National Audit Office

A Foot on the Ladder: Low Cost Home Ownership Assistance Technical note on the financial modelling

14 July 2006

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For further information about the National Audit Office please contact:

National Audit Office
Press Office
157-197 Buckingham Palace Road
Victoria
London
SW1W 9SP

Tel: 020 7798 7400

Email: enquiries@nao.gsi.gov.uk

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INTRODUCTION

This technical note supports the findings and recommendations contained in our report *A Foot on the Ladder: Low Cost Home Ownership Assistance*. It sets out how we developed and used financial models to ascertain the costs and benefits of low cost home ownership to the three main stakeholders: the purchaser, the taxpayer and the Registered Social Landlords who administer the programme. It also contains more detailed analysis of the financial data held by the Department for Communities and Local Government and the Housing Corporation which supports the summary analysis in our main report.

The technical note is organised into four chapters:

- Part 1 provides information on the data we used in our modelling.
- Part 2 explains the modelling supporting our analysis of the costs and benefits of low cost home ownership to the purchaser.
- Part 3 explains the modelling supporting our analysis of the costs and benefits of low cost home ownership to the taxpayer.
- Part 4 explains the modelling supporting our analysis of the costs and benefits of low cost home ownership to the Registered Social Landlord.

PART ONE

Data sources

1.1 The National Audit Office analysed data held by the Housing Corporation and the Department for Communities and Local Government (the Department)[1] to inform our understanding of low cost home ownership and to provide the basis of our financial modelling. This data is held on three main databases: the Continuous Recording System (known as CORE); the Housing Corporation's Investment Management System; and the Department's Key Worker Living database. This section of the technical note provides information on these databases.

Continuous Recording System (CORE)

1.2 CORE (COntinuous REcording) is a system developed jointly by the National Housing Federation and the Housing Corporation. CORE is used to record information on Registered Social Landlords' lettings and sales in England. Around 750 Registered Social Landlords and non-registered associations have recorded more than 160,000 general needs lettings, 65,000 supported housing lettings and 10,000 sales per year since CORE was launched in 1989. It is compulsory for all Registered Social Landlords to complete a CORE log every time they let or sell an affordable property. Since 2004 local authorities have been invited to voluntarily participate in CORE, but we have not used local authority data. CORE is maintained by the Joint Centre for Scottish Housing Research at St Andrews University, who publish summary reports of the data on their website http://www.core.ac.uk.

1.3 St Andrews University provided us with the data they held on all letting and sales from April 1999 to March 2005. We concentrated our analysis on the financial year beginning 1 April 2004. This was the latest complete financial year at the time of our examination for which validated data was available. We used previous years for comparative purposes to check that our findings for 2004-05 were not anomalous.

1.4 Whilst CORE records are reviewed by St Andrews University to ensure their accuracy, we found a small number of extreme values in the database. We believe that these are likely to signify data errors probably caused at the time of data entry. We have not attempted to cleanse the data as we do not have direct access to the underlying records on which the data is based. Where we show data from the CORE report in this technical note some of these extreme values are evident. To avoid these extreme values biasing our understanding of typical low cost home ownership sales we have tended to use the five per cent trimmed mean and medians in our modelling. Because these extreme values which may be data errors are very low in number compared to total population, they do not significantly affect the accuracy of our overall analysis.

1 The Department for Communities and Local Government replaced the Office of the Deputy Prime Minister on 5 May 2006. Where in the report and technical note we refer to the Department we refer to both the Office of the Deputy Prime Minister prior to this date and the Department for Communities and Local Government after this.

Housing Corporation's Investment Management System (IMS)

1.5 The Housing Corporation's Investment Management System (IMS) holds information on all the projects funded by the Housing Corporation. IMS is used by the Housing Corporation to receive funding bids from Registered Social Landlords and other partner organisations, make funding allocations, and record dispersal of grants. The National Audit Office reviews a sample of these transactions as and when necessary to inform our judgement on the Housing Corporation's annual accounts.

1.6 We obtained data from the Housing Corporation on all low cost home ownership sponsored schemes that were completed between April 1999 and March 2005 (IMS completions) and for all grants paid out for low cost home ownership between the same dates (IMS expenditure). These two datasets are not directly comparable due to timing differences between the payment of grant and the completion of a scheme. We analysed IMS for information on the costs of low cost home ownership to the taxpayer and the number of completed units for each year.

1.7 There is a discrepancy between the number of records on CORE and the Housing Corporation's Investment Management System. Whilst the Investment Management System records the date the scheme is completed and ready for occupation, CORE records the date of sale. However, the size of the discrepancy suggests that CORE is incomplete. Where we have quoted figures for the number of households helped by low cost home ownership sales we use the Housing Corporation's Investment Management System.

Department for Communities and Local Government Key Worker Living database

1.8 The Department for Communities and Local Government maintains a database of all low cost home ownership sales made under the Key Worker Living Initiative. This is a separate pool of funding dedicated to providing low cost home ownership assistance to Key Workers in order to help recruitment and retention in areas of especially high property values. It is only available in the London, South East, and East of England Government regions. Key Worker Living Initiative sales were not included in CORE prior to April 2006, although they are included in IMS. The database held by the Department on Key Worker Living replicates some of the data that is included in CORE for other low cost home ownership sales. We have used this database where information was not available elsewhere and in particular for some of our analysis in Part 3.

PART TWO

Costs and returns to the purchaser

2.1 We modelled the typical costs and returns to those buying a share of low cost home ownership homes in order to verify that purchasers were getting a good deal. This chapter sets out our analysis of the CORE database and shows how we modelled these costs and returns. The section also includes a discussion on the affordability of low cost home ownership products.

Typical low cost home ownership sales: analysis of CORE 2004-05

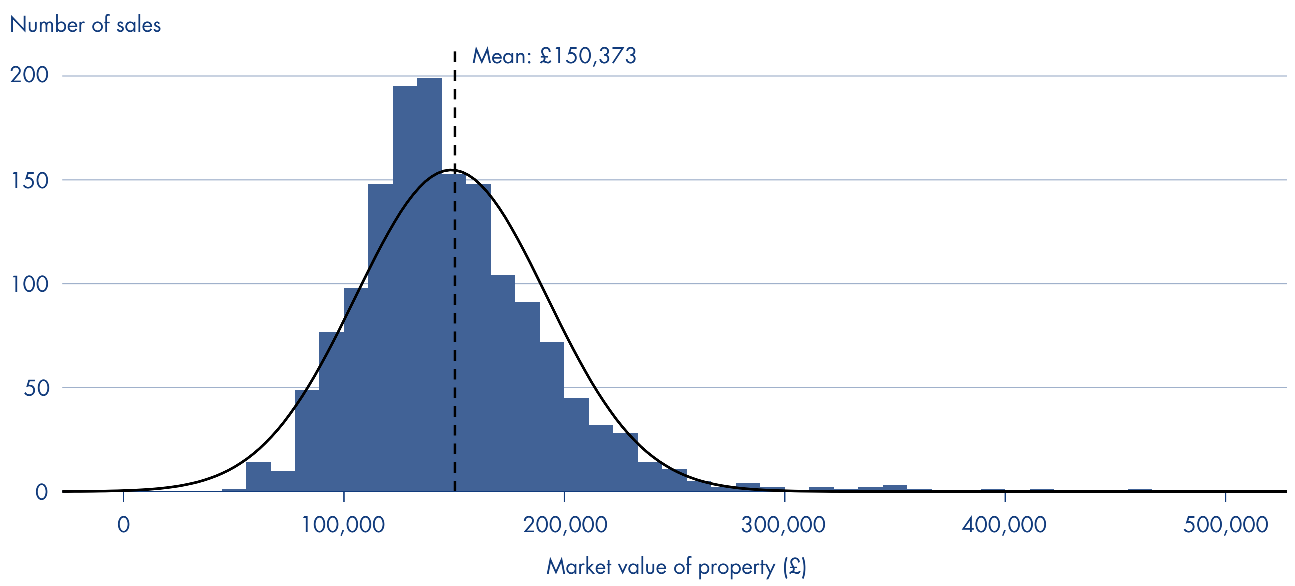
2.2 Our analysis of typical low cost home ownership sales is based on sales logged on CORE in 2004-05 of Homebuy and new Shared Ownership properties. Typical sale values are set out in **Figure 1**. Graphs showing the range and distribution of each of these variables are set out in **Figures 2 to 9 on pages 8 to 11**.

1 Typical low cost home ownership sales: average values in 2004-05 from CORE used in our modelling

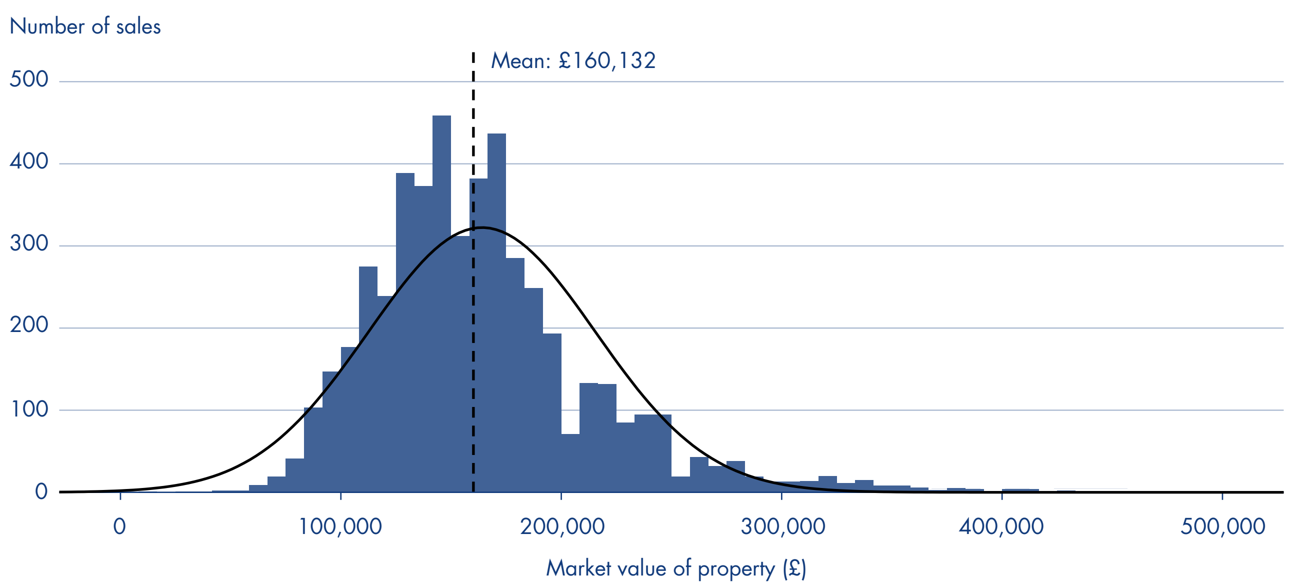
	Type of assistance	Five per cent trimmed mean	Median	Input value used in modelling
Market value of property	Shared Ownership	£160,132	£155,000	£150,000
	Homebuy	£150,373	£147,000	£150,000
Deposit paid	Shared Ownership	£5,172	£2,525	n/a
	Homebuy	£6,252	0	n/a
Percentage of property's market value subsidised by LCHO assistance	Shared Ownership	65%	50%	50%
	Homebuy	25%	25%	25%
Initial mortgage interest rate	Shared Ownership	5.42	5.38	5.42
	Homebuy	5.22	5.19	5.22
Yearly rent as a percentage of subsidised market value	Shared Ownership	2.76	2.80	2.76

Market value of the properties purchased under low cost home ownership 2004-05

2 The market value of homes purchased using Homebuy in 2004-05

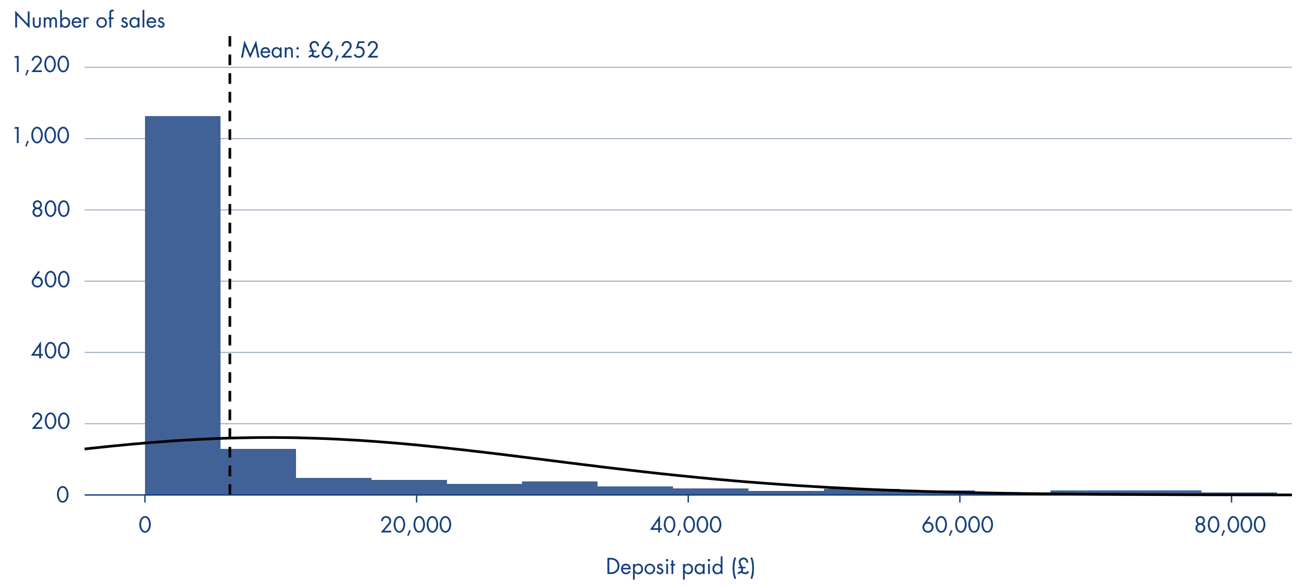


3 Market value of homes purchased using Shared Ownership in 2004-05

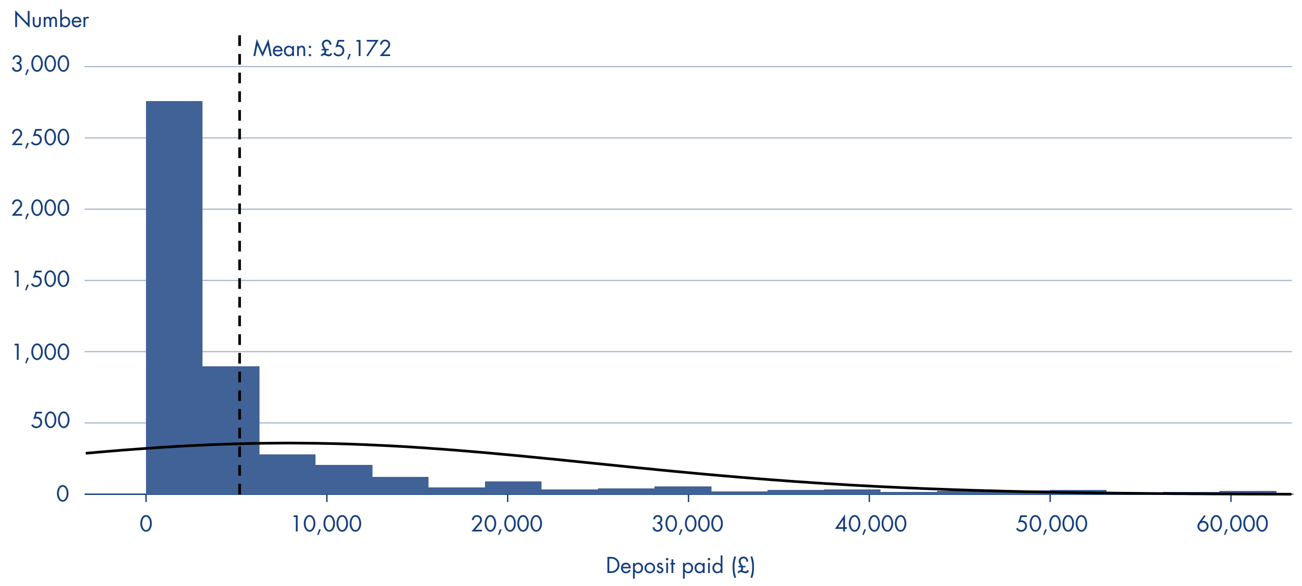


Deposits used to purchase low cost home ownership properties 2004-05

4 The size of deposit used to purchase homes with Homebuy in 2004-05

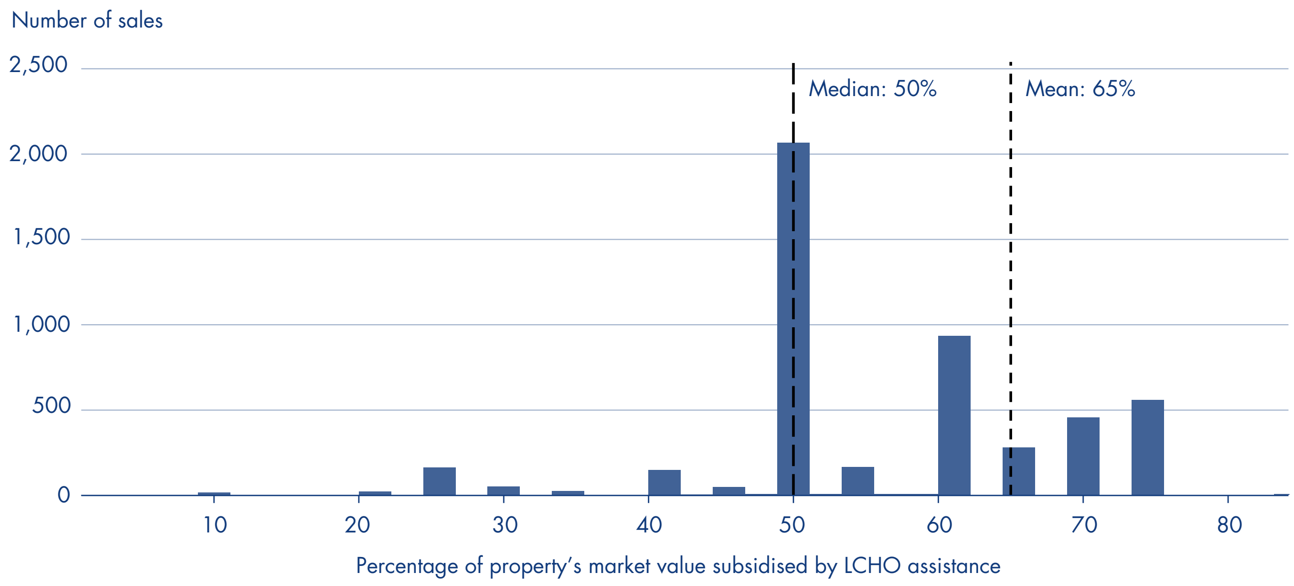


5 The size of deposit used to purchase homes with Shared Ownership in 2004-05



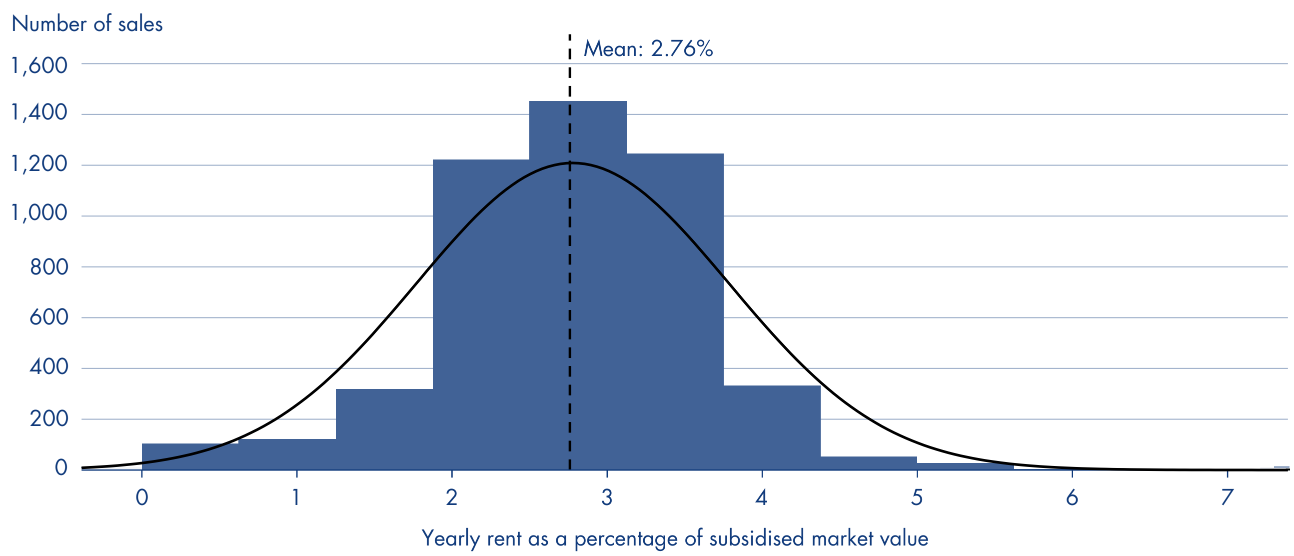
Equity retained by Registered Social Landlords 2004-05

6 The amount of equity retained by the Registered Social Landlord under Shared Ownership sales in 2004-05



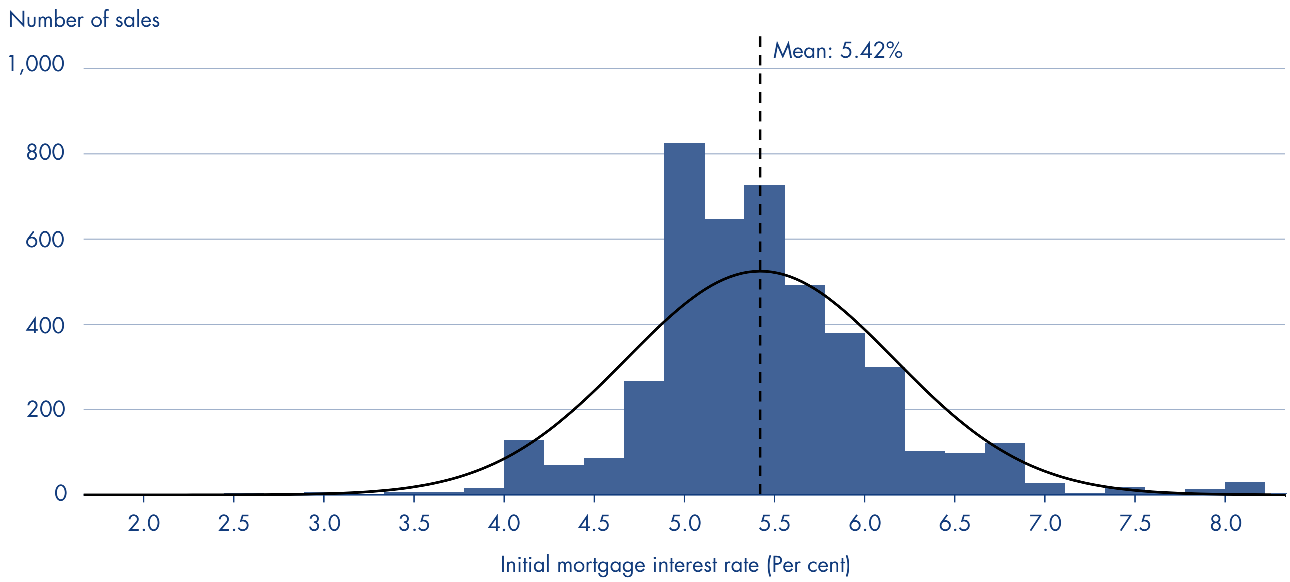
Rent charged on Shared Ownership properties 2004-05

7 The rent charged under Shared Ownership in 2004-05 as a percentage of the initial market value of the equity retained by the Registered Social Landlord

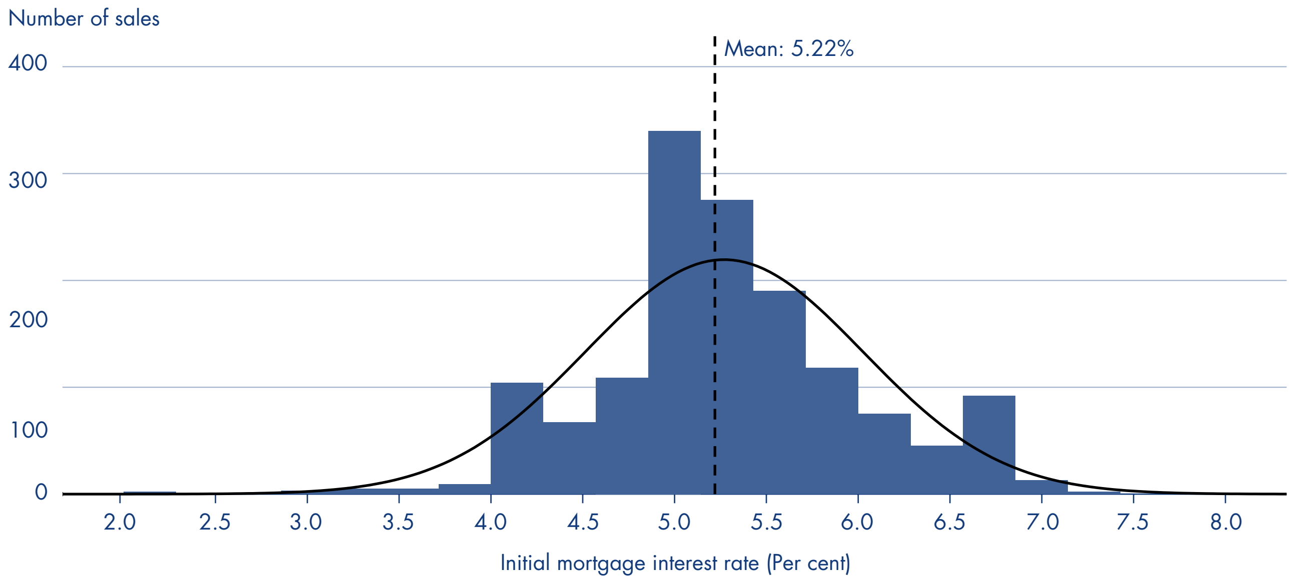


Initial interest rates charged on mortgages to purchase low cost home ownership properties 2004-05

8 The initial mortgage interest rate used to purchase Homebuy properties in 2004-05



9 The initial mortgage interest rate used to purchase Shared Ownership properties in 2004-05



Modelling the costs and returns to the purchaser

2.3 Our model of costs and returns to the purchaser is based on typical costs as recorded on CORE expressed as a percentage of the market value of the property purchased or rented. We use these typical cost rates to model the costs of purchasing or renting a £150,000 property under each of the various tenures. This enables direct comparison of the different tenures regardless of the differing types of property actually purchased in practice. A summary of the outputs from the model are set out in **Figure 10 on pages 14 and 15**.

2.4 Our model shows the costs to the individual for various methods of purchasing or renting a property. We consider Shared Ownership and Homebuy separately and compare them to full ownership, social renting and market price renting. We also show comparative information for the new Open Market HomeBuy joint product with the private sector which will be available from October 2006 and to an alternative open market product which is flexible in the proportion that can be sold to the purchaser and which charges a small rent. We recommend in our report that this alternative product be developed by the Department and Housing Corporation. The costings for the joint product with the private sector and the alternative product are based on our understanding of the likely costs and may differ from the actual costs once the schemes are in place. The Department are still in negotiations with the private sector as to the final charges for the joint product.

Finance used for property sale and initial finance rates

2.5 Our model of the costs and returns to the purchaser takes the finance used for the property sale, the portion sold to the purchaser and finance rates (rent and mortgage) as input variables. The property market value has been set at £150,000 but the purchaser invests in differing equity stakes in the property depending on the product they are purchasing. The equity stake purchased varies from none for renting through to 100 per cent for full ownership. We have modelled the costs of purchasing without allowing for a deposit to enable direct comparisons with rented tenures.

2.6 The finance rates are used to calculate the costs to the purchasers. The rent rate is the rent charged on the property as a percentage of the initial market value of the equity retained by the Registered Social Landlord. It is the equivalent of rental yield for a property investor, although the latter is sometimes quoted net of costs. We have used 2.76 per cent, the five per cent trimmed mean rent rate for Shared Ownership in 2004-05, as the rent rate for both Shared Ownership and social rent. The actual rent rate for social rent is not available as affordable housing stock is not valued at market prices. However 2.76 per cent on a £150,000 provides rental costs that are close to actual rents charged in the affordable housing sector. In 2003-04 the mean rent before housing benefit of Registered Social Landlord tenants in England was £3,536. However many of these tenants would not be housed in a property above £150,000. For our comparative costs of private sector renting we have used the national gross yield for rented properties in 2004 of 5.9 per cent as quoted in the IPD UK residential investment index.

2.7 For the interest rate we have used the five per cent trimmed mean initial mortgage interest rate on CORE for Homebuy and Shared Ownership sales in 2004-05. The initial mortgage interest rate is the rate that applies from the beginning of a mortgage and is likely to be less than the often quoted annual percentage rate (APR) because it does not take into account later increases in rate after an initial discount or fixed period. However, borrowers often renegotiate their mortgage after the initial discount or fixed period and achieve a rate lower than the annual percentage rate. Shared Ownership buyers have slightly higher initial interest rates than Homebuy buyers because banks consider the Homebuy equity loan is better security than the Shared Ownership lease and banks also carry more administrative costs when providing specialist mortgages for Shared Ownership leases. We have used the Homebuy mortgage rate for full ownership and the alternative open market product, as theoretically there should be no difference. We have used a one per cent premium on the 2004-05 base rate as an indicative estimate of the costs for the new Open Market HomeBuy product being negotiated with private lenders.

First year costs

2.8 The first year costs are important to first time buyers who purchase at the limit of what they can afford. Often house related costs will drop as a proportion of household income as earnings increase and mortgage repayments drop in real terms due to inflation. Buyers will therefore often focus on the first year costs of buying a property when deciding if they can afford it. Consequently, we show first year costs as a benchmark of affordability to the purchaser.

2.9 First year annual rent is the rental rate multiplied by the un-purchased portion of the property. The mortgage annuity is the annual mortgage repayment using the given interest rate and assuming a 25 year mortgage with interest charged in arrears. The total first year costs are the total of rent and mortgage costs and exclude transaction and maintenance costs in every case. Transaction costs are assumed to be insignificant compared to the total costs over 25 years, and maintenance costs, although funded differently through different forms of tenure, are likely to be similar for all methods of purchasing a property. Figure 10 therefore shows the costs assuming the same property is purchased under each product.

25 year cost

2.10 The 25 year cost is the total cost of purchasing the property over 25 years. The mortgage is assumed to be over a 25 period, and after this time the purchaser will own the full purchased portion of the property. They will, however, still pay any rent on any un-purchased portion of the property after 25 years, and such rent is not included in this model. If we were to include such rent it would decrease the return on a rented or Shared Ownership property and increase the return on Homebuy and full ownership properties.

2.11 The cost over 25 years is quoted in today's prices. Registered Social Landlords are allowed to increase rent each year by a maximum of inflation plus one per cent of the previous year's rent. Our model assumes that all rents are increased by inflation only. However mortgage annuities do not increase with inflation, and therefore, in order to quote them in today's prices, they must be discounted by our estimate of inflation. We have assumed a two per cent annual inflation in line with the current Bank of England target. The cost over 25 years excludes transactions costs and maintenance for the same reasons as given above for first year costs.

Market value of purchased equity after 25 years

2.12 The market value of purchased equity after 25 years is what the portion of the property bought by the purchaser will be worth by the time the mortgage has been fully paid off. The value of that portion will depend on house price inflation. Kate Barker states that the trend rate of house price inflation is 2.7 per cent in real terms.[2] However, the trend rate may not continue and we show the value of the purchaser's capital under different assumptions about future rate of house price increases (double the current trend rate, the current trend rate, half the trend rate, stagnant in real terms, or falling by half the trend rate and the full trend rate). The National Audit Office does not take a view on how future house prices are likely to perform.

Net return over 25 years

2.13 The net return over 25 years is the benefit to the purchaser achieved by purchasing the equity stake in the property once the mortgage has been fully paid off. This again depends on house price inflation and the same six scenarios listed in paragraph 2.12 are used.

2.14 The long term benefit from purchasing a portion of a low cost home ownership property is the capital acquired less the cost of acquiring that capital above the cost of living there without purchasing that portion of the property. We value the cost of living in the property at social rented rates. Using full market rates for cost of similar accommodation would increase the net returns.

2.15 The net return shows that those purchasing a portion of their property are likely to get their investment back even if property prices fall slightly over the long term. This is because the extra cost of purchasing a share of a property is often less than the initial market value of the portion of the home acquired once we take into account the affects of inflation on mortgage costs. From this point of view, the financial risks from buying a share of your home are low over the long-term. However, this does not mean that purchasers would not achieve higher returns by making alternative investments.

2 *Delivering stability: securing our future housing needs,* Barker Review of Housing Supply – Final Report, Her Majesty's Treasury, March 2004.

10 Costs and returns to the purchaser model

	Shared Ownership	Homebuy	Full Ownership	Social Rent	Market Rent
Equity sold	50%	75%	100%	0%	0%
Finance used for property sale					
House price	£150,000	£150,000	£150,000	£150,000	£150,000
Mortgage	£75,000	£112,500	£150,000	–	–
Un-purchased portion	£75,000	£37,500	–	£150,000	£150,000
Initial finance rates					
Rent rate	2.76%	–	–	2.76%	5.90%
Interest rate	5.41%	5.22%	5.22%	–	–
First year costs					
First year annual rent	£2,072	–	–	£4,143	£8,850
Mortgage annuity	£5,546	£8,163	£10,884	–	–
Total first year costs	£7,617	£8,163	£10,884	£4,143	£8,850
25 year cost					
Cost over 25 years	£160,065	£159,364	£212,485	£103,575	£221,250
Market value of purchased equity after 25 years					
Annual capital growth					
-2.70%	£37,834	£56,751	£75,668	–	–
-1.35%	£53,394	£80,090	£106,787	–	–
0.00%	£75,000	£112,500	£150,000	–	–
1.35%	£104,871	£157,306	£209,742	–	–
2.70%	£145,990	£218,985	£291,979	–	–
4.05%	£202,355	£303,532	£404,709	–	–
Net return over 25 years: Market value of purchased equity after 25 years, plus the value of 25 years accommodation (£103,575) less the total cost over 25 years					
Annual capital growth					
-2.70%	£(18,656)	£962	(£33,242)	–	(£117,675)
-1.35%	£(3,096)	£24,301	(£2,123)	–	(£117,675)
0.00%	£18,510	£56,711	£41,090	–	(£117,675)
1.35%	£48,381	£101,517	£100,831	–	(£117,675)
2.70%	£89,500	£163,196	£183,069	–	(£117,675)
4.05%	£145,865	£247,743	£295,799	–	(£117,675)
Incremental rate of return to purchaser over 25 years					
Annual capital growth					
-2.70%	-1.591%	0.068%	-1.446%		
-1.35%	-0.225%	1.457%	-0.079%		
0.00%	1.140%	2.845%	1.289%		
1.35%	2.506%	4.234%	2.656%		
2.70%	3.871%	5.622%	4.023%		
4.05%	5.236%	7.010%	5.391%		

NOTE

This figure supports Figure 10 in the main report *A Foot on the Ladder: Low Cost Home Ownership Assistance*.

Open Market HomeBuy	Alternative Open Market Product (flexible proportions and rental charge)		
75%	25%	50%	75%
£150,000	£150,000	£150,000	£150,000
£112,500	£37,500	£75,000	£112,500
£37,500	£112,500	£75,000	£37,500
–	2.76%	2.76%	2.76%
5.75%	5.22%	5.22%	5.22%
–	£3,107	£2,072	£1,036
£8,593	£2,721	£5,442	£8,163
£8,593	£5,828	£7,513	£9,198
£167,756	£130,803	£158,030	£185,258
£56,751	£18,917	£37,834	£56,751
£80,090	£26,697	£53,394	£80,090
£112,500	£37,500	£75,000	£112,500
£157,306	£52,435	£104,871	£157,306
£218,985	£72,995	£145,990	£218,985
£303,532	£101,177	£202,355	£303,532
(£7,430)	(£8,311)	(£16,621)	(£24,932)
£15,909	(£531)	(£1,062)	(£1,593)
£48,319	£10,272	£20,545	£30,817
£93,125	£25,208	£50,416	£75,624
£154,803	£45,767	£91,535	£137,302
£239,351	£73,950	£147,900	£221,849
-0.491%	-1.446%	-1.446%	-1.446%
0.890%	-0.079%	-0.079%	-0.079%
2.270%	1.289%	1.289%	1.289%
3.651%	2.656%	2.656%	2.656%
5.032%	4.023%	4.023%	4.023%
6.412%	5.391%	5.391%	5.391%

Incremental rate of return to the purchaser over 25 years

2.16 The incremental rate of return to the purchaser is the annual return a purchaser would make from purchasing a share of their home instead of renting it from a Registered Social Landlord. It provides the rate of return that the purchaser receives by acquiring an asset through paying for the additional cost of purchasing a share of the home above the cost of renting the home at social rented rates.

2.17 The rate of return is quoted as the real rate of return; it does not include inflation. The effects of inflation and taxation should be considered when comparing to other types of investment such as savings accounts or stocks and shares. The rate of return is quoted for each low cost home ownership product under the six scenarios of house price inflation listed in paragraph 2.12. The formula used to calculate the rate of return is provided in **Figure 11**.

Incomes of applicants and affordability

2.18 The household incomes of those purchasing with low cost home ownership are higher than the majority of social tenants but lower than comparable first time buyers purchasing the full ownership of the property. **Figure 12** shows the household incomes of those entering new accommodation in 2004-05. The figure is a modified box plot showing the interquartile range and median of household income for each tenure. The quartile incomes are also shown in **Figure 13 on pages 18 and 19**.

2.19 The household incomes of each category are taken from a variety of sources. The household incomes of Shared Ownership purchasers and Homebuy purchasers are from CORE. The household incomes of new affordable rented tenants shown are for new registered social housing tenants

11 Calculating the incremental rate of return to the purchaser over 25 years

$$\left(\frac{K}{PV(Y,I)-A}\right)^{\frac{1}{25}}-1$$

Where:

- K = capital acquired after 25 years
- A = accommodation value at social rent rates (£103,575)
- Y = rent cost
- I = mortgage cost
- PV(Y,I) = total rent and mortgage costs over 25 years

Assumptions

- Mortgage repaid over 25 years
- Transaction costs insignificant
- Service and maintenance charges are equal for all products
- Mortgage rate is stable
- Rent is increased with inflation
- Inflation is two per cent

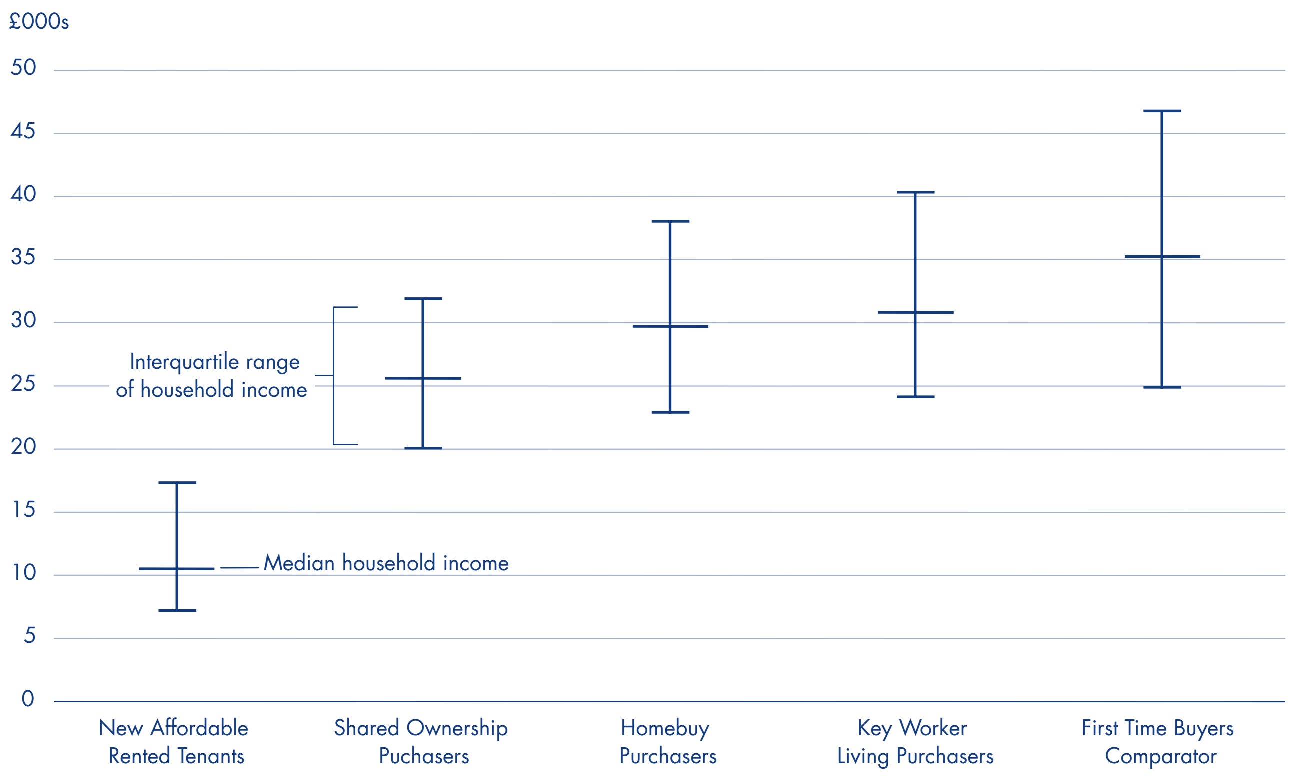
Explanation of formula

The capital (K) acquired after 25 years is the market value of the purchaser's share after house price inflation, but excluding general inflation. Total rent and mortgage costs (PV(Y,I)) are calculated as 25 years' worth of rent payment and the present value of a mortgage annuity discounted at two per cent to take account of general inflation. Dividing the capital acquired by the cost provides the margin of return over 25 years. This is then modified to calculate the return over one year.

from the general lettings CORE database. Whilst CORE holds gross household incomes for low cost home ownership sales, it only holds net income data for new social rented tenants. We have therefore estimated new social rented tenants' gross incomes by reversing out taxes from their earned pay, assuming that the tenants do not receive any benefits in kind or have other major sources of income, and, where there are two main income earners in the household, each earns an equal share of the household income. We then add back all other sources of income, which for the most part are not taxed. Although this produces an inexact approximation of each household's gross income, it provides a good guide for the distribution of gross incomes over the whole population of 143,503 new lettings in 2004-05.

2.20 The first time buyers comparator is calculated using information from the Council of Mortgage Lenders and is designed to allow comparison to low cost home ownership buyers who mostly purchase in expensive regions. We have taken the quartile incomes of first time buyers for each government region of the country and calculated average quartiles for the comparator weighted by the number of low cost home ownership sales in each region. Using an unweighted comparator would ignore the geographic spread of low cost home ownership purchasers and would suggest that low cost home ownership purchasers had higher incomes than other first time buyers because it compared them to buyers in cheaper regions.

12 Household incomes of low cost home ownership purchasers in 2004-05 compared to those entering social rented housing and comparable first time buyers



NOTE

This figure supports Figure 8 in the main report, *A Foot on the Ladder: Low Cost Home Ownership Assistance*.

First year affordability and predicted income ranges of low cost home ownership purchasers

2.21 First time buyers consider purchasing a portion of their home will need to consider both the long term return on the purchase and their ability to afford it. As explained in paragraph 2.8, the first year costs are a good indication of affordability as costs are likely to decrease in comparison to household income over the course of a mortgage. Figure 13 compares the income ranges for which each product is suited. The costs are those presented in Figure 10. Figure 13 offers two modelling predictions for the incomes of households able to buy each product and compares these to the quartile household incomes of those actually buying the products in 2004-05.

2.22 The first modelling prediction of household income assumes housing costs are 30 per cent of gross income and provides a prediction for the average household income of purchasers of the product. This is based on the Department and Housing Corporation's internal benchmark used when developing policy. The Department's data shows that the average first time buyer was spending 22 per cent of their household income on mortgage costs in 2004, up from a low of 17 per cent in 1996.[3]

2.23 The second modelling prediction provides estimates of the household income quartiles of purchasers of the product. It is calculated using the ratio of costs to income actually observed for Shared Ownership and applying

13 Affordability of low cost home ownership

	Shared Ownership	Homebuy	Full Ownership	Social Rent	Market Rent
	£	£	£	£	£
Total first year costs	7,617	8,163	10,884	4,143	8,593
Incomes necessary for cost					
Costs as 30 per cent of gross pay	25,392	27,209	36,279	13,810	29,500
Predicted household income quartiles using Shared Ownership income to costs ratios					
25%	19,987	21,418	28,557	10,871	23,221
50%	25,475	27,298	36,398	13,855	29,597
75%	32,000	34,290	45,720	17,404	37,178
Actual household income quartiles					
25%	19,987	22,786	24,791	7,020	
50%	25,475	29,500	35,088	10,296	
75%	32,000	38,156	46,886	17,368	

NOTE

This figure supports Figure 8 in the main report *A Foot on the Ladder: Low Cost Home Ownership Assistance*.

3 Department for Communities and Local Government Housing Statistics, Live Table 539.

that ratio to the costs of each other type of product. This provides a crude indicator of the likely distribution of incomes for each product and is especially useful for the future products where we do not have data on who will be able to afford them. On this basis the alternative open market product using flexible equity shares and a small rental charge will be suitable for families with incomes between £15,000-£30,000. (Recommendation 2 in the main report, *A Foot on the Ladder: Low Cost Home Ownership Assistance*).

2.24 Actual household income quartiles are also shown in Figure 13. These are as presented in Figure 12. The close proximity of the predicted values to the actual values provides a useful verification for our model.

Open Market HomeBuy	Alternative Open Market Product (flexible proportions and rental charge)		
£	£	£	£
8,989	5,828	7,513	9,198
28,642	17,009	22,626	27,119
22,546	13,388	17,810	21,347
28,736	17,064	22,700	27,209
36,096	21,435	28,514	34,178

PART THREE

Costs and returns to the taxpayer

3.1 The taxpayer funds low cost home ownership through a grant from the Housing Corporation to the administering Registered Social Landlord. We analysed the costs to the taxpayer of housing families under each of the different products and in particular on the efficiency of grant for each of the different low cost home ownership products. We also provide a comparison to social rented housing.

Grant cost of low cost home ownership

3.2 The Housing Corporation provides a grant to Registered Social Landlords for each low cost home ownership sale. This grant is repaid into the recycled capital grant fund when the purchaser buys the remaining share of their home, and can then be used to subsidise further housing. The actual cost to the taxpayer is therefore the opportunity cost involved in providing the grant during the period of loan to the purchaser. Our analysis focuses on the size of the grant provided for each housing product as a proxy for the opportunity costs. Relevant opportunity costs are always proportional to the grant. The scope of our report did not include comparisons to non-housing uses of the grant such as other methods of improving recruitment and retention.

3.3 There is considerable variation in the size of grant needed to fund affordable housing, depending on the nature, location, type of development of which the affordable property is part, and the resources of the Registered Social Landlord. In our report we provide the mean grant provided for each low cost home ownership property (grant per unit). The mean provides a good indication of the relative cost to the taxpayer associated with each housing tenure. **Figure 14** gives an indication of the distribution around the average grant rate for affordable housing schemes across England in 2004-05. For new build properties there was sometimes a zero grant requirement where the Registered Social Landlord used a mixture of Section 106 agreements, their own finances and other public funds to finance the scheme.

3.4 Although our report focuses on the cost to the taxpayer in 2004-05 we also analysed sales since 1999. **Figure 15 on page 22** shows the break down of completed low cost home ownership sales by year, along with the grant provided by the Housing Corporation to fund them and the implied grant per unit. The grant per unit figures provided here are for all properties completed in each year and differ from some other published sources of grant per unit which are quoted for allocations for properties to be completed in future years.

Controls over applications: ensuring applicants are eligible and get the right amount of support

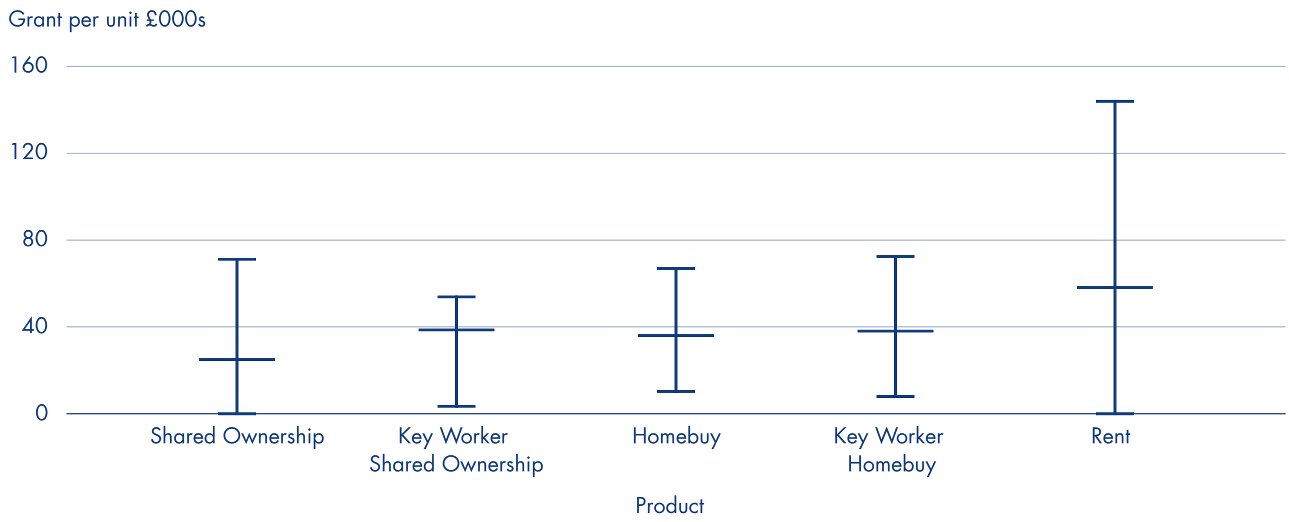
Ensuring applicants need the support

3.5 We undertook a review of Shared Ownership and Homebuy sales in 2004-05 and 2005-06 to ensure that those receiving low cost home ownership assistance were in need of assistance to purchase their home, and that they were receiving the right amount of assistance to purchase a share of their home.

3.6 We undertook a desk based analysis of sales recorded on CORE and the database of Key Worker Living Initiative sales held by the Department. We followed this up with a review of documentation held by Registered Social Landlords for a focused sample of sales and undertook a brief review of control systems in place at six Registered Social Landlords. The review of documentation was methodologically organised into four sample groups. These, along with our findings, are set out in **Figure 16 on page 23**.

3.7 We concluded that Registered Social Landlords are well placed to ensure that all applicants required and were eligible for assistance. In only two cases did we find that the purchasers' incomes after debts and other expenses was sufficient to purchase the property using conventional mortgage multipliers and in these cases the Registered Social Landlord had used their discretion because the purchasers were only marginally able to afford to buy and they took other mitigating factors into account. (Paragraph 36 in the main report, *A Foot on the Ladder: Low Cost Home Ownership Assistance*).

14 Distribution of grant per unit around median for low cost home ownership products 2004-05



NOTE

This figure supports Figure 12 in the main report, *A Foot on the Ladder: Low Cost Home Ownership Assistance.*

3.8 Our sample of Key Worker purchasers (sample 1 from Figure 16) typically had high levels of debt that would have been taken into account by mortgage companies and would have stopped them from buying a suitable property without assistance. These household debts were on average £15,231 with key worker households claiming to pay on average £4,512 a year servicing that debt. Our sample focused only on those with incomes high enough for us to expect them to be able to afford to buy their home using standard mortgage multipliers. We identified 269 of such sales that took place from April 2005 to February 2006 (five per cent of

15 Completed low cost home ownership units 1999-2005

Financial year (starting 1 April)	Type	Units completed in year	Housing Corporation Grant provided for completed units £	Grant per unit £
1999-2000	Homebuy	885	19,872,486	22,455
	Shared Ownership	2,942	52,252,880	17,761
	Annual total	**3,827**	**72,125,366**	**18,846**
2000-2001	Homebuy	1,487	35,288,481	23,731
	Shared Ownership	2,551	54,914,073	21,526
	Annual total	**4,038**	**90,202,554**	**22,338**
2001-2002	Homebuy	1,270	34,508,844	27,172
	Shared Ownership	2,211	48,790,064	22,067
	Starter Homes Initiative (Key Workers)	90	2,173,275	24,148
	Annual total	**3,571**	**85,472,183**	**23,935**
2002-2003	Homebuy	1,332	41,603,541	31,234
	Shared Ownership	2,315	57,460,706	24,821
	Starter Homes Initiative (Key Workers)	2,535	66,951,444	26,411
	Annual total	**6,182**	**166,015,691**	**26,855**
2003-2004	Homebuy	2,552	93,879,500	36,787
	Shared Ownership	3,201	96,028,745	30,000
	Starter Homes Initiative (Key Workers)	5,810	172,281,518	29,653
	Annual total	**11,563**	**362,189,763**	**31,323**
2004-2005	Homebuy	1,996	74,083,573	37,116
	Shared Ownership	5,190	137,350,070	26,464
	Key Worker Living Homebuy	3,278	136,079,185	41,513
	Key Worker Living Shared Ownership	534	16,967,100	31,774
	Starter Homes Initiative (Key Workers)	290	7,884,761	27,188
	Annual total	**11,288**	**372,364,689**	**32,988**
Grand total		**40,469**	**1,148,370,246**	**28,377**

NOTE

This figure supports Figures 7 and 12 in the main report, *A Foot on the Ladder: Low Cost Home Ownership Assistance.*

all key worker sales). We are not able to extrapolate this debt across the whole population of Key Worker sales due to the bias in our sample selection, but can extrapolate across the subset of the population from which the sample was taken. We therefore assume that all 269 families had factors such as debt that stopped them from taking out a full mortgage for the property they part bought, implying that over £10 million of grant was provided between April 2005 and February 2006 to help key workers who could have purchased their home had they not already held large debts. Furthermore, the high level of debt servicing payments to debt balances implies that this debt could be paid off in a few years, enabling these key workers to buy a home unassisted in the near future. (Paragraph 40 in the main report, *A Foot on the Ladder: Low Cost Home Ownership Assistance*).

Ensuring applicants get the right amount of support

3.9 Our desk-based review of sales and examination of documentation at Registered Social Landlords revealed that many low cost home ownership purchasers were not taking out as large mortgages as they could have using conventional mortgage multipliers and after taking into account their debts. This means that Registered Social Landlords were providing more assistance than they needed to ensure the families being helped were able to get a step on the property ladder. Registered Social Landlords often marketed and sold fixed proportions of a Shared Ownership property and were required to provide exactly 25 per cent equity loans under Homebuy. Registered Social Landlords do not therefore ensure efficient use of taxpayer's grant by providing the exact amount of assistance that applicants require.

3.10 Our sample of non-key workers (sample 4 of Figure 16) found that purchasers in the sample could have purchased an additional £22,740 of their home on average using conventional mortgage multipliers. This supported our desk-based review of sales which found that purchasers could have on average taken out a further £18,948, the difference being accountable for by the random bias in our sample towards Shared Ownership. **Figure 17 overleaf** shows the results of our desk-based review. Our desk-based review compared the value of the share purchased to the ability of the purchaser to raise a mortgage using conventional mortgage multipliers (3 x joint and 3.5 x single gross income) and their savings. We amended the given household gross income to account for shared ownership rent and assumed debt payments of £3,000 (to represent a high estimate of annual debt payments compared to £2,760 found in our sample).

16 Samples of sales taken for substantive testing

Sample of sales	Criteria for selection	Finding
1 60 Key Worker Living sales from 2005-06 across six Registered Social Landlords	Stated incomes and savings high enough to purchase the home without assistance using 3 and 3.5 times mortgage multipliers	The purchasers held high level of debts and annual debt repayments (on average £4,512). Mortgage companies would have taken such debt into account when considering a mortgage application, preventing such households from achieving conventional mortgage multipliers, and making assistance necessary.
2 12 Non-Key Worker sales 2004-05	Stated incomes and savings high enough to purchase the home without assistance using 3 and 3.5 times mortgage multipliers	Details of the purchasers' debt and savings were incorrectly recorded on CORE and the 12 purchasers were all eligible for assistance.
3 22 Non Key Worker sales 2004-05	Taken at random from CORE to test controls over income testing and recording	Control procedures at Registered Social Landlords can identify whether applicants need assistance.
4 24 Non Key Worker sales 2004-05	Stated incomes and savings high enough to purchase a greater share of their home than they did using 3 and 3.5 times mortgage multipliers	Purchasers in the sample could have purchased on average up to £22,740 more than they did using conventional mortgage multipliers and after taking into account their average annual debt payments of £2,760.

17 Analysis of purchasers' ability to take out larger mortgages: 2004-05 low cost home ownership sales

	Percentage of sales where purchaser could have bought a larger share of the property (Analysis of CORE)	Average additional value of home that could have been purchased (Analysis of CORE)	Total sales in year (IMS)	Implied number of sales where purchaser could have purchased more	Potential saving
Homebuy	22%	£12,171	1,996	437	£5,319,355
Shared Ownership	49%	£20,918	5,190	2,554	£53,434,286
Key Worker Living	11%	£13,072	3,262	352	£4,601,286
Total population	**32%**	**£18,948**	**10,439**	**3,343**	**£63,354,923**

NOTE

This figure supports paragraph 38, Figure 15 and Recommendation 3 in the main report, *A Foot on the Ladder: Low Cost Home Ownership Assistance*.

Encouraging social renters into low cost home ownership

3.11 The taxpayer can make substantial savings by encouraging social renting tenants to buy a share of a property they will live in using low cost home ownership when the tenant can afford to do so. The mean grant cost of a new social rented property in 2004-05 was £55,000 compared to £37,000 for a Homebuy property and £26,000 for a Shared Ownership property (Figure 15). Furthermore, providing a Homebuy property using an equity loan for an open market purchase can be quicker than building a new property. The Government aims to use Homebuy to free up social rented properties for use by others with lower incomes. In 2004-05, 31 per cent of Homebuy sales directly freed up a social rented home in this way. This section of the technical note explains how we calculated potential demand for low cost home ownership amongst new social tenants and the saving to the taxpayer from encouraging those in or moving into social rented housing to consider moving into low cost home ownership instead.

Potential demand for low cost home ownership from those entering social rented housing

3.12 We analysed CORE for all new lettings made in 2004-05 to see how much demand there could potentially be amongst those entering social housing for low cost home ownership. We did this by comparing the gross household incomes of new social renters to the gross household incomes of those entering low cost home ownership. We did not have available data on the incomes and circumstances of those already in social rented housing.

3.13 We estimated the gross earned household income for new social rented tenants using CORE records of take-home pay. CORE only records net household income and we therefore had to estimate gross household income by reversing out tax and national insurance from take-home pay using 2004-05 tax allowances and assuming that, where income was earned by two people, that each person earned an equal share. This process is described in paragraph 2.19. The majority of new social rented tenants have no employment and therefore the median earned income of those entering new social rented tenancies is zero. The proportion of those entering new social rented tenancies that could potentially afford low cost home ownership is very small and our analysis here focuses on the upper end of the scale. The break down of our estimates of earned income for 2004-05 new social rented tenants in England is given in **Figure 18**.

18 Estimated gross household Incomes of those entering social rented housing in England 2004-05

Household earned income range	Number of households	Percentage of total	Cumulative percentage
<= £5,000.00	41,134	67.2	67.2
£5,000.01 - £7,500.00	2,031	3.3	70.5
£7,500.01 - £10,000.00	2,164	3.5	74.1
£10,000.01 - £12,500.00	2,280	3.7	77.8
£12,500.01 - £15,000.00	2,840	4.6	82.4
£15,000.01 - £17,500.00	2,210	3.6	86
£17,500.01 - £20,000.00	1,800	2.9	89
£20,000.01 - £22,500.00	1,799	2.9	91.9
£22,500.01 - £25,000.00	1,147	1.9	93.8
£25,000.01 - £27,500.00	1,091	1.8	95.6
£27,500.01 - £30,000.00	912	1.5	97.1
£30,000.01 - £32,500.00	434	0.7	97.8
£32,500.01 - £35,000.00	491	0.8	98.6
£35,000.01 - £37,500.00	311	0.5	99.1
£37,500.01 - £40,000.00	115	0.2	99.3
£40,000.01 - £42,500.00	163	0.3	99.5
£42,500.01 - £45,000.00	53	0.1	99.6
£45,000.01 - £47,500.00	74	0.1	99.7
£47,500.01 - £50,000.00	64	0.1	99.8
£50,000.01 - £52,500.00	30	0	99.9
£52,500.01 - £55,000.00	29	0	99.9
£55,000.01 - £57,500.00	19	0	100
£57,500.01 - £60,000.00	7	0	100
£60,000.01+	10	0	100
Total	61,208	100	100
Did not disclose income	82,295		
Total	143,503		

3.14 In identifying households that could potentially buy under low cost home ownership we excluded larger and older households. As our financial modelling assumed a 25 year mortgage and banks do not allow mortgages to run beyond retirement age, we excluded all households where the main earners were aged 41 or above. We also excluded all households of five members or above as their housing need would be greater and they would require a larger more expensive property. By excluding such households we believe that our analysis of those currently entering social rented housing that could afford to enter low cost home ownership is conservative.

3.15 We identified households entering social rented tenancies who could potentially afford low cost home ownership by comparing our estimates of their gross household earned income to the 25th percentile of gross household incomes of those buying with low cost home ownership in their region. We increased the 25th percentile of household income for low cost home ownership purchasers by £3,000 to allow for servicing of debt and other unavoidable expenditure that banks would take into account when considering a mortgage application. This compares to the £100-£300 spent annually on servicing debt in a typical household with these incomes according to the Office for National Statistic's Household Expenditure Survey 2003-04. We then calculated the number of households entering social rented housing in 2004-05 whose income was above this threshold amount. The outputs from this process are set out in **Figure 19**.

3.16 This process identified 3,511 households out of 61,208 (5.7 per cent) who disclosed their incomes (Figure 18) who could potentially have afforded low cost home ownership. Applying the 5.7 per cent rate across the total 143,503 households entering a new social rented tenancy in 2004-05 provides an estimated 8,232 households with potential to enter low cost home ownership. This assumes an equal distribution of incomes across those who provided details of their income on CORE and those who declined to provide income details. (Paragraph 42 in the main report, *A Foot on the Ladder: Low Cost Home Ownership Assistance*).

19 Number of identified households entering social rented tenancies in 2004-05 with incomes sufficient to buy under low cost home ownership

Government region	25th percentile household income of low cost home ownership purchasers £	Threshold household income for test (25th percentile plus £3,000) £	Number of new social tenants with incomes above threshold for test
London	24,203	27,203	243
South East	21,000	24,000	688
South West	18,558	21,558	315
East Midlands	15,420	18,420	285
East	21,456	24,456	361
West Midlands	16,000	19,000	520
Yorkshire and Humber	14,040	17,040	313
North East	15,500	18,500	213
North West	15,000	18,000	573
Total			**3,511**

Savings to the taxpayer through supporting those in social rented housing to buy a share of their home through low cost home ownership

3.17 Whilst other uses of low cost home ownership bring benefits to the taxpayer that can not be easily financially measured, helping those in social rented housing to buy a share of their home when they can afford to do so can release social rented properties for the use of others and realise considerable financial savings. This section of the technical note outlines how we measured those financial savings.

3.18 Every time a family living in social rented accommodation buys a property to move out of their social rented home, it allows another family to use it. Because the provision of low cost home ownership assistance is considerably cheaper for the taxpayer than providing new social rented accommodation, using low cost home ownership in this way can be an economic way of increasing the number of people that can be helped into secure, sustainable affordable housing. The proportion of households helped into low cost home ownership that were previously in social rented housing is shown in **Figures 21 to 23 on pages 28 and 29**. These Figures exclude those buying through the Key Worker Living Initiative which is not designed to release social rented properties, although they may do so.

3.19 1,078 (15 per cent) of low cost home ownership purchases not buying through one of the key worker schemes in 2004-05 were formally social rent tenants. Helping these former social tenants cost the taxpayer approximately £32 million. However, the taxpayer benefited from the 1,078 social rented homes being vacated enabling 1,078 new families to be housed. Accommodating the 1,078 families in new social rented homes would have cost the taxpayer approximately £59 million, as the average grant per unit in that year was £55,000.

3.20 These savings will be more valuable in the future as the volume of low cost home ownership provision is planned to increase. We suggest in Recommendation 1 of our report that the Department set a target level of provision of HomeBuy to social renters to ensure that such savings continue to be realised. We estimate that, if by 2007-08 the proportion of low cost home ownership assistance targeted at social rented tenants increases by five per cent, the taxpayer will release additional social housing worth £48 million of grant a year (approximately £100 million worth of properties at market value), and will save the same again for every additional five per cent of provision focused on social renters. The basis of this estimate is set out in **Figure 20**.

3.21 Whilst significant savings can be made by moving social rent tenants into low cost home ownership, such savings are only possible if households can afford low cost home ownership and are willing to volunteer to purchase a share of their home. Some social rent tenants may also opt for other forms of assistance such as Right to Buy or Social HomeBuy.

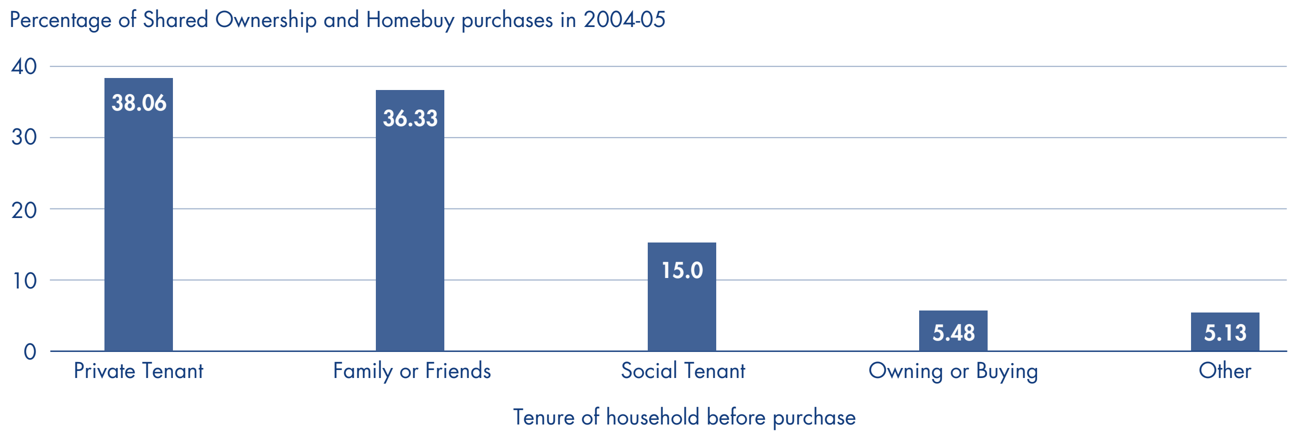
20 Estimate of potential future saving for every five per cent of low cost home ownership provision targeted at social rented tenants

Number of low cost home ownership properties provided in 2006-08 (National Affordable Housing Programme 2006-08 allocations)	22,439
Less those provided through Key Worker Living (New Build and Open Market Purchase)	(8,624)
Total low cost home provision excluding Key Worker Living and Social HomeBuy	13,815
Five per cent of provision	691
Grant per unit of a new social rented home in 2007-08 (as per allocations)	£68,950
Saving from every five per cent of provision aimed at social renters	£47,644,450

NOTE

This figure supports Figure 15 and Recommendation 1 in the main report, *A Foot on the Ladder: Low Cost Home Ownership Assistance*.

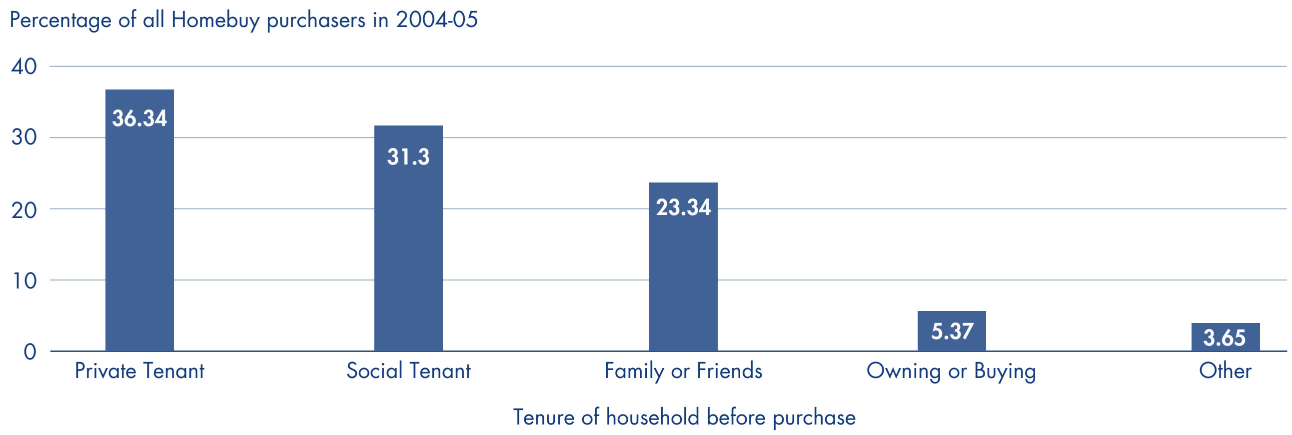
21 Previous tenures of all 2004-05 low cost home ownership purchasers



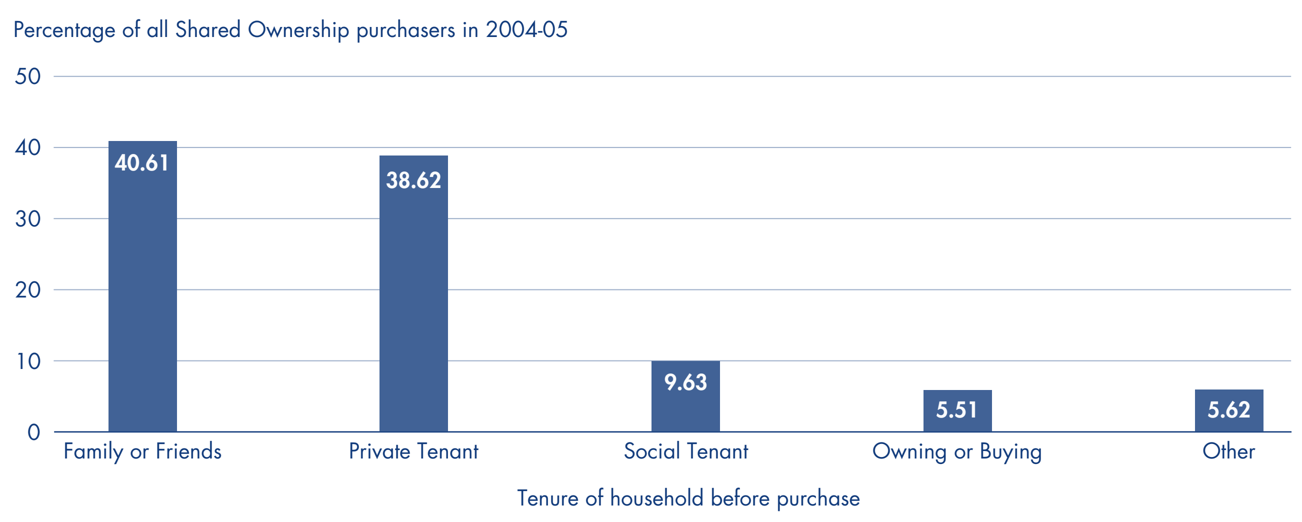
NOTE

This figure supports Figure 13 in the main report, *A Foot on the Ladder: Low Cost Home Ownership Assistance*.

22 Previous tenures of 2004-05 Homebuy purchasers



23 Previous tenures of 2004-05 Shared Ownership purchasers



PART FOUR

Costs and returns to the Registered Social Landlord

4.1 This Part explains how we developed a model to estimate the costs and returns to Registered Social Landlords for administrating low cost home ownership schemes.

Model of the costs and returns to Registered Social Landlords

4.2 We interviewed six Registered Social Landlords about the way they financed low cost home ownership schemes and reviewed the financial business cases for 13 low cost home ownership schemes to inform our understanding for the model. The major financial flows to and from the Registered Social Landlord are identified in **Figure 24**. The way in which these apply to a Shared Ownership scheme is shown in **Figure 25 on page 32**.

4.3 Registered Social Landlords achieve two main sources of surpluses from low cost home ownership: capital appreciation caused by rising house prices and surpluses from efficiency in construction. Capital appreciation occurs for both Shared Ownership and Homebuy, and is the difference between the initial market value of the equity retained by the Registered Social Landlord at the time of the sale and its market value when the purchaser chooses to buy a further share of the property (staircasing). Capital appreciation only occurs in a rising property market. Even when Registered Social Landlords immediately reinvest receipts from such capital appreciation back into housing, resulting in no net increase in housing stock held by the Registered Social Landlord, the capital appreciation increases the balance sheet position of the Registered Social Landlord by decreasing their debt gearing, restating the value of the assets, and decreasing the proportion of the housing stock held by the Registered Social Landlord attributable to the taxpayer and the recycled capital grant fund.

4.4 Registered Social Landlords are also able to benefit from efficiency in construction surpluses when constructing Shared Ownership properties. Registered Social Landlords do not always need to finance the total market value of the portion they retain as the total cost of a constructed property may be less than its market value. We define the total costs of constructed properties as all the costs of making the properties in the scheme ready for sale. These therefore include the price of land, construction costs, marketing and administration. Any difference between the total costs of a property and the market value at which it is sold we define as the efficiency in construction surplus. This surplus is the equivalent of a private developer's profits on the sale of a new build property. Such surpluses only arise on new build schemes.

Grant to Registered Social Landlords' funding ratios

4.5 We analysed the way Registered Social Landlords use a combination of taxpayer's grant and their own finance to fund low cost home ownership. Shared Ownership is more efficient with taxpayer's grant than Homebuy since Registered Social Landlords use their own finance to part fund the assistance. We identified the funding ratio by calculating the market value of the equity retained by Registered Social Landlords divided by the average grant funding. This is shown in **Figure 26 on page 33**. This calculation includes any surplus from the efficiency in construction as Registered Social Landlord's own financing.

Grant requirement for low cost home ownership

4.6 We developed our simplified model of the costs and returns to Registered Social Landlords to develop a method of estimating the grant requirement on Shared Ownership schemes. The grant requirement is the amount the taxpayer needs to provide to a Registered Social Landlord for a low cost home ownership scheme to become financially viable.

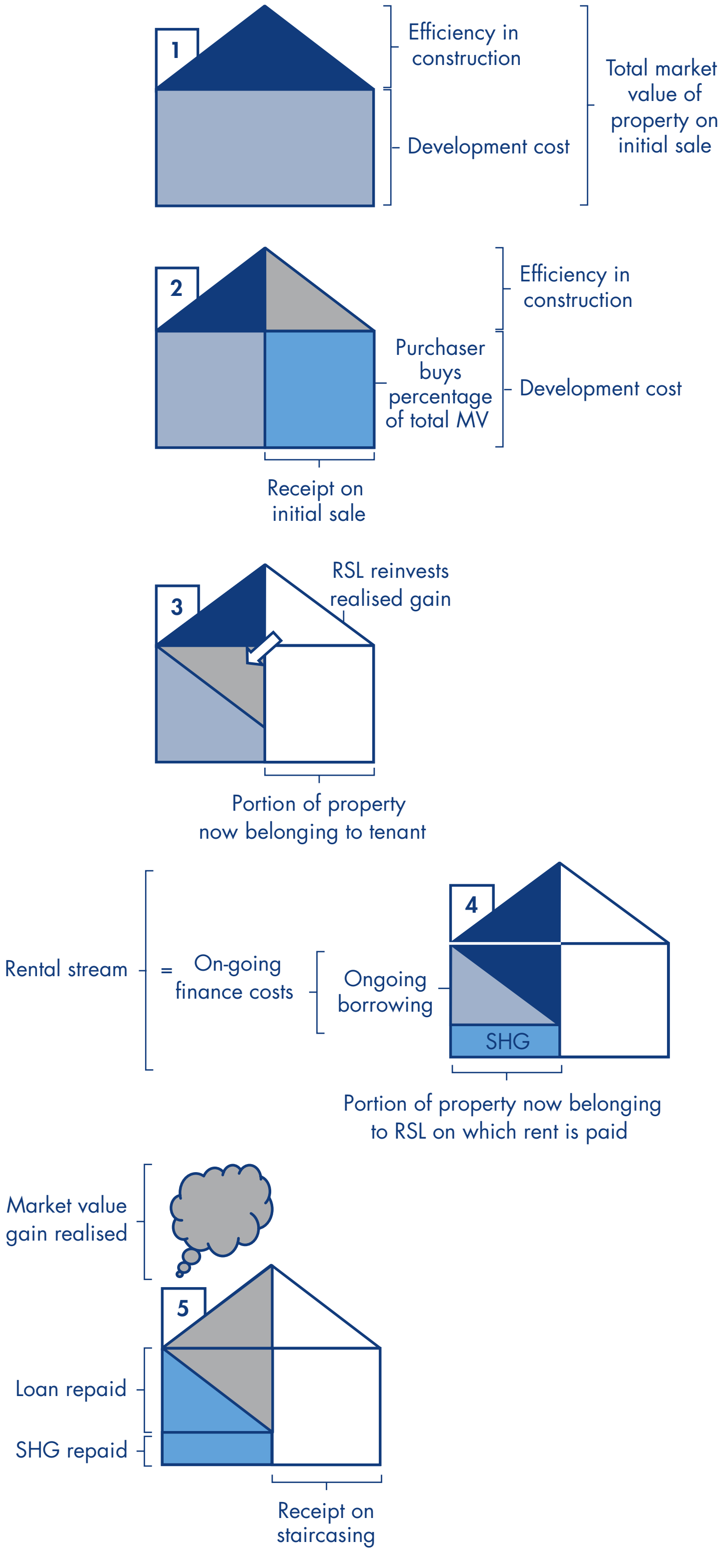
4.7 Our model for calculating the grant requirement for Shared Ownership properties is conservative in three respects: we allow the Registered Social Landlord to breakeven in the first year of the property's sale; we do not factor in future increases in rent; and we do not require staircasing receipts to balance the Registered Social Landlord's costs. This has the effect of ensuring our model is a reasonable business proposition for Registered Social Landlords and allows for unseen costs and contingencies. However, some Registered Social Landlords may use slightly different business models for financing low cost home ownership such as aiming to breakeven in the medium or long run rather than in the first year, or aiming to pay off all the debt finance associated with a scheme within 10 to 30 years.

4.8 Our model is based on the assumption that Registered Social Landlords need to raise debt finance to fund new build schemes and need to meet the costs of this debt finance from rent payments. Some Registered Social Landlords also aim to pay back the debt finance from the rent payments and either charge higher rent to Shared Ownership tenants or bid for more grant to subsidise their finance costs. Our model assumes that Registered Social Landlords can pay back the debt finance when the purchaser chooses to purchase the remaining share of the property. Allowing rent to pay back the debt finance is an unnecessary burden on the purchaser as they effectively pay for the Registered Social Landlord's portion of the property twice: once through their rent payments and once should they decide to staircase. However, three out of the six financial business cases on which we based our modelling did not include future projections of house price growth and receipts from staircasing. Registered Social Landlords often ignored these benefits of low cost home ownership, arguing that such receipts are unpredictable and should not be relied upon. Our model does not require these receipts to ensure financial sustainability but does require them for the Registered Social Landlord to make a surplus for use in further housing projects.

24 Financial flows to and from a Registered Social Landlord administering low cost home ownership

Costs to Registered Social Landlord	Financed by (average percentage)	Returns to Registered Social Landlord	Return used for:
Homebuy – Equity loan and administration	Taxpayers grant (100%)	Repayment of equity loan adjusted for the new market value of the property (staircasing receipts)	Sum equal to the original grant returned to the taxpayer through recycled capital grant fund Any surplus retained by Registered Social Landlord.
Shared Ownership – Cost of land, construction, marketing and administration (total cost)	Taxpayers grant (25%) Own finance (75%)	Rent	Used to cover on-going finance costs. Any surplus used to repay the Registered Social Landlord's debt financing
– Service costs	Service charge (100%)	Service charge	Service costs
		Purchase of further portions of the property (staircasing receipts)	Sum equal to the original grant returned to the taxpayer through recycled capital grant fund. Remainder used to pay off any debt financing with a surplus retained by Registered Social Landlord and a deficit paid out of their general funds.

25 Financing a Shared Ownership property: simplified cash flows for modelling purposes



1 Finance the development cost

RSLs need to finance the total cost of bringing a shared ownership property to the market (Development cost).

Efficiency in construction (the difference between development cost and the initial market value of the property) leads to an unrealised gain.

2 Sale as Shared Ownership

The initial receipt from the purchaser pays for a proportion of the development cost and realises some of the efficiency in construction gain.

3 Use initial receipt to help fund development costs

This realised gain can be reinvested in the property to pay some of the development costs. The remaining development costs need to be paid from the staircasing receipts.

4 On-going finance costs paid by rental stream, subsidised by Social Housing Grant

Because staircasing receipts will not arise until the future, ongoing finance costs (the interest on the on-going borrowing requirement) must be met by the rental stream.

Affordable rents are generally lower than finance costs. To ensure the rental stream is affordable to the purchaser (who is also the tenant), the borrowing requirement is subsidised by an injection of social housing grant.

RSLs typically ensure the rental stream matches the on-going finance costs. Any difference between rent and interest costs are absorbed by the RSL as a gain or loss. Our model assumes they balance.

5 Staircasing receipt

Upon staircasing the RSL pays back the borrowing to the lender and grant back to the recycled capital grant fund. The remaining efficiency in construction and the movement in market value of the initially unsold equity is now also realised.

KEY

- Unrealised gain
- Outstanding development cost to pay
- Receipt without gain
- Realised gain

NOTE

Proportions of financing are not to scale.

4.9 Under Homebuy, Registered Social Landlords do not charge any rent or interest on the equity loan. Registered Social Landlords cannot, therefore, pass on their finance costs to the purchaser. This model of grant requirement only applies to Shared Ownership sales.

4.10 Given these assumptions it is possible to calculate the amount of grant each new build low cost home ownership scheme requires, knowing the total costs of the schemes, the market value of the properties, the portions sold to the purchaser, the rate at which rent is charged, and the marginal cost of borrowing for the Registered Social Landlord. Our model is based on balancing rental revenue with finance costs in the first year. The method of calculation is given in **Figure 27**.

4.11 The calculation of grant requirement can be used to assess the efficiency of taxpayers' grant. Increasing the grant provided for new build low cost home ownership decreases the Registered Social Landlord's finance costs. This either allows the Registered Social Landlord to charge less rent to the purchaser or to make a surplus of rent over finance costs that they can use to repay the principal debt and ultimately make a surplus on the scheme that they re-use in other housing projects.

26 Calculating the grant funding ratio

	Five per cent trimmed mean market value	Five per cent trimmed mean of the proportion retain by Registered Social Landlord	Calculated value of portion retained by Registered Social Landlord	Mean taxpayers' grant	Funding ratio
Homebuy	£150,373	25%	£37,593 [1]	£37,116	100% or 1:0
Shared Ownership	£160,132	65%	£106,563	£26,464	25% or 1:3

NOTES

1 There is a small rounding error arising out of the use of the two databases.

2 This figure supports paragraph 49 in the main report, *A Foot on the Ladder: Low Cost Home Ownership Assistance.*

27 Calculating the grant requirement of low cost home ownership new build schemes

$$y(v-s)=r(v-p-g-s)$$

$$g=v-p-s-\frac{y}{r}(v-s)$$

Where:

- g = grant requirement
- v = market value of the property at initial sale
- p = surplus on sale (v- total costs)
- s = initial sales receipt from purchaser
- y = rental rate (also known as rental yield)
- r = marginal rate of borrowing (Registered Social Landlord's interest rate)

Assumptions

- Breakeven required in first year
- Registered Social Landlords use debt financing for their share of the costs
- Registered Social Landlords pay the interest on their debt only. They pay the principal debt back when the purchaser buys the remaining share of the property
- Maintenance costs covered by service charge

Explanation of formula

Rent is balanced against finance costs in the first year. Rent is calculated as the rental rate applied to the portion of the property retained by the Registered Social Landlord. The latter can be expressed as the market value of the property when sold minus the amount paid by the purchaser. The finance costs of the Registered Social Landlord are calculated as the cost of borrowing for that project (the marginal rate and not the average rate used by the Registered Social Landlord) applied to the Total Costs of the Registered Social Landlord not funded by grant. Total Costs are here expressed as the market value of the property at the time it is sold, less the surplus on sale, and the amount of grant and receipt from the purchaser received. The formula is then rearranged to be expressed in terms of grant requirement. Because grant is factored into the calculation of the Registered Social Landlord's finance costs, increasing grant will decrease the finance costs and decreasing grant will increase the finance costs.

4.12 Figure 29 shows our calculation of grant requirement for Shared Ownership properties and the excess/(deficit) grant provided by the Housing Corporation for each year 1999 to 2005. We found that Registered Social Landlords received over £90 million of grant in excess of their grant requirement for Shared Ownership properties sold in 2004-05. We calculated this by applying our model to the average values for each variable and extrapolating across all sales in the year.

4.13 We have tended to use conservative values in our model so as to not overstate the amount of excess grant and to capture any costs not included in the model. The input variables used for 2004-05 are shown in **Figure 28**. We use a rental yield of 2 per cent compared to an observed rate of 2.67 per cent in 2004-05 and a cost of borrowing of six per cent compared to an observed rate of 5.55 per cent in 2003-04 (the latest available figures) according to the Housing Corporation. Along with our assumptions that Registered Social Landlords need to balance costs in the first year, the use of conservative input variables for our model will provide some contingency room for Registered Social Landlords to cover unseen costs.

4.14 The amount of excess grant paid has increased over recent years **(Figure 29)**. This is because our model estimates that the grant requirement fell over the period 1999-2005. We believe this is mostly due to the rapid rate of increase in house prices which has been higher than the rate of increase of total development costs. This has produced ever greater surpluses from efficiency in construction. It is possible that Registered Social Landlords

28 Example of input values used for calculating excess grant provided for Shared Ownership (2004-05)

Variable	2004-05 value per property	Source	Calculation
g	£26,464	Housing Corporation's Investment Management System (IMS)	As above
v	£163,364	CORE	Mean grant per unit
p	£46,029	IMS and CORE	Average Market Value less Average Total Costs
s	£81,681		50% (mode and median proportion sold) of v
r	6%	Housing Corporation *2004 Private Finance Monitoring Bulletin*	Average interest rate of total fixed rate debt raised in the year to 31 March 2004 (5.55% rounded up)
y	2%	CORE	Average rental rate (2.67% rounded downwards)
Total units	5,190	IMS	Total Shared Ownership units completed in year

29 Grant requirements for years 1999-2005

Financial year beginning 1 April	Grant requirement per property according to our model £	Actual Grant per property paid by Housing Corporation £	Excess Grant per property £	Total properties sold in year	Total excess grant provided in year £
1999-00	39,664	17,761	(21,903)	2,942	(64,439,804)
2000-01	26,942	21,526	(5,415)	2,551	(13,813,860)
2001-02	21,726	22,067	341	2,211	753,886
2002-03	21,695	24,821	3,126	2,315	7,236,745
2003-04	15,899	30,000	14,101	3,201	45,136,378
2004-05	8,426	26,464	18,039	5,190	93,624,410

NOTE

This figure supports paragraph 56 in the main report, *A Foot on the Ladder: Low Cost Home Ownership Assistance.*

were unable to anticipate the rate of increase in house prices between their grant application and the sale of the properties, resulting in overly cautious grant applications. However, before 2001 Registered Social Landlords received less grant than our model predicts they needed. This is probably because our model is conservative in estimating the grant requirement. Registered Social Landlords were possibly charging higher rental rates, or were not attempting to ensure schemes broke even in the first year.

4.15 There is, however, a limitation in the data available for us to use in estimating the surplus on sale. The Housing Corporation used to collect the estimated total costs of all housing schemes that they funded at the time that Registered Social Landlords made their funding application. This information was never updated with the actual costs that Registered Social Landlords encountered in delivering the homes to market. The results of our model therefore assume that Registered Social Landlords' estimates of their costs were accurate. Furthermore, the Housing Corporation stopped collecting this information for their 2003-05 funding allocation round and we only collected information from the Corporation for schemes allocated after 1999. The accuracy of our model therefore improves over time as we have total cost information for a higher proportion of Shared Ownership sales in that year, but tails off for the final year as we enter the 2003-05 allocations. The proportion of sales for which we have total cost estimates is shown in **Figure 30**. The Housing Corporation has returned to collecting estimates for total costs and we recommend in Recommendation 4 of our report that collecting actual total costs would help the Corporation to improve their understanding of housing schemes and help them to drive down grant costs.

Estimating the value of staircasing receipts to Registered Social Landlords

4.16 We also developed our model of the costs and returns to the Registered Social Landlord to predict the value of staircasing receipts and capital accumulation to Registered Social Landlords. This section of the technical note sets out how we modelled staircasing receipts surpluses arising from increasing house prices.

4.17 Our model of staircasing receipts plots estimated staircasing surpluses from all Homebuy and Shared Ownership properties funded between April 1999 and March 2005. The range of our estimate depends upon our assumption of the rate at which purchasers are choosing to buy the full equity in their property. The model plots the market value of the share of low cost home ownership properties retained by Registered Social Landlords by region and financial quarter. These are uplifted using the Department for Communities and Local Government's Housing market mix-adjusted house price index (Live Table 594 available from www.communities.gov.uk) for each government region to give revised market values for every quarter. The assumed rate of staircasing is applied to the revised market values to calculate staircasing receipts. By deducting the initial market value of the Registered Social Landlord's share from the receipt, we calculate the surplus provided to the Registered Social Landlord due to rising house prices. All surpluses are restated to present values using the Registered Social Landlord's marginal rate of borrowing of 5.5 per cent taken from the Housing Corporation's 2004 Private Finance Monitoring Bulletin.

30 Our knowledge about total costs increases over the period of review

Year	Average total cost per Shared Ownership property completed in year £	Proportion of shared ownership sales for which we have data (Per cent)	Average market value of Shared Ownership properties sold in year £	Implied surplus on completion £
1999-00	90,113	6	75,673	(14,440)
2000-01	84,547	51	86,409	1,861
2001-02	87,548	86	98,733	11,185
2002-03	102,033	94	120,507	18,474
2003-04	110,774	97	142,312	31,539
2004-05	117,335	62	163,364	46,029

4.18 In addition to surpluses arising from increasing house prices, we also estimate the surplus arising due to efficiency in construction. As explained in paragraph 4.4, this is the difference between initial sale price and the total cost of bringing the property to the market and only arises on new build properties. Any surplus on sale is normally reinvested in the remaining share of the property to reduce the debt finance requirement. The surplus on sale will therefore only be realised with the staircasing receipts. We calculate the surplus on sale as described above in our discussion on calculating the grant requirement. We then apply our assumption for the rate of staircasing to our estimate of the surplus on sale to calculate the realised surplus.

4.19 Registered Social Landlords acquire surpluses as house prices rise and, for efficiency in construction surpluses, when they sell a property for more than it cost to build. However, these surpluses are only realised when they are converted into cash by the purchaser staircasing. Our model also calculates both the realised and unrealised surpluses. The realised surplus is the present value of cash received by Registered Social Landlords which they can use to fund any activity within their remit. Unrealised surpluses are those inherent in the current market value of Registered Social Landlord's interest in low cost home ownership properties; the unrealised surplus is the amount the Registered Social Landlord would receive if all remaining purchasers choose to buy the remaining shares in their low cost home ownership property at current market values. The unrealised surplus is very likely to be realised over the long term, but it is not possible to predict when or what property prices will be like when the purchasers do choose to buy. For this reason such surpluses would not be recognised in the accounts of Registered Social Landlords.

4.20 The amount of surplus achieved by Registered Social Landlords depends on how long each purchaser waits before deciding to buy the remaining share of their home (they decide to staircase). The Housing Corporation and Department for Communities and Local Government do not collect detailed information about staircasing sales and it is not possible to calculate how long on average purchasers wait before they buy the full share of their home, or indeed the proportion of all low cost home ownership purchasers who do go on to buy the full share of their home. However, the Housing Corporation does collect the number of purchasers buying a 100 per cent of their Shared Ownership property each year and the total Shared Ownership stock held by Registered Social Landlords in their Regulatory Statistical Return. This implies a rate of staircasing across the entire sector of around five per cent of all Shared Ownership properties a year (calculated as the number of 100 per cent staircases over the total number of Shared Ownership properties). This does not translate into a five per cent staircasing rate for our model because we do not know how long purchasers have occupied their low cost home ownership property before they staircased. It does, however, suggest a reasonable range for our scenario testing on the rate of staircasing to be zero to six per cent a year. **Figure 31** shows the range of our estimate for realised and unrealised surpluses achieved by Registered Social Landlords for the zero to six per cent rates of staircasing.

4.21 As the rate of staircasing increases the realised surplus increases at the expense of the unrealised surplus and total surplus. The realised surplus is the surplus gained by Registered Social Landlords in cash, ready and useable for other housing activities. The unrealised surplus is a potential surplus that will only be converted to cash if all the remaining low cost home ownership purchasers choose to buy the remaining share of their property. This is highly likely to happen in the long run, but it is not predictable when it will happen or what prices will be like when it does. We state in paragraph 58 of our report that Registered Social Landlords have benefited from cash worth up to £56 million from purchasers who bought the remaining share of properties funded by the Housing Corporation between 1999 and 2005. We also quote a range for the unrealised surplus of between £600 and £720 million. These are the estimate ranges implied by the range of rate of staircasing of zero to six per cent.

31 The realised and unrealised surpluses gained by Registered Social Landlords depends to a great extent on the rate at which purchasers buy the remaining share of their property

Rate of staircasing per year (per cent)	Realised surplus (£ million)	Unrealised surplus (£ million)
0	0	720
1	10	700
2	20	681
3	30	663
4	39	645
5	47	627
6	56	610

NOTE

This figure supports paragraph 58 in the main report, *A Foot on the Ladder: Low Cost Home Ownership Assistance.*