure they will be testing afresh next time they open the Model.

5 RESULTS OF THE ANALYSIS

5.1 Scope of the analysis

For both South Australia and Victoria we have conducted both an historical and an option analysis.

5.1.1 Historical analysis

The historical analysis documents:

1. the proportion of the total client profile occupied by each household category, and percentage changes in each household category, for the years 2002/03 to 2004/05;
2. average rents charged, arrears and vacancy costs, and average net rents per household for 2004/05;
3. the impact on net rental revenue of changes to the distribution of households by category, by applying the 2004/05 client distribution against the 2002/03 data set.

5.1.2 Option analysis

A number of scenarios were tested to examine the impact on net rental revenue. The scenarios included:

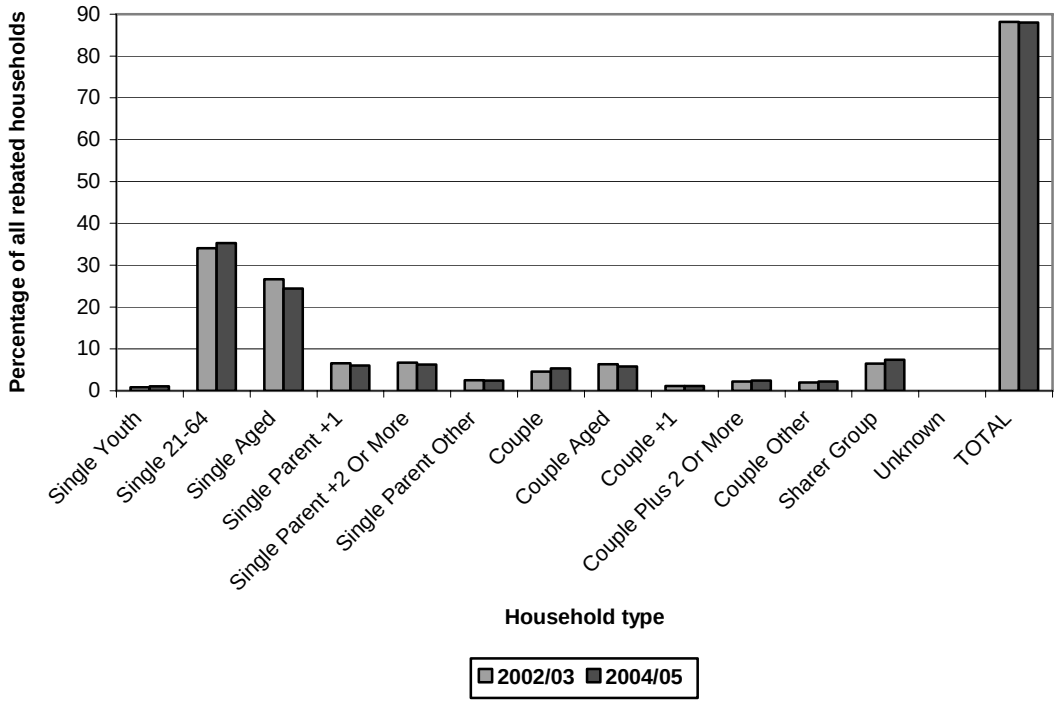
1. the application of the 2002/03 average payment percentage of income for each rebated household type against the 2004/05 data set, to test and isolate the impact of rental payment charging change on net rental revenue;
2. for each household type by rebated and unrebated tenants, a 5 per cent increase in average per household for:
   - → arrears
   - → vacancy costs
   - → market rents, and
   - → the household incomes of rebated tenants.
3. an increase in average rent charged to 25 per cent and 30 per cent of income for all rebated household types;
4. a change in the client profile to 100 per cent rebated tenants given current average rent charged, average arrears, vacancy costs and net rents for all rebated tenants;
5. an examination of two possible 'worst case' outcomes, where:
   - → all existing rebated tenants were replaced with rebated tenants paying the lowest average net rent (i.e. single youth)
   - → the highest average arrears per household for rebated tenants (and similarly but separately for unrebated tenants) was applied to all rebated tenants (and unrebated tenants respectively)
6. an examination of the impact of a fully rebated portfolio, based on 2004/05 data, where a portfolio consisting of 70 per cent rebated and 30 per cent unrebated tenants was compared with a portfolio of 100 per cent rebated tenants.

5.2 South Australian results

5.2.1 Client profiles

Figures 5.1, 5.2 and 5.3 show the proportion of rebated, unrebated and total tenants in each of the household types for 2002/03 and 2004/05.

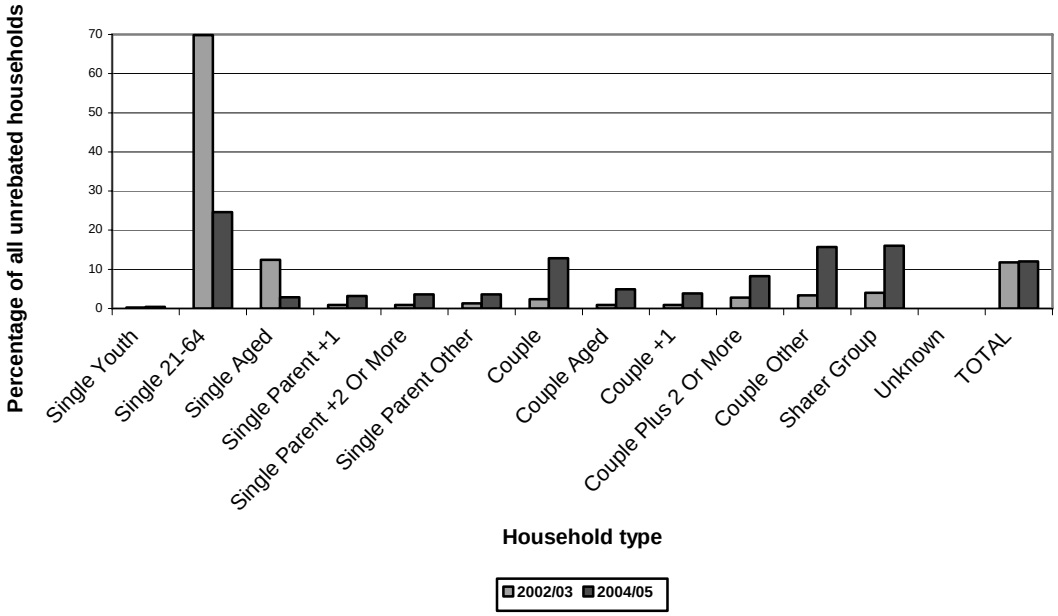
Figure 5.1: South Australia: client profiles: rebated tenants, 2002/03–2004/05



Source: South Australian Housing Trust: Internal Records

Singles have increased slightly as a proportion of total rebated tenants, and couples have declined slightly. Singles or single-parent families account for more than 75 per cent of all rebated tenancies, with the fastest-growing group being singles in the 21 to 64-year-old category.

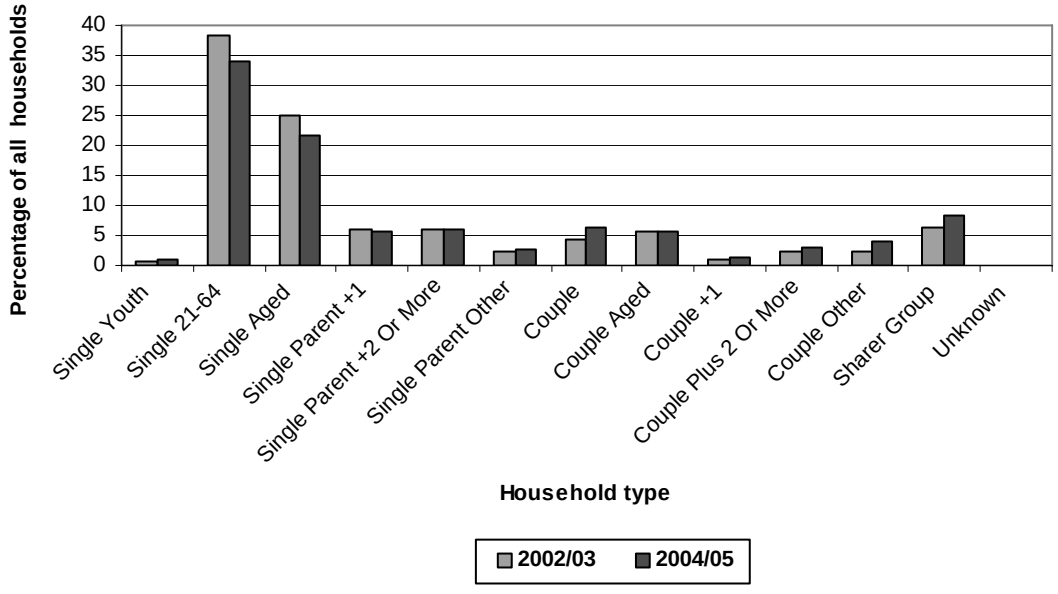
Figure 5.2: South Australia: client profiles: unrebated tenants: 2002/03 – 2004/05



Source: South Australian Housing Trust: Internal Records

Unlike the rebated client profile, significant change has occurred in the profile of unrebated clients. Singles aged 21 to 64 have fallen from 70 per cent of the total unrebated group in 2002/03 to 25 per cent in 2004/05, and "Single Aged" have also fallen substantially from 12.5 per cent to just under 3 per cent. By contrast, significant increases have occurred in the proportion of unrebated tenants who are couples (from 2.4 to 12.8 per cent), couples with two children (from 2.7 to 8.3 per cent), couples with non-biological dependant(s), (from 3.3 to 15.7 per cent) or sharers (from 4.0 to 16 per cent).

Figure 5.3: South Australia: client profiles: all tenants: 2002/03 – 2004/05



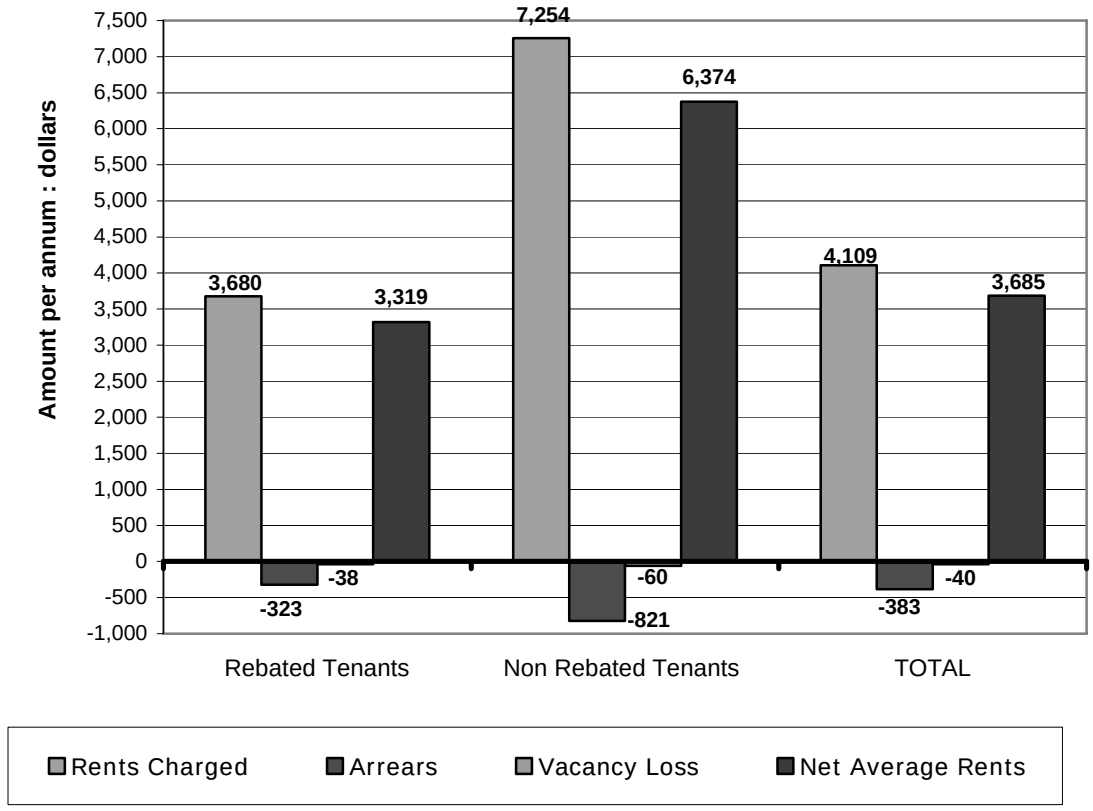
Source: South Australian Housing Trust: Internal Records

For the total client profile, singles have declined from 64 per cent to 56.8 per cent of households, single-parent groups have stayed the same, and couples, couples with more than two children and Couples Other have growing from 8.8 per cent to 13.2 per cent of the total. Sharers also increased significantly.

5.2.2 Current key financial averages

Figure 5.4 shows per household what average annual rents, arrears, vacancy costs and net rents would be for rebated, non-rebated and all tenants for a full financial year (based on the weekly data for the last week of 2004/05).

Figure 5.4: South Australia: average annual rents charged, arrears, vacancy losses and net rents per household: 2004/06 (as at the week ending 30 June 2006)



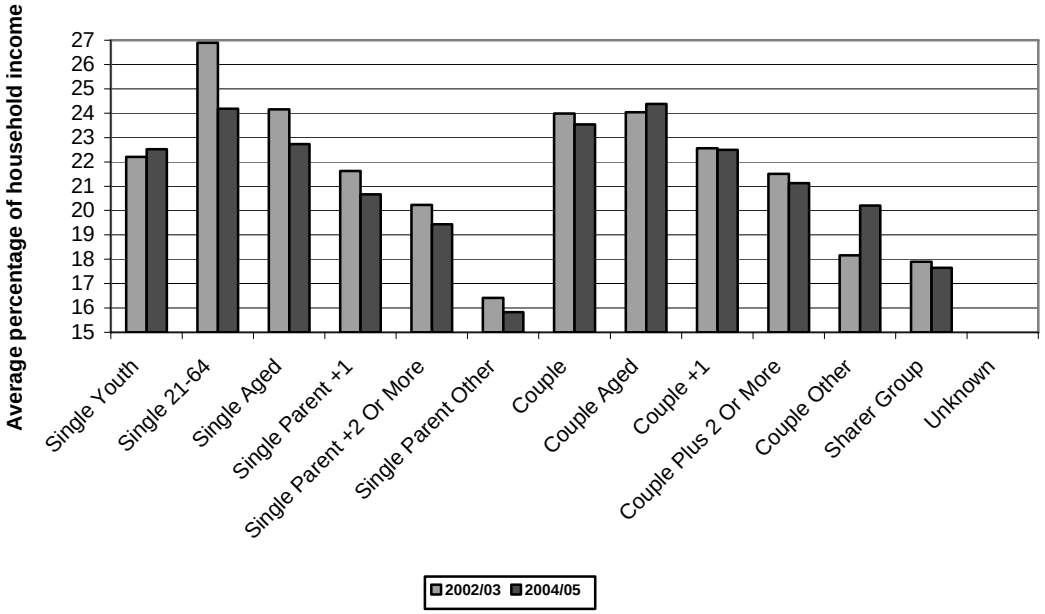
Source: South Australian Housing Trust: Internal Records

Two aspects of the results stand out: the very large differences between rents charged and received for rebated versus non-rebated tenants, and the substantially higher arrears cost for non-rebated tenants. Arrears are running at about 9 per cent of rents charged for rebated tenants and over 11 per cent for non-rebated tenants.

5.2.3 Rent charged and rent-charging policy

Figure 5.5 shows the average proportion of income charged for rebated tenants in all the various household groups.

Figure 5.5: South Australia: rebated tenant household types: average percentage of household income in rent charged



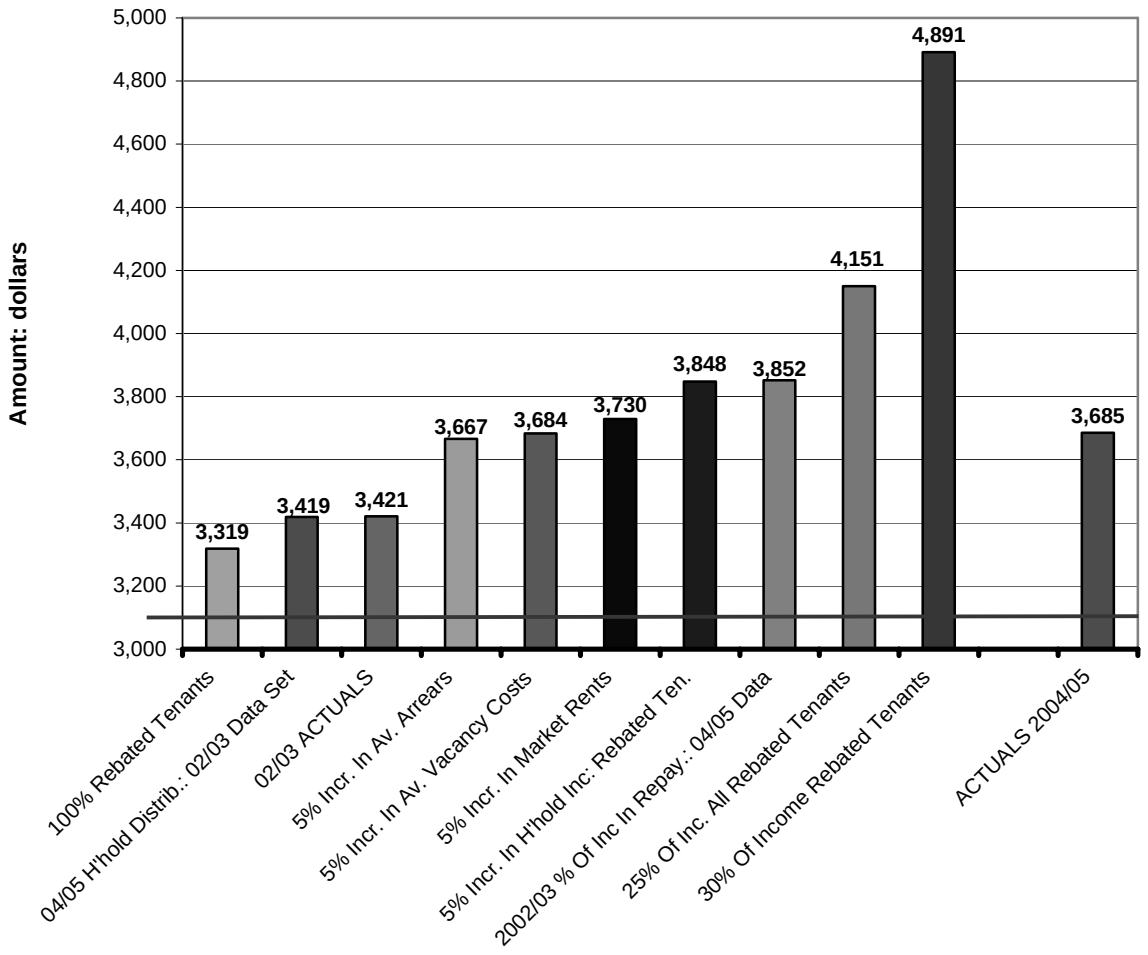
Source: South Australian Housing Trust: Internal Records

The graph indicates that the average proportion of income being paid by rebated tenants has fallen significantly over the three-year period for all household types except Single Youth, Aged Couples and Other Couples. The falls range from as low as 0.2 per cent for couples with two children to as much as 10 per cent for singles aged 21 to 24. Rents as an average proportion of income increased most significantly for Couples Other by 11 per cent.

5.2.4 Option analysis: range outcomes

Figure 5.6 shows the average net rent per household per annum that will occur under each of the options tested, and compares this to the 2004/05 data set.

Figure 5.6: South Australia: results of initial revenue option tests: average net rent per household per annum

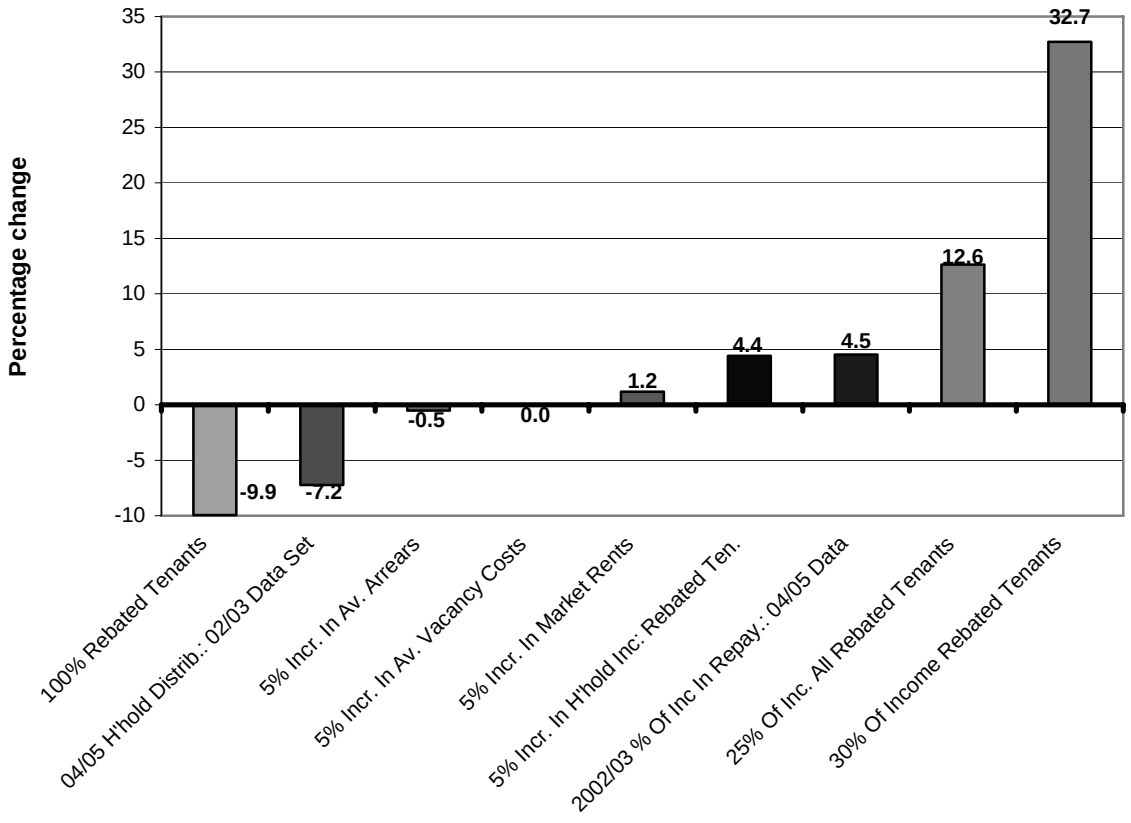


Source: South Australian Housing Trust: Internal Records

The analysis indicates that increasing rebated tenants to 100 per cent of the portfolio has the most adverse effect on average net rental income, followed by imposing the 2004/05 household distribution on the 2002/03 data set. Increasing arrears, average vacancies and market rents have small effects at the margin. A 5 per cent increase in household income, and charging the same proportion of income paid by rebated tenants in 2002/03 in 2004/05, significantly improve average net rental income; and charging all rebated tenants a flat 25 per cent of income generates the greatest increase in net rents. Moving payment percentages for rebated tenants to 30 per cent of income dramatically increases revenue.

Figure 5.7 shows the percentage change in average net rents per household generated by the various options.

Figure 5.7: South Australia: results of initial revenue options tests: percentage change in average net rent per annum



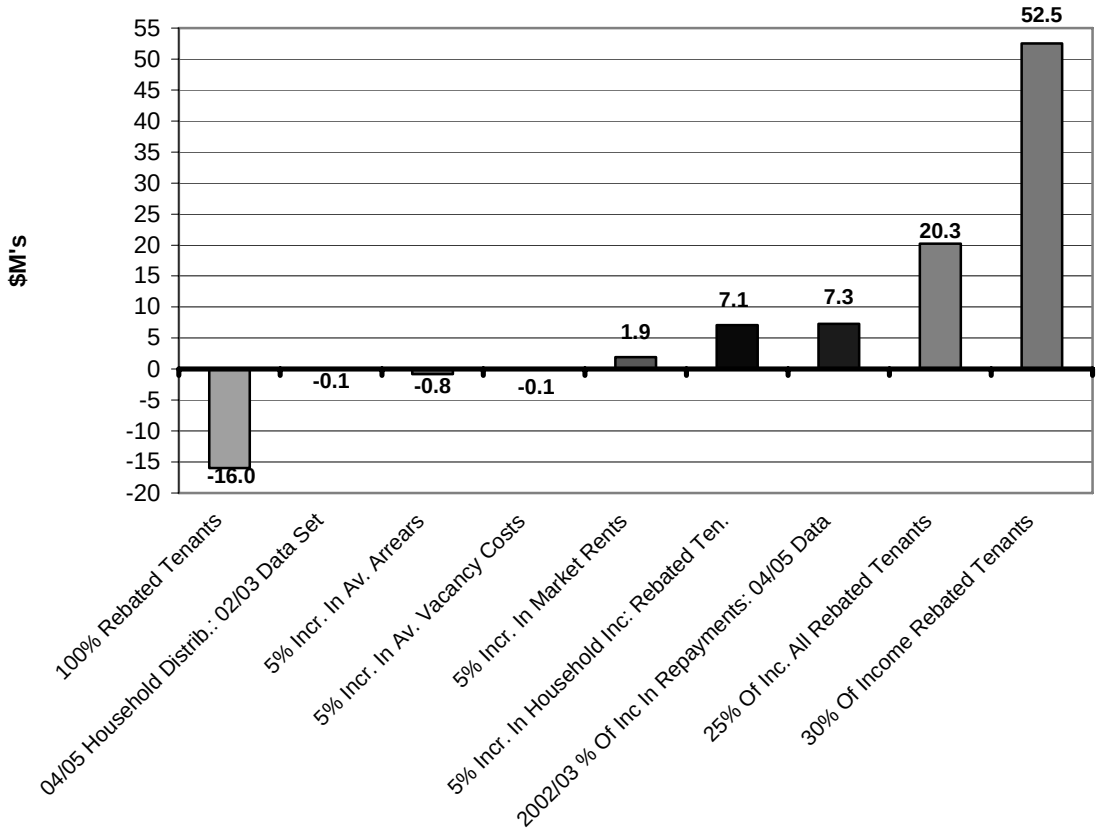
Source: South Australian Housing Trust: Internal Records

As discussed, 100 per cent rebated tenants reduces net rents by nearly 10 per cent, and imposing the 04/05 household distribution on the 02/03 data set reduces average net rents by 7 per cent. A 5 per cent increase in arrears, vacancy costs and markets rents has marginal revenue consequences, while a 5 per cent increase in the income of rebated tenants and applying the 2002/03 average repayment percentage of income for rebated tenant households increases average net rental income by about 4.5 per cent. Increasing the payment percentage of income to a flat 25 per cent for all rebated tenant groups increases net rental income by 12 per cent and more than offsets the effect of a fully rebated portfolio. Increasing payments to 30 per cent of income for rebated tenants adds almost one-third to net rental revenues.

Figure 5.8 shows the impact of these options on the estimated total net rental revenues that would be earned in a financial year (based on week ending 30 June 2005).

The graph shows that 100 per cent rebated tenants would reduce net rents by approximately $16 million in a full year, while a 5 per cent increase in rebated tenant household income, or reverting to the 2002/03 average proportion of income in repayments, would generate in excess of $7 million additional net rent per annum. Moving all rebated tenants to 25 per cent of income in repayments would more than offset any impact of increasing proportions of rebated tenants and would add about $20 million to the existing net rental revenue, while increasing to 30 per cent of income payments would add a very substantial $52.5 million.

Figure 5.8: South Australia: results of initial revenue options tests: change in total net revenue from rents: 2004/05 tenancy numbers: $M's



Source: South Australian Housing Trust: Internal Records

5.2.5 'Worst case' outcomes

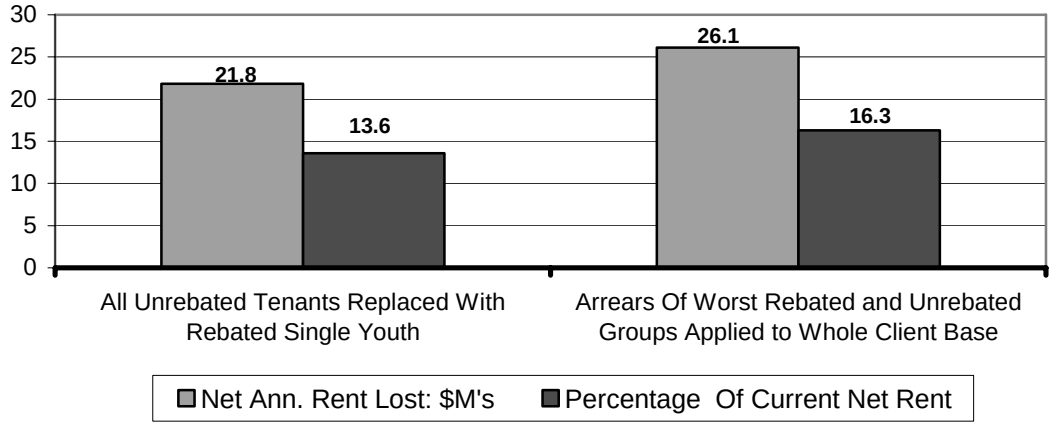
We examined the two most adverse of the possible 'worst case' options available:

1. replacing all current unrebated tenants with the one rebated household group paying the lowest net rents. The average payment in the selected group is more than 20 per cent below any other average payment.
2. applying the average arrears cost from the rebated group with the highest cost, to all rebated tenants. The same procedure was followed with unrebated tenants.

Figure 5.9 shows the results for the two outcomes.

The cases tested had very similar outcomes, with the major surprise being the impact of arrears change, which is a greater risk than that of changes to the client profile. Client profile change as tested reduces net rents by $21.8 million or 13.6 per cent in a full year, whilst arrears change as described reduces revenue by $26.8 million or 16.3 per cent.

Figure 5.9: South Australia: impact of possible 'worst case' outcomes: replacement of unrebated tenants by lowest average rent payment group and worst arrears across whole client profile: 2004/05 rent base

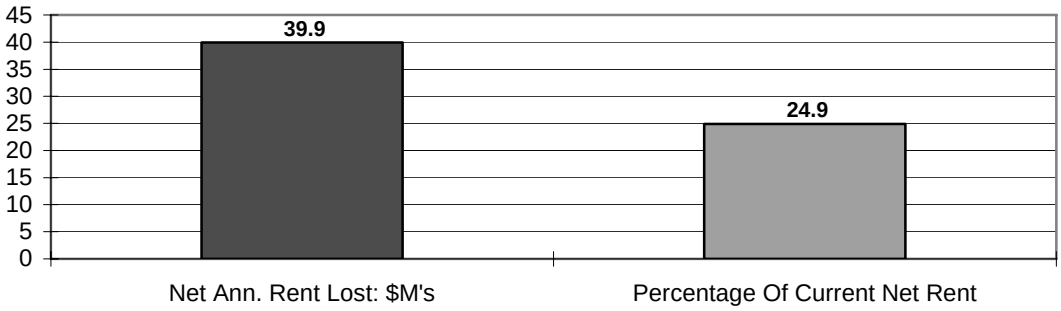


Source: South Australian Housing Trust: Internal Records

5.2.6 Outcomes of targeting to highest need

Figure 5.10 shows the result where the historical average ratio of rebated to unrebated tenants of 70/30 per cent is compared with a fully rebated portfolio based on current 2004/05 rent data.

Figure 5.10: South Australia: impact of fully rebated client profiles: real annual cost of moving from 70 per cent to 100 per cent rebated tenants: 2004/05 rent base



Source: South Australian Housing Trust: Internal Records

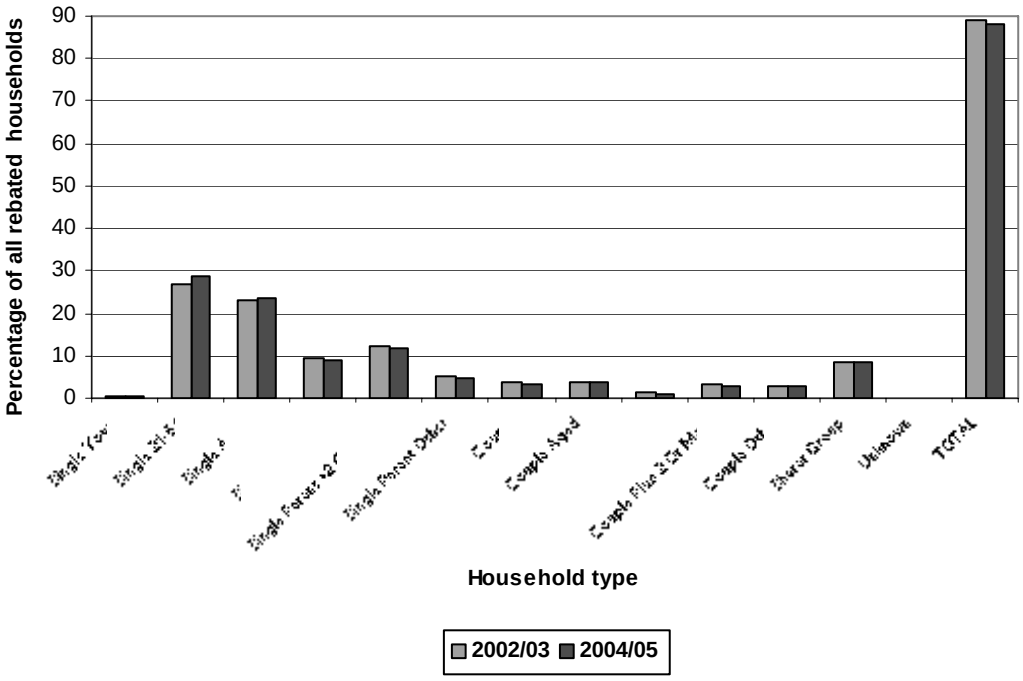
The graph shows that the indicative, long-term, net revenue cost of moving from pre high needs targeting to a fully rebated portfolio would be approximately $40 million per annum in 20054/05 dollars (approximately 25 per cent of 2004/05 rents received).

5.3 Victorian results

5.3.1 Client profiles

Figures 5.11, 5.12 and 5.13 show the proportions of rebated, non-rebated and total tenants occupied by each of the household types for 2002/03 and 2004/05.

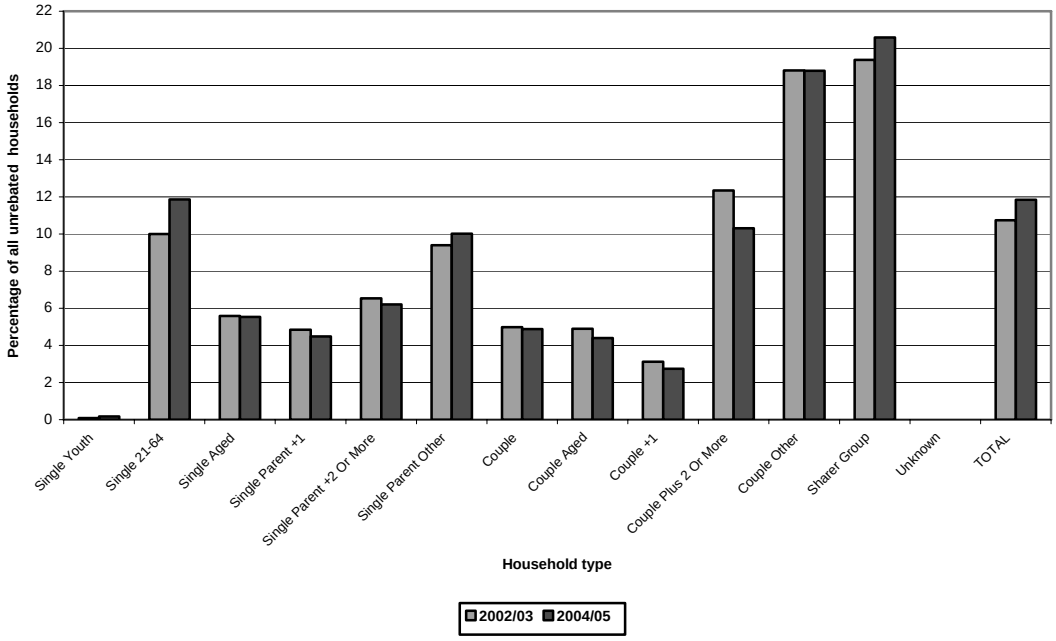
Figure 5.11: Victoria: client profiles: rebated tenants: 2002/03 – 2004/05



Source: Office Of Housing, Victoria: Internal Records

For these tenants, singles aged 21 to 64, the single aged, and sharers have all increased slightly as a proportion of total rebated tenants, with all other groups experiencing declining proportions. Similarly to South Australia, singles or single-parent families account for more than 75 per cent of all rebated tenancies, with the fastest-growing group being singles aged 21 to 64.

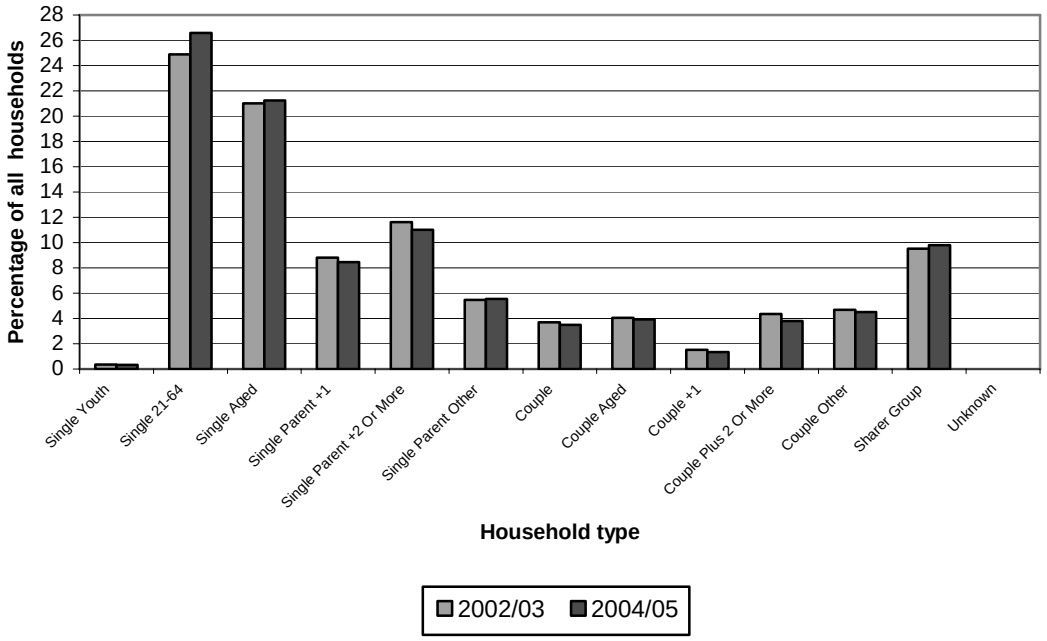
Figure 5.12: Victoria: client profiles: unrebated tenants: 2002/03 – 2004/05



Source: Office Of Housing, Victoria: Internal Records

As with the rebated tenants, profile changes in the unrebated group have been minor. Singles aged 21 to 64 and sharers have increased, and all other groups have declined. The fastest-growing group is singles aged 21 to 64, who increased by nearly 20 per cent, and the fastest-falling group is couples with children, who declined by approximately 16 per cent.

Figure 5.13: Victoria: client profiles: all tenants: 2002/03 – 2004/05



Source: Office Of Housing: Victoria: Internal Records

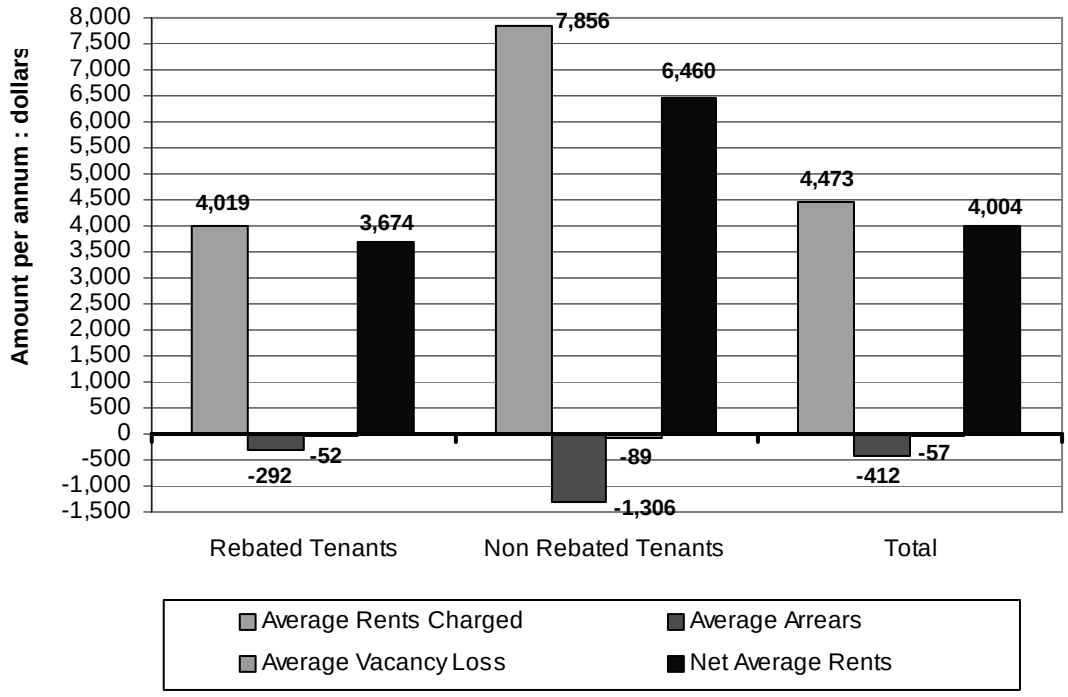
Across all tenants, rebated and non rebated, the same two household groups – singles aged 21-64 and sharers increased as a proportion of all households and the single aged experienced a very marginal increase of 0.2 per cent. Overall,singles aged 21 to 64 were the fastest-growing group, increasing from 24.9 per cent to 26.6 per cent of the total. Declines in all the other groups were minor.

5.3.2 Current key financial averages

Figure 5.14 shows, per household, what the average annual rents charged, arrears loss, vacancy costs and net rents would be for rebated, non-rebated and all tenants for a full financial year (based on the weekly data for the last week of 2004/05).

Similarly to South Australia, non-rebated tenants are paying an average of nearly double the rents of rebated tenants and experience substantially higher arrears than rebated tenants. Arrears are running at about 7 per cent of rents charged for rebated tenants and over 20 per cent for non-rebated tenants.

Figure 5.14: Victoria: average annual rents charged, arrears, vacancy losses and net rents per household: 2004/05 (as at week ending 30 June 2006)

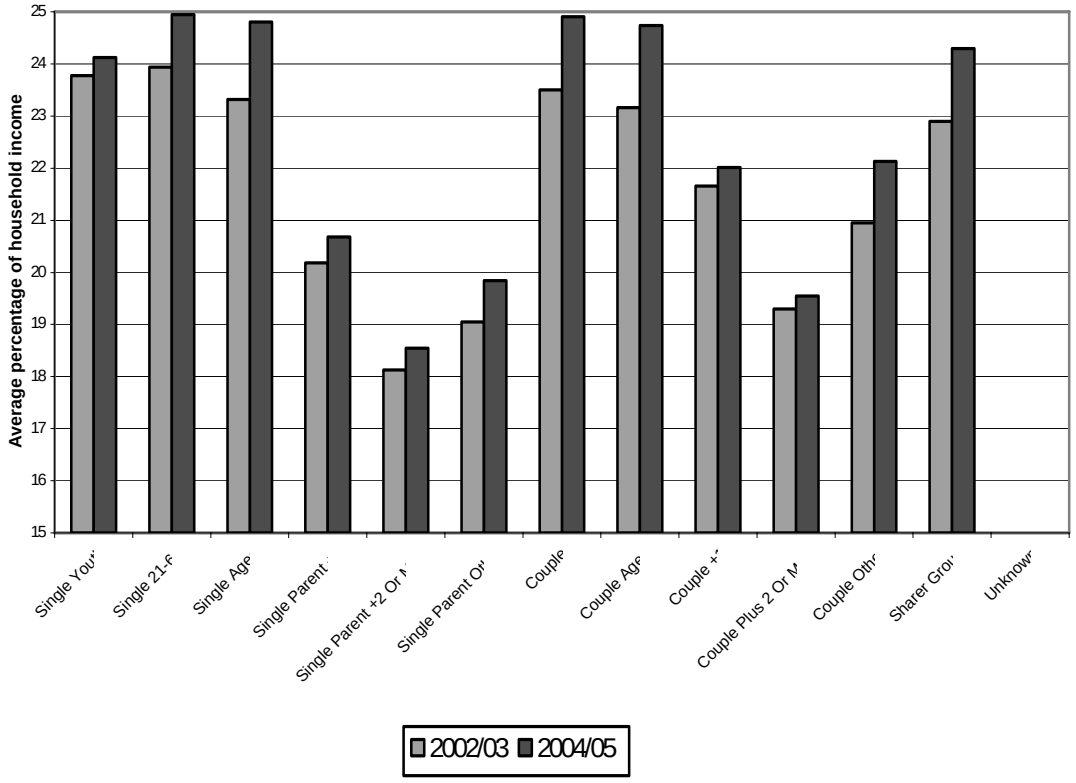


Source: Office Of Housing, Victoria: Internal Records

5.3.3 Rent charged and rent-charging policy

Figure 5.15 shows the average proportion of income charged for rebated tenants in all the household groups.

Figure 5.15: Victoria: rebated tenant household types: average percentage of household income in rent charged



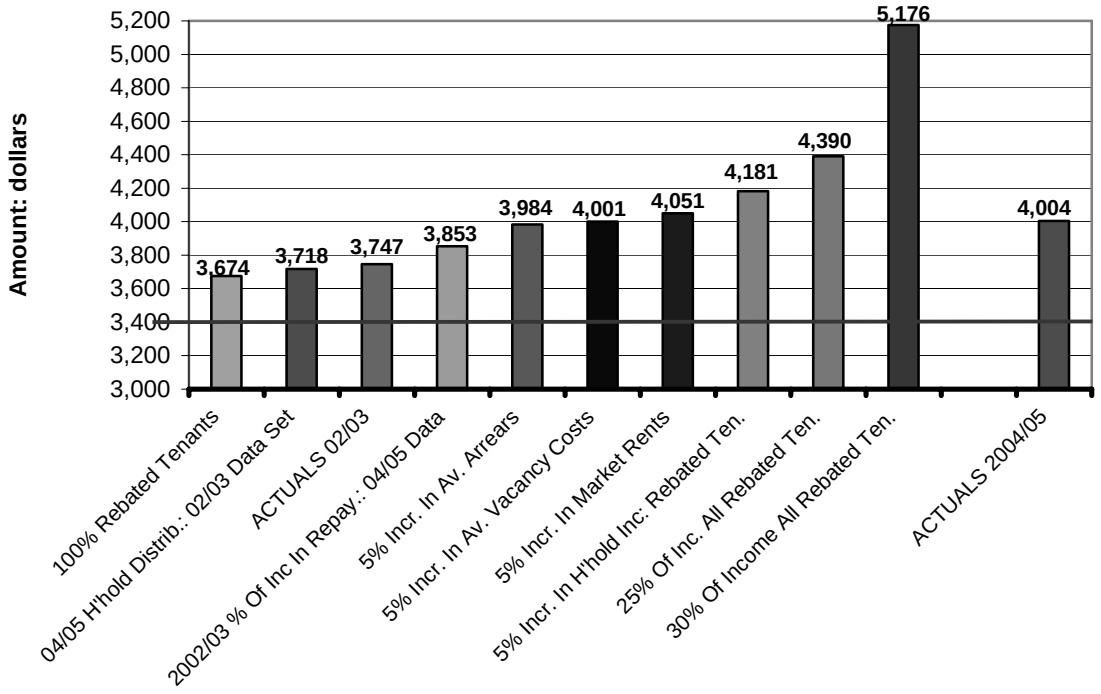
Source: Office Of Housing, Victoria: Internal Records

Unlike South Australia, the average proportion of income paid by unrebated tenants has increased substantially across all groups, and four household groups experienced payment percentage of income increases above 6 per cent – the single aged, couples, aged couples, and sharers. The largest increase affected aged couples, whose average payments increased by 6.8 per cent, and the smallest increase was experienced by couples with two children.

5.3.4 Option analysis: range outcomes

Figure 5.16 shows the average net rent per household per annum that would occur under each of the options tested, and compares this to the 2004/05 data set.

Figure 5.16: Victoria: results of revenue option tests: average net rent per household per annum

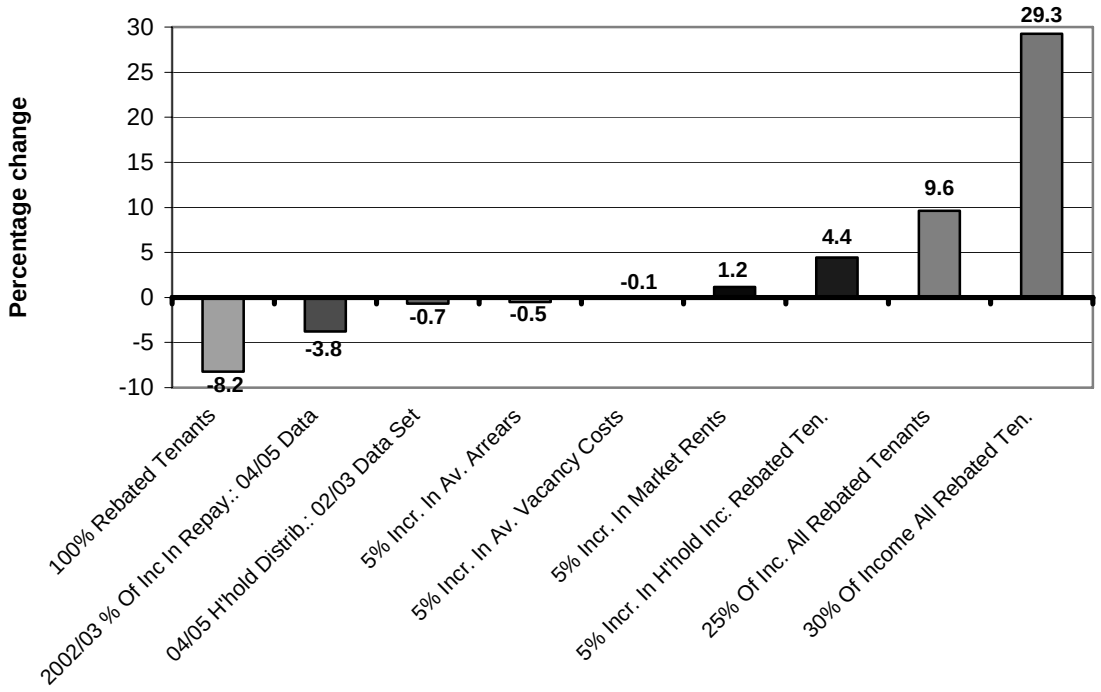


Source: Office Of Housing, Victoria: Internal Records

Similarly to South Australia, the analysis indicates that increasing rebated tenants to 100 per cent of the portfolio has the most adverse effect on average net rental income, followed by imposing the 2004/05 household distribution on the 2002/03 data set, and applying the proportion of income paid by rebated tenants in 2002/03 to the 2004/05 data. Increasing arrears, average vacancies and market rents have small effects at the margin, with a 5 per cent increase in household income, and charging all rebated tenants a flat 25 per cent of income generates the greatest increase in net rents. Increasing payments to 30 per cent of income for all unrebated tenants increases average rents by sightly more than in South Australia's case or by approximately $1,180 per household per annum.

Figure 5.17 shows the percentage change in average net rents per household generated by the various options.

Figure 5.17: Victoria: results of revenue option tests: percent change in average net rent per annum

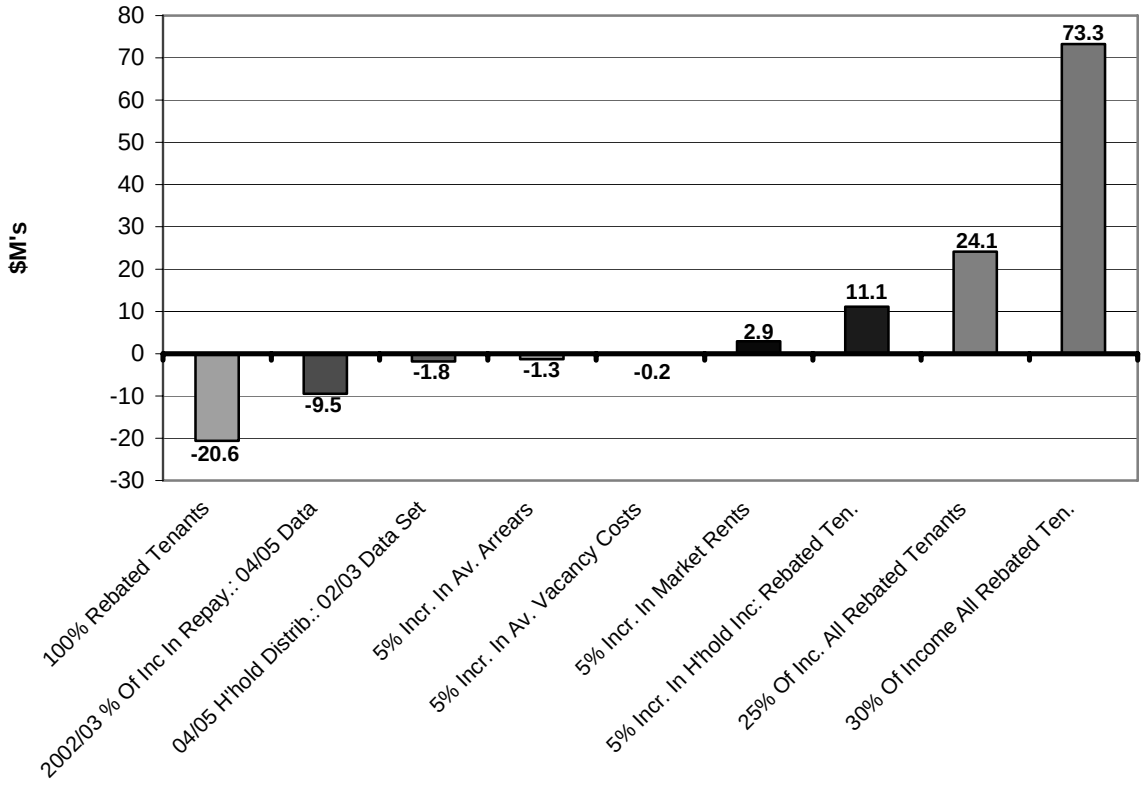


Source: Office Of Housing, Victoria: Internal Records

As discussed, 100 per cent rebated tenants reduces net rents by over 8 per cent. If the 2002/03 rent-charging policies were applied, net rents would be nearly 4 per cent less than that received in the last week of 2004/05. Imposing the 2004/05 client distribution on the 2003/04 data set reduces net rents by less than 1 per cent. A 5 per cent increase in arrears, vacancy costs and market rents has marginal revenue consequences, while a 5 per cent increase in the income of rebated tenants increases average net rental income by about 4.5 per cent. Increasing the payment percentage of income to a flat 25 per cent for all rebated tenant groups increases net rental income by 8.8 per cent and more than offsets the effect of a fully rebated portfolio. If the payment by rebated tenants is increased to 30 per cent, net rents increase by nearly 30 per cent, just slightly less than in South Australia.

Figure 5.18 shows the anticipated full year net rent revenue results. The graph shows that the impact of 100 per cent rebated tenants will reduce net rents by approximately $21 million in a full year, while imposing the 2002/03 charging policy would reduce net rents by nearly $10 million per annum. A 5 per cent increase in rebated tenant household income would increase net rents by $11.1 million in a full year. Moving all rebated tenants to 25 per cent of income in repayments would more than offset any impact of increasing proportions of rebated tenants and would add about $24 million to the existing net rental revenue, while increasing payments to 30 per cent would add more than $70 million to revenue.

Figure 5.18: Victoria: results of initial revenue option tests: change in total net revenue from rents: 2004/05 tenancy numbers: $M's

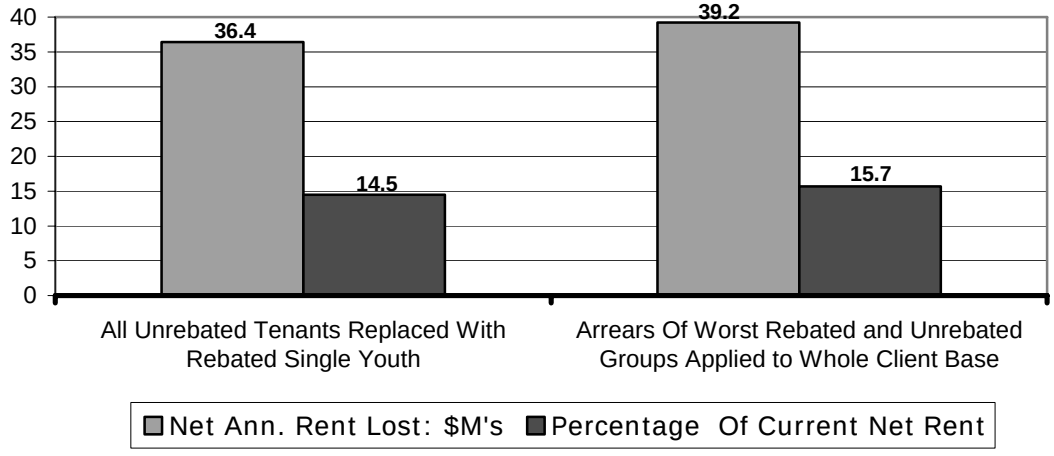


Source: Office Of Housing, Victoria: Internal Records

5.3.5 'Worst case' outcomes

Figure 5.19 shows the results of the same two 'worst case' outcomes examined.

Figure 5.19: Victoria: impact of possible 'worst case' outcomes: replacement of unrebated tenants by lowest average rent payment group and worst arrears across whole client profile: 2004/05 rent base



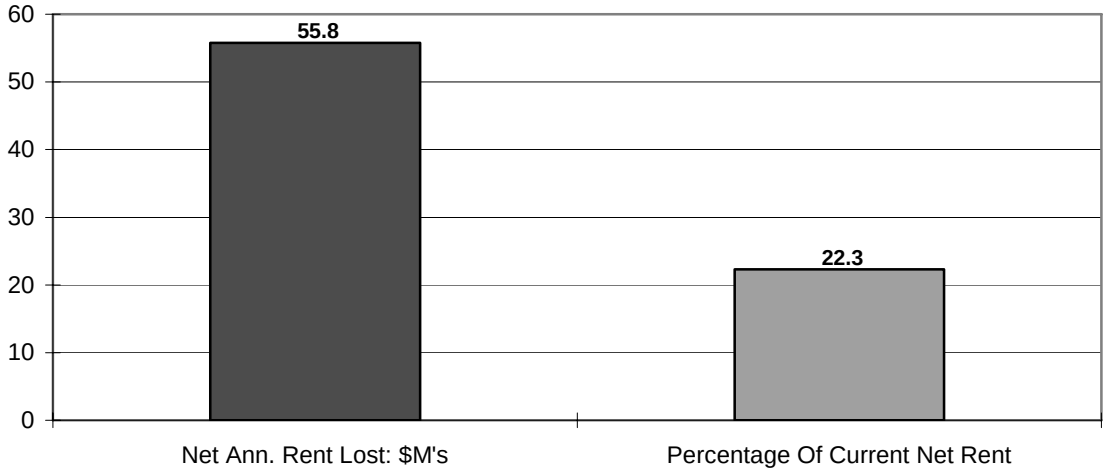
Source: Office Of Housing Victoria: Internal Records

The cases tested have very similar outcomes to those in South Australia. Client profile change as tested reduces net rents by $36.4 million or 14.5 per cent in a full year, while arrears change as described reduces revenue by $39.2 million or 15.7 per cent

5.3.6 Outcomes of targeting to highest need

As in the South Australian analysis, Figure 5.20 shows the result where the historical average ratio of rebated to unrebated tenants of 70/30 per cent is compared with a fully rebated portfolio based on current 2004/05 rent data.

Figure 5.20: Victoria: impact of fully rebated client profiles: real annual cost of moving from 70 per cent to 100 per cent rebated tenants: 2004/05 rent base



Source: Office Of Housing Victoria: Internal Records

The graph shows that the indicative, long-term, net revenue cost of moving from pre high needs targeting to a fully rebated portfolio would be approximately $56 million per annum in 20054/05 dollars (approximately 22 per cent of 2004/05 rents received).

6 POLICY IMPLICATIONS

6.1 Changes to household incomes, market rents and vacancy rates are not significant

Changes in these variables have only a minor impact on revenues, with a 1 per cent change in any of the variables only increasing or decreasing net rents by less than 1 per cent. Consequently, exogenous variables outside the control of SHAs appear to pose little risk to operating revenue.

6.2 Changes to percentage of income paid substantially changes the revenue equation

Increasing the percentage of income paid by rebated tenants raises major equity and consistency issues, but purely from a revenue standpoint small changes to the proportion of income paid by rebated tenants dramatically improves annual rent received.

For example, in the two cases examined, simply bringing all rebated tenants to 25 per cent of income increases the amount of annual rent received by $20 million (for the SAHT) and $24 million (for the OoHV), an increase of 12.6 per cent and 9.6 per cent respectively.

Increasing payments for all rebated tenants to 30 per cent of income raises revenue by $52.5 million (SAHT) and $73 million (OoHV), an increase of 33 per cent and 29 per cent respectively.

6.3 Extreme arrears is a potential problem

In both jurisdictions, while a 5 per cent increase in average arrears has a negligible effect on net rents, the 'worst case' arrears could potentially reduce revenues substantially . The application of the current arrears being experienced by the 'worst' household groups within each of the rebated and unrebated tenants categories indicates such. In South Australia the 'worst case' arrears for a rebated household group is some 88 per cent above the average for all rebated tenants and the 'worst case' unrebated group is some 118 per cent above the average for unrebated tenants.

In Victoria the numbers are 111 per cent for rebated tenants and 59 per cent for unrebated tenants. While the number of households in these worst case groups are relatively small and therefore do not have a significant impact on revenues, the possibility of worsening arrears outcomes exists.

As noted earlier in the report, if these outliers transferred to the totality of the rebated and unrebated tenant list, the impact would be a loss of 16 per cent and 15.7 per cent of net rents respectively for SAHT and the Office of Housing Victoria.

6.4 Targeting to most in need inexorably erodes annual revenues – over time by a large amount

The analysis suggests that while movements in the client profile over the short term (1 to 3 years) do not have a major impact, a change in the proportion of tenants who are rebated from the early 1990s average of 70 per cent to 93% of the tenants being rebated will have a large and continuing impact on the revenues of SHAs.

In South Australia and Victoria the cost is estimated at approximately $40 million and nearly $56 million per annum respectively, or $915 and $894 per current tenant household.

If the average of $904 per household were representative of all SHAs then the cost would be in excess of $250 million per annum. If the unrebated groups were to be replaced by the lowest-paying rebated groups, the result could potentially be another 6 per cent to 10 per cent worse.

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ATTACHMENT 1

Financial impact of changing public housing client profiles (AHURI project 30352): key questions

What revenue impacts do we need to be able to neutralize to identify the impact of changes in the household composition on revenues?

My list is:

- Changes to the number of tenantable dwellings;
- Changes in market rents;
- vacancies;
- arrears and delinquencies;
- changes due to pension and benefit policy changes; and
- changes to rent charging policies.

The quantitative analysis will need to be able to strip out any changes to these variables year on year so that the impact of changes in the household composition can be identified. The analysis will therefore need to be on an average rent per dwelling unit and the degree of impact of changes to each particular household types share of the total rent received.

COMMENTS PLEASE.

What data inputs does the model need to be able to cope with to carry out adequate forecasting?

My list is:

- historical trends in the number and incomes of tenants leaving;
- the historical trends in the number and assessable income of tenants unchanged;
- the historical trends in the number and incomes of new tenants allocated housing;
- where possible historical trends in the impact of different client profiles on some average recurrent cost components;
  - Total Dwellings
  - Nos Of Tenantable Dwellings
  - Nos Undergoing Redevelopment and Replacement
  - Rent Charged
  - Rent Received
  - Rent Lost To Vacancies
  - Actual Rent Written Off Due to Defaults
  - Actual Rent In Arrears After Rents Written Off
  - Average Weekly Rent Charged Per Dwelling Before Rebates
  - Average Weekly Rent Charged Per Dwelling After Rebates
  - Household Type By Average Weekly Rent Charged Before Rebates
  - Household Type By Average Weekly Rent Charged After Rebates

- Household Type By Average Weekly Rent Paid
- Sundry and Other Income
- Management and Project Fees (Recurrent)
- the changes in Net Rents; and/or

- an annual snapshot of client household and income profiles, new allocation client household and income profiles, vacancies and market rent data;

COMMENTS PLEASE.

What do want to deal with as a fixed input and what do we want to test different assumptions for?

Besides the items mentioned in Question 1 my list is:

- changes to targeting ratios (i.e. proportion of new lettings to lowest incomes etc);
- alternative rent setting options;
- changes to the household composition of the tenants leaving;
- changes to cost components as a result of changes in the compositional mix (for this we will need to create a relationship between the household type and dollars per dwelling for different cost components – doing this we will need info from South Australia of these relationships)
- percentage increases in the size of the portfolio and percentage changes in the dollars per dwelling for different cost components; here we could look at the data we already have on the cost per dwelling for different cost components and the size of each of the housing authorities – I pretty sure however there is no correlation)

COMMENTS PLEASE… Any others we might test for?

Do you have a document which describes what the tenancy database contains and the fields within it?

Do you have or know of any other relevant work completed internally or externally that we might examine?

ATTACHMENT 2

First discussion paper

Introduction

The Project Plan sets out the process for the first part of this project viz:

> "For Stage 1
>
> - determine the best method of obtaining the appropriate data and advise on sensible data derivation; Ideally we would obtain:
>   - historical trends in the number and incomes of tenants leaving;
>   - the historical trends in the number and assessable income of tenants unchanged;
>   - the historical trends in the number and incomes of new tenants allocated housing;
>   - where possible historical trends in the impact of different client profiles on some average recurrent cost components;
>   - the changes in Net Rents; and/or
>   - an annual snapshot of client household and income profiles, new allocation client household and income profiles, vacancies and market rent data;
> - review and comment upon the recurrent revenue and cost item definitions;
> - approve the quantitative method for assessing the impact of changing client profiles, including analysis flow chart and architecture; and
> - review and comment upon the outcomes of the historical analysis.
>
> After a review of the data availability over time a discussion paper would be produced setting out the proposed method of historical analysis.
>
> Once approved and the data obtained from the authorities a second paper would be prepared for the User Group setting out the results of the analysis of the historical impact of high needs targeting."

As a result a paper was circulated to the two participating State Housing Authority user group members setting out a preliminary discussion of some of the main issues. This is contained in Attachment 1.

The paper and the subsequent responses from the User Group members suggested 7 key questions which need to be addressed in the historical analysis. They also are relevant to the main modelling development which will follow. These are:

1. What is going to be the basic unit of analysis?
2. What longitudinal data can we use to support the historical analysis?
3. What are the factors impacting on revenues other than changes in the household composition of the client base. Do we need to be able to excise these factors from the historical analysis and where appropriate separately analyse?
4. Do particular household types cause higher or lower per unit costs? What are the cost impacts by household type? How do we manage the quantification of this?
5. What are the recurrent revenue and cost item definitions?

6. What do want to deal with as a fixed input and what do we want to test different assumptions for?
7. When undertaking the historical analysis what main modelling objectives do we need to consider?

The basic unit of analysis

It was appreciated that there would be no additional utility in going down to the individual unit records and that such an approach would not enable the development of a generic modelling approach which could be used by other States. Furthermore the data management requirements would be beyond the resources of this project. For these reasons it was agreed that the most manageable way to carry out the analysis would be to obtain the relevant data by household category or group.

Longitudinal data to support the analysis

The project plan called for

- "historical trends in the number and incomes of tenants leaving;
- the historical trends in the number and assessable income of tenants unchanged;
- the historical trends in the number and incomes of new tenants allocated housing.
- the changes in Net Rents; and/or
- an annual snapshot of client household and income profiles, new allocation client household and income profiles, vacancies and market rent data;"

Kathy Shilland from the Victorian Office of Housing has advised:

> "We are unable to provide data on either side of rent charging policy changes. Data as at 30th June for the last three years is available. Household type, age and financial data is available as at the time of these end of year snapshots but otherwise is not available historically through the MQ database.
>
> …Data on households paying market rent is usually out of date and not reliable. Once a household start paying market rent we no longer update income or household details. In house research or modelling projects either exclude market rent households or separates the results from households on rebated rent."

As a result it was decided that we would obtain a snapshot of the household category data as at 30 June each year for each of the last three years. In obtaining the data for each household category we would separate rebated and non rebated tenants and pension/beneficiary recipients (as main source of income) and other income recipients. This would enable later testing of the impact of changes to market rents or pension and benefit policy.

For the revenue analysis for each of the household type sub categories and the total household type category we would obtain:

- numbers of households;
- total incomes;
- total rent charged;
- total market rents and by derivation per household;
- average incomes;

- average rent;
- average percentage of income in rent;
- average market rent.

which can be used in later analysis.

By comparing each snapshot with the previous one and examining the proportions of the total client base occupied by each group we can quantify the extent of client profile change on revenues and examine covariances (negative correlations).

Factors impacting on revenues other than changes in the household composition of the client base

Revenue affecting factors requiring excision

- changes to rent charging policies;
- changes to market rents (not that relevant).

In South Australia's case there have been no changes to rent charging policies within the last three years so simply by examining the change in total and average rent per household charged we will be able to ascertain the impact of any change in the client profile on rent revenues. In Victoria's case the issue is a little more problematic because some rent charging policies were changed during the period. However by examining the average percentage of income paid before the changes and the average after and adjusting the first in line with the second it will be possible to obtain a reasonably accurate proxy which effectively minimises the impact of rent charging policy changes on the revenue results.

Revenue affecting factors requiring conjoint and separate analysis

For each household category it was agreed that

- average vacancy incidence and duration;
- average arrears incidence and amounts;

needed to be analysed as they directly affect revenue received. In addition the vacancy incidence rate also affects the *speed* with which the client profile in a portfolio might change.

Average vacancy incidence and duration

Leaving aside redevelopments and upgrades the incidence and duration of average vacancies reduces the available rent received and if this is found to vary by household category, then as the client mix changes it can be anticipated that the adverse revenue impact may change. Furthermore by mapping vacancy incidence we can develop robust assumptions for the forecasting modelling regarding the speed of the impact of planned changes to client mix policy.

David Bernard suggested the following

> "There is a relationship between vacancy turnover, (churn) and high needs clients."

I commented

> "It seems to me that higher vacants could either be a revenue opportunity or a cost, so of itself its not necessarily a negative. For example if you had a diversified allocations policy whereby you were allocating some significant portion of your turnovers to working income households then higher vacants become a revenue opportunity not a cost as the increase in net rents received

> will far outweigh the loss of income from the vacant. I guess we might need to test the SPEED at which we can change the revenue equation and for that we may need to know the rate of turnover per annum by household type so as to begin commencing assumptions. At worst we might need annual turnover for the portfolio and average length of vacant, but we need to separate upgrades and redevelops from "normal" vacants in order to reach a representative outcome."

David Batten suggested

> "From what I can tell the relationship between turnover and 'high needs' clients (priority?) is simply the fact that priority applicants get priority access and are therefore more likely to be housed in a vacancy. They certainly don't leave any quicker.
>
> But as this is a study of changing client profiles driven by household sizes and income, the issue is whether the costs of vacancies are rising relative to the income from the dwelling - yes if the costs are constant or rising (which I would think they are). Our vacated maintenance is a small proportion of total maintenance, but obviously unrelated to the income generated by the tenancies. The other element to vacancies is the revenue lost while vacant. I would suggest that priority tenancies are no more likely to turnover than wait turn, and that there are distinct turnover rates for household types and locations that are more important."

Consequently it was agreed that for each household type and after excising redevelops and upgrades for length of vacancy we would historically analyse:

- the incidence of vacancies by each group i.e. what proportion are vacating each year.
- the average length of vacancies;
- the net rent charge impact; and

comment upon the differences between household categories.

Average arrears incidence and amounts

Similar comments apply to arrears. In both Victoria and South Australia because arrears information is cumulative we have developed a method for assessing the average weekly arrears consistent with the rent information. In this case we will analyse:

- the incidence of arrears by each group i.e. what proportion are in arrears;
- the average weekly amount of arrears; and
- the net rent charge impact; and
- comment upon the differences between household categories

Revenue affecting factors which need to be able to be flexibly modeled in the later forecasting work

Changes to pension and benefit policies will have substantial impacts on the revenue which SHA's might receive as rent charging policy is income related and a high proportion of tenants receive pension/benefits as their main source of income.

Consequently the later modelling will need to have the capacity to test the impact of different changes to pension and benefit policy on SHA's revenue.

Cost impacts by household type

The project plan suggests:

"where possible historical trends in the impact of different client profiles on some average recurrent cost components" should be analysed

Cleary there are a number of cost items which bear no relationship to household type and these are:

- rates;
- net interest; and
- depreciation and probably,
- employee related and salaries and
- administration.

In this regard I suggested to South Australia;

> "David Batten at the Office of Housing in Victoria and I have been discussing the possible issue of costs related to household groups. Now he is of the opinion that from the main recurrent expenditure groups of:
>
> - Rates
> - Maintenance
> - Salaries and Employee Related
> - Administration and
> - Bad Debts
>
> only perhaps maintenance and bad debts may be responsive to household types. In Victoria's case the cost per dwelling or household of corporate expenses such as Salaries and Employee Related and Admin are simply aggregated and are not able to be dissected according to household groups by household. Similarly maintenance and rates are a function of the age and condition of the dwelling stock and not the household, and how do you differentiate between costs a function of the previous age and condition of the dwelling stock and costs a function of the household. Only unplanned and vandalised maintenance might be able to be household attributed and then we have to be able to distinguish between that and cyclical and normal maintenance and Victoria will not be able to do this. Furthermore what are the policy implications for the model. The project did not intend to test policy options for costs and even if it did all we could do would be able to add a proportionate loading per household to the recurrent maintenance costs for certain types of households (this is possible). So the main focus of this project is revenue options and whilst there may be cost implications the correct way to deal with that is to examine in detail cost consequences from different households on a comprehensive basis in another piece of research. Do you have any thoughts and could you comprehensively breakout recurrent costs by household type anyway?"

David Bernard responded

> "This depends on the Policy setting . We are allocating about 35:65 low income (Cat. 3 tenants) to high need (Cat. one .

> The Cat. ones have a higher churn rate (come in and out of the system). Often these Cat. one allocations coincide with our worst stock (as tenancies are more stable on our better stock). Often we can't get the tenant to reimburse us for damage - its added to their debt. Its different to cyclic maintenance in that its about clean up, painting, damage, repeat work. I'll follow up with our Maintenance Branch about data/ evidence.
>
> Also I think that we have the salaries broken down into client type – I will follow up. (our Future of Service delivery Project)"

Further discussions have revealed that whilst Victoria cannot isolate overhead (salaries and administration) costs to household types it can break out maintenance and bad debts. Whilst not finalised for the historical analysis it could be possible to identify average unit costs for each household type and quantify the negative or positive proportional loading from the average and build this into the forecasting modelling.

We will, however, need to await further information from South Australia in this regard.

Revenue and cost definitions

Attachment 3 contains the suggested revenue and cost definitions which apply to the items listed in Diagram 1.

Fixed and flexible data inputs

It is suggested we need the following flexible data inputs in the forecast modelling:

- portfolio size;
- changes to client mix; (i.e. proportion of new lettings to different households, pension/benefit recipients and rebated/non rebated tenants etc);
- changes to average incomes by household type;
- alternative rent setting options; changes to rent charged as proportion of income;
- changes to pension and benefit settings;
- changes to average market rents;
- changes to cost components as a result of changes in the compositional mix (for this we will need to create a relationship between the household type and dollars per dwelling for different cost components – doing this we will need information from South Australia of these relationships);
- marginal cost assumptions; i.e. is there any evidence that there are any significant differences in the cost of different items per dwelling relative to the size of State Housing Authority portfolios? and
- escalation factors i.e. the rate at which various components increase/decrease each year.

What should be the objectives for the forecasting modelling?

Forecasting objectives

The policy and forecasting model needs to be:

- flexible- able to handle different:
  - household groups;
  - incomes;
  - rents charged;

- → rents as percentage of incomes;
- → market rents;
- → pension and benefit changes;
- → vacancy/replacement rates;
- → arrears incidences and durations;
- → cost variations;
- → rent and cost escalation factors; and
- → economic scenarios

→ explicit- able to disaggregate the relative impact of different assumptions for the key variables;

→ comprehensive- able to deal satisfactorily with the range of probable assumptions about future client profiles and characteristics;

→ logically consistent- illogical combinations are eliminated; and

→ user friendly.

Forecasting outputs

For a range of client profiles the modelling needs to:

1. quantify the rent impact of changes to client profiles;
2. quantify the rent impact of changes to pension benefit entitlements;
3. quantify the revenue impact of different scenarios of vacancy/replacement outcomes;
4. quantify the revenue impact of different scenarios of arrears outcomes;
5. quantify the impact of a limited number of different cost assumptions for particular household groups;
6. assess the sensitivity of the outcomes to a range of assumptions about CPI, AWE etc; and
7. assess the sensitivity of the revenue impact to each of the components tested.

Historical analysis: data and quantification steps

Diagrams 1 and 2 set out the data and quantification steps required of the historical analysis. The cost components have been left undefined whilst South Australia reviews data availability.

Diagram 1: Historical analysis: data items

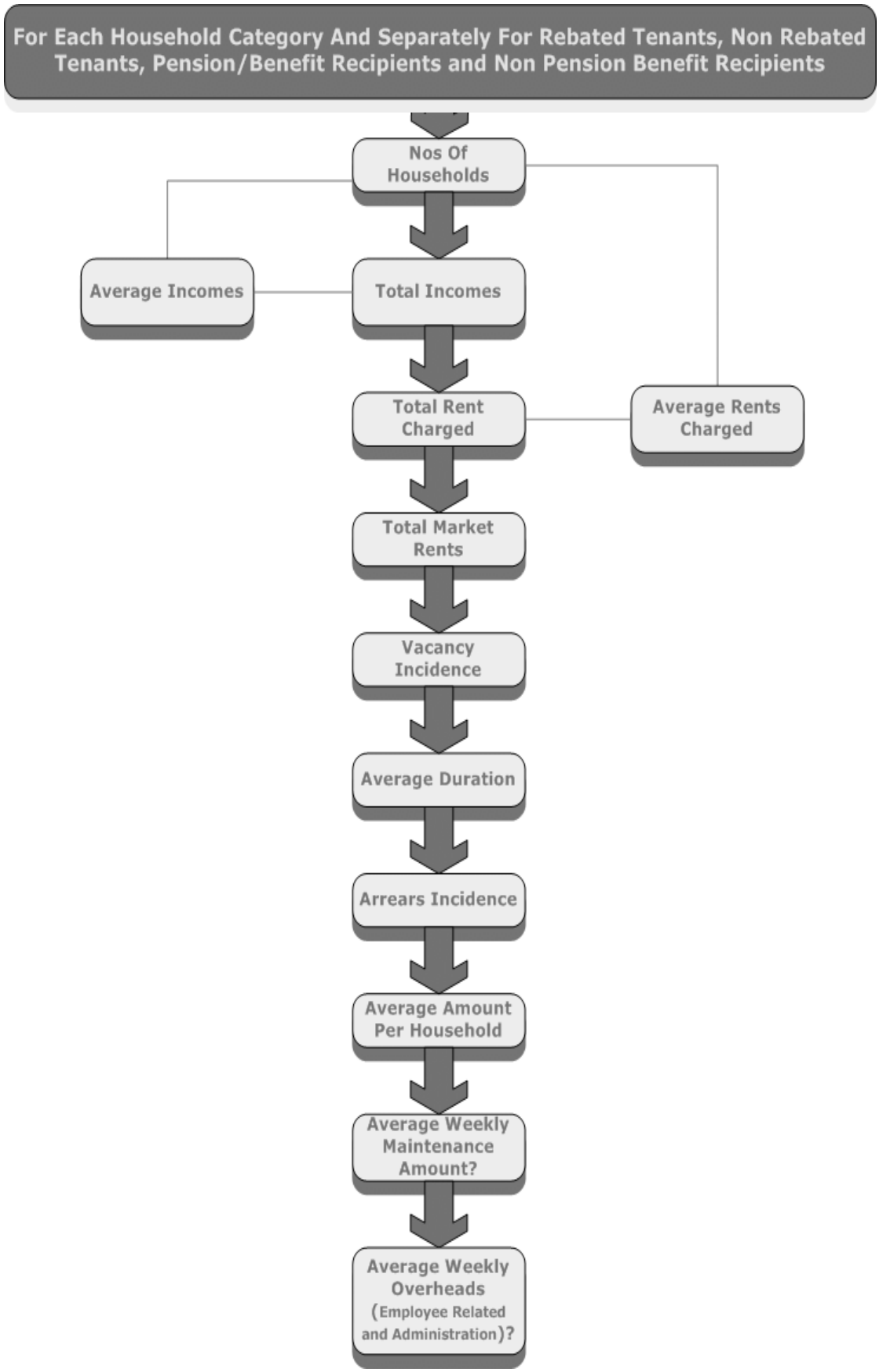
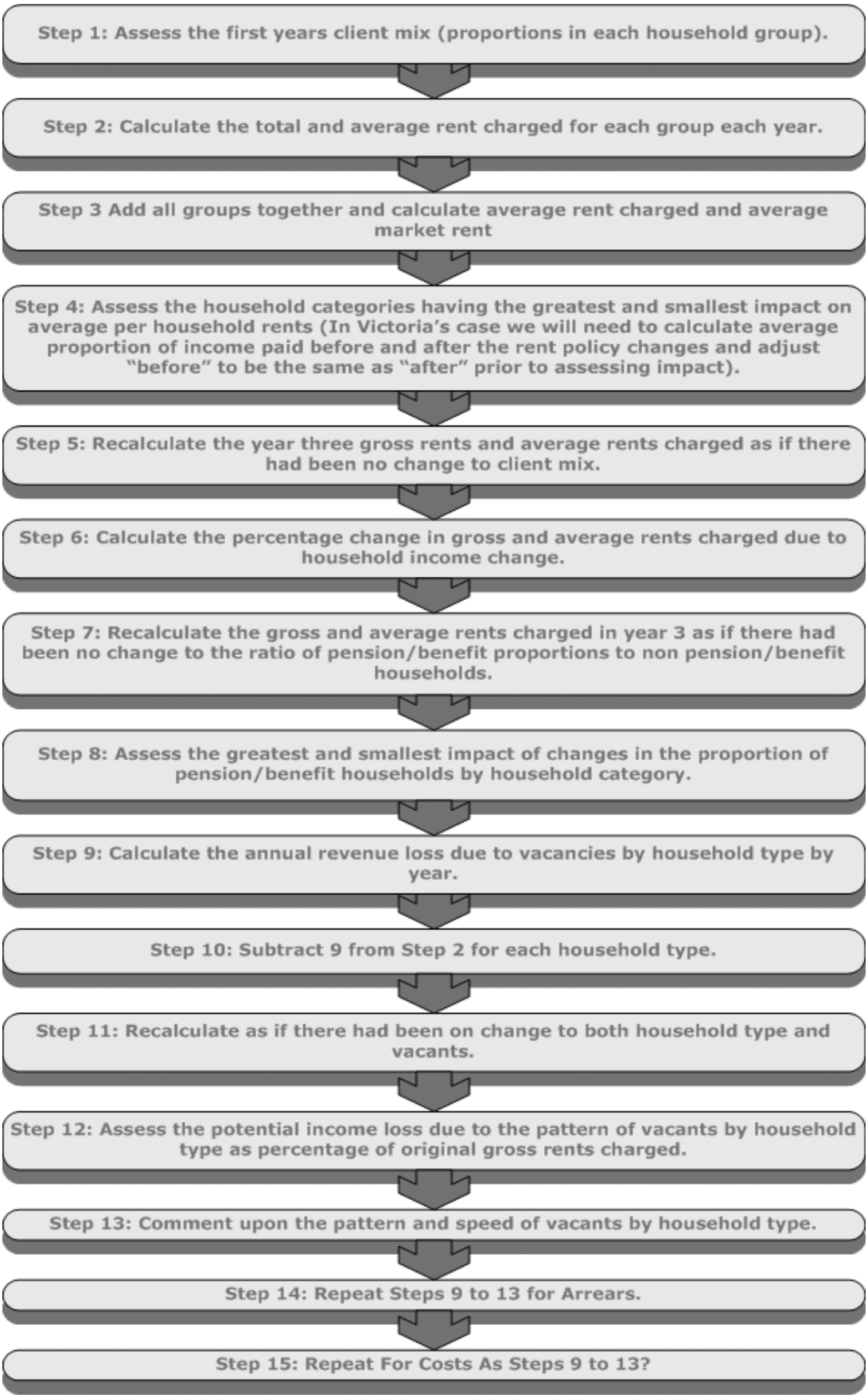


Diagram 2: Analysis steps



ATTACHMENT 3: SAMPLE OF DATA SUPPLIED BY STATE HOUSING AUTHORITY

Main Source of Income	Rent Indicator	Household Type	Number of Households	Total Rent Charged	Total Market Rent	Total Household Income	Total Arrears	Arrears/1 Week
Pension/Benefit	Rebated Renter	Single Youth	181	$6,513.60	$24,089.00	$27,175.80	$10,587.88	$1,570.15
	Rebated Renter	Single Youth	15	$1,223.40	$2,158.00	$4,894.44	$7,955.98	$100.30
			196	**7,737**	**26,247**	**32,070**	**18,544**	**1,670**
	Full Renter	Single Youth	11	$1,206.00	$1,206.00	$1,758.22	$5,241.58	$375.80
	Full Renter	Single Youth	2	$170.00	$170.00	$749.96	$353.29	$0.00
			13	**1,376**	**1,376**	**2,508**	**5,595**	**376**
	Rebated Renter	Single 21-64	15,042	$854,026.20	$2,225,766.00	$3,423,542.92	$817,646.76	$62,276.56
	Rebated Renter	Single 21-64	710	$84,119.80	$135,152.00	$336,744.59	$207,047.09	$12,160.90
			15,752	**938,146**	**2,360,918**	**3,760,288**	**1,024,694**	**74,437**
	Full Renter	Single 21-64	482	$57,400.00	$57,400.00	$116,516.74	$199,787.06	$17,462.59
	Full Renter	Single 21-64	397	$56,174.00	$56,174.00	$241,165.77	$179,604.53	$7,989.04
			879	**113,574**	**113,574**	**357,683**	**379,392**	**25,452**
	Rebated Renter	Single Aged	12,869	$783,134.25	$1,701,199.00	$3,157,426.14	$93,790.93	$9,996.31
	Rebated Renter	Single Aged	12	$906.15	$1,941.00	$3,625.54	$0.00	$0.00
			12,881	**784,040**	**1,703,140**	**3,161,052**	**93,791**	**9,996**
	Full Renter	Single Aged	396	$31,315.00	$31,315.00	$116,787.48	$4,386.12	$2,198.57
	Full Renter	Single Aged	14	$1,873.00	$1,873.00	$8,933.00	$134.65	$0.00
			410	**33,188**	**33,188**	**125,720**	**4,521**	**2,199**
	Rebated Renter	Single Parent + 1	4,927	$370,628.15	$832,391.00	$1,793,284.05	$483,926.76	$36,081.76
	Rebated Renter	Single Parent + 1	26	$3,155.50	$5,242.00	$14,362.55	$2,340.05	$344.55
			4,953	**373,784**	**837,633**	**1,807,647**	**486,267**	**36,426**
	Full Renter	Single Parent + 1	269	$39,314.00	$39,314.00	$122,873.51	$122,929.20	$11,732.61
	Full Renter	Single Parent + 1	63	$9,972.00	$9,972.00	$46,433.57	$8,586.32	$616.00
			332	**49,286**	**49,286**	**169,307**	**131,516**	**12,349**
	Rebated Renter	Single Parent + 2 or more	6,395	$568,973.35	$1,143,505.00	$3,071,016.40	$823,415.29	$52,577.29
	Rebated Renter	Single Parent + 2 or more	29	$3,558.40	$5,764.00	$16,700.48	$10,423.56	$155.05
			6,424	**572,532**	**1,149,269**	**3,087,717**	**833,839**	**52,732**
	Full Renter	Single Parent + 2 or more	413	$63,212.00	$63,212.00	$223,058.34	$215,622.40	$17,556.34

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