



Developing
a target range
for the supply
of new homes
across England

An NHPAU paper in response to the
Government Green Paper *Homes for the
future: more affordable, more sustainable*

Foreword by the Chairman of the National Housing and Planning Advice Unit



This paper sets out the NHPAU's response to the Government's Green Paper *Homes for the future: more affordable, more sustainable*.

England has an aspiring, prosperous and growing population. Demand for housing is growing. And by any measure, the affordability of housing is getting worse. The ratio of lower quartile house prices to lower quartile earnings is now over 7 and based on current regional housing plans that position is likely to deteriorate significantly.

In this context my Board and I welcome the Government's new target for the delivery of 240,000 net additional homes a year by 2016. If met we believe this will represent important movement towards stabilising affordability over the next decade.

In the long run the country will need to deliver even more homes if we are to stabilise housing affordability. NHPAU estimates that about 270,000 new homes a year by 2016 will be required to achieve this.

Crucially, improving affordability prospects is not simply about building the right number of new homes, just as important is to ensure that we are building the right type of homes, in the right place and at the right time. We have more to do as a nation on all these fronts.

This is without doubt a major challenge. And it is not a challenge that is in the gift of a single body or organisation to meet. Success depends on developing a deeper coalition of planning authorities, industry, local communities, housing and planning professionals, politicians, government and interest groups.

If we fail there will be serious consequences for our society and for the economy. But if there is a collective will then there will be a way.

This response to the Green Paper also marks the start of a dialogue with the regional partners about the establishment of a new housing supply range to be tested in each region. This will lead to our first advice to Government on this matter in the spring.

Stephen Nickell

1. Purpose of this report

1.1 The National Housing and Planning Advice Unit (NHPAU) was formally launched in June. Our role is to provide independent advice to national and regional government about the affordability of market housing.

1.2 By any measure, affordability has deteriorated significantly over the last decade. The ratio of lower quartile house prices to lower quartile earnings was 4 at the turn of the century, it is now over 7. Based on current regional housing plans that position is likely to get worse with house prices reaching 10 times average earnings by 2026.

1.3 There is convincing academic research¹ which indicates that most of the appreciation in house prices since 1997 has been caused by strong income growth, population trends, low rates of house building, and to a lesser extent interest rates.

1.4 In June we published *Affordability Matters*, this set out the economic and social consequences of worsening affordability, the extent of the problem and our role in addressing this issue. Our report is available at www.communities.gov.uk/housing/nhpau.

1.5 In July the Government published the Green Paper *Homes for the future: more affordable, more sustainable*. This set out a range of demand and supply side proposals to help address the affordability problem. Most significant is the target of delivering 240,000 net additional homes a year by 2016.

1.6 The Green Paper also outlined a new role for the NHPAU in providing advice to Government about the housing supply range to be considered at a regional level.

Page 31 paragraph 8 'We propose to strengthen the evidence base for those early reviews by issuing formal guidance at the beginning of the RSS preparations (and subsequently where appropriate) on the ranges of housing provision required over a 15 to 20 year period. This guidance will be based on the independent advice of the NHPAU. We will expect Regional Planning Bodies and Examination in Public Panels to test these options so that the Secretary of State can be fully informed when taking the final decisions about appropriate levels of housing provision in approving the RSS'.

Page 116 paragraph 57 'It is Government's role to set the overall housing ambition for the country and for the regions, acting upon the advice of the independent NHPAU and considering the national interest in the round.'

1.7 The NHPAU welcomes the opportunity to support regional partners in this way. We are acutely aware of course that it is only at local, housing market area and regional level that plans can have real traction and delivery be ensured.

1.8 The purpose of this report is twofold:

- To outline our assessment of the potential impact of the Government's housing supply target for housing affordability prospects over the medium and long-term; and
- To initiate a dialogue with regional partners about a supply range consistent with the Government's national target, as well as the aim of stabilising affordability over the long-term, for the earliest possible consideration and adoption in the planning process.

¹ G Cameron, J Muellbauer and A Murphy (2007), *Housing Markets and the Economy: An Assessment*, Oxford University. Basic analysis may be found in G Cameron, J Muellbauer and A Murphy (2006), *Was there a British House Price Bubble?* CEPR Discussion Paper No. 5619 (available at www.nuffield.ox.ac.uk/General/Members/Muellbauer.aspx).

1.9 The remainder of this report is structured as follows:

- Section 2 provides the background to our approach to modelling the impact of a range of supply scenarios at a regional and national level.
- Section 3 considers the Government's new supply target to deliver 240,000 net additions a year by 2016, provides an affordability analysis and draws out key issues.
- Section 4 weighs the case for a higher housing supply target and considers how the affordability problem should be addressed.
- Section 5 sets out proposals for developing a housing supply range to be tested and iterated with regional partners, and provides a timetable for this engagement and our first advice to Government.

2. Developing a housing supply range

What is our starting point?

2.1 Housing market affordability analysis is at the heart of our remit. Improving affordability prospects is about delivering the right number of new homes of the right type, in the right place and at the right time.

2.2 In developing this paper we have considered a range of housing and urban economic evidence. We use an econometric model developed by Professor Geoff Meen et al. of the Reading Business School to model the impact of changes in supply on affordability. And we have reviewed alternative methodologies².

2.3 The Affordability Model represents a step forward in understanding the housing market and is an important tool. It captures the relationship between housing supply and affordability through the interaction of demographic trends, incomes, the labour market and the housing market. Annex B provides a detailed description of the Model.

Outline of the scenarios tested

2.4 To consider the potential impact of different housing plans at national and regional level we use a number of illustrative supply scenarios. In developing these scenarios we consider key drivers including the Government's Green Paper on housing; current RSS plans and delivery performance; demographic data; demand and supply side indicators; and assessments of housing market affordability.

2.5 The starting point for our analysis is the RSS plans, most of which are nearing completion. These are considered against the previous RPG housing plans.

2.6 We then consider the impact of the Government target for delivery of 240,000 net additions to dwelling stock by 2016. There are a number of different distributional options for delivering this target across England.

2.7 We start with two simple scenarios. First uplifting existing RSS plans pro-rata to meet the Government's new target. Second, adhering to the distribution indicated by the 2004-based household projections.

2.8 We then consider specific distributional issues by exploring the impact of growth focussed in particular regions, for example where the affordability problem is greatest and on the basis of potential policy led growth.

2.9 Moving beyond the Government's target, we explore the impact of a higher level of housing supply which takes into account factors such as making good the current and projected delivery shortfall and the impact of second homes.

2.10 We examine what level of home building might be required, all things being equal, and in the absence of other significant demand and supply side measures, to stabilise the affordability problem over the long-term.

2.11 To better understand the role of increased demand for housing from existing homeowners, we simulate the impact of changes in the distribution of housing type (as a proxy for bigger and better homes) on affordability results.

2.12 The purpose of our analysis is to begin to construct a framework for a housing supply range to be discussed, tested and iterated with the partners in each region – the Regional Assemblies, the Government Offices and the Regional Development Agencies. This engagement will take place over the remainder of the year.

² G Bramley and C Leishman (2005) *Planning and Housing Supply in two-speed Britain: Modelling Local Market Outcomes*. Urban Studies, Vol 42.

2.13 Our work will be refined as new information becomes available. For example, delivery of the revised 2004-based household projections, reflecting improvements by the Office for National Statistics (ONS) of its methodology to cater for international migration. Decisions about the scale and location of the new Eco-Towns and Growth Points will also be available before the end of the year.

2.14 The aim will be to deliver to Government by the spring 2008 our first advice about the range of supply to be tested by each region as it moves forward in existing or future reviews of its planned housing provision.

The Broader Context

2.15 Clearly, achieving a significant increase in housing supply will not happen overnight. In developing delivery plans there is a need to consider potentially achievable supply trajectories.

2.16 Some argue that the Government's target to deliver 240,000 net additions to stock by 2016 lacks urgency. Given the seriousness of the supply shortfall and a broad consensus that more homes are needed why can't we deliver this increase earlier?

2.17 Since 2000/01 new build completions have increased in England by 26 percent. Completions rose from a low of 129,900 in 2001/02 to 167,600 in 2006/07. Table 1 provides an analysis by region. The Government's target is set in terms of net additions (see Table 14 for current position).

2.18 These are important improvements in delivery over recent years – however comparing the 12 month period to June 2007 with the previous year, completions have increased by only 2 percent and starts have declined by 8 percent.

2.19 The challenge is significant. But there are reasons to be optimistic about an improvement in delivery in the coming years.

2.20 The planning system has undergone significant recent reform. Central to developments has been the drive to increase flexibility, responsiveness and process efficiency.

2.21 Planning Policy Statement 3 (PPS3) on Housing, which took effect in April 2007, sets out the national planning policy framework for delivering the Government's housing objectives. Four strategic objectives are identified:

- To improve affordability across the housing market, including by increasing the supply of housing.
- To achieve a wide choice of high quality homes, both affordable and market housing, to address the requirements of the community.
- To widen opportunities for home ownership and ensure high quality housing for those who cannot afford market housing, in particular those who are vulnerable or in need.
- To create sustainable, inclusive, mixed communities in all areas, both urban and rural.

Table 1: House building completions (000s) by region, 2002/03 to 2006/07

	North East	North West	Yorkshire and the Humber	East Midlands	West Midlands	East of England	London	South East	South West
2002/03	5.6	18.2	13.2	14.9	13.9	17.8	15.7	22.7	15.7
2003/04	5.9	17.8	14.0	14.4	13.8	18.4	19.4	24.3	16.0
2004/05	7.1	17.9	14.2	15.5	14.2	19.9	24.1	25.7	17.4
2005/06	7.6	20.6	16.0	16.9	16.2	20.3	18.8	28.2	18.8
2006/07	8.2	18.1	16.4	18.2	15.1	22.6	22.0	27.6	19.5

2.22 These housing policy objectives provide the context for planning for housing through development plans and planning decisions. The specific outcomes that the planning system should deliver are:

- High quality housing that is well-designed and built to a high standard.
- A mix of housing, both market and affordable, particularly in terms of tenure and price, to support a variety of households in all areas, both urban and rural.
- A sufficient quantity of housing taking into account need and demand and seeking to improve choice.
- Housing developments in suitable locations, which offer a good range of community facilities and with good access to jobs, key services and infrastructure.
- A flexible, market responsive supply of land – with identification of developable sites on a 15 year rolling basis – managed in a way that makes efficient and effective use of land.

2.23 The supply of land and housing is reviewed along with other indicators in regional and local Annual Monitoring Reports. This active management should draw in developers, landowners, the utility and infrastructure sectors, and environment agencies.

2.24 Where planning authorities cannot demonstrate an up-to-date 5 year supply of deliverable sites, then PPS3 makes clear that, subject to proper safeguards, planning applications for housing should be considered favourably.

2.25 The National Audit Office is considering a review into the effectiveness of the current planning regime for housing. This could provide a valuable insight into how reforms are bedding down.

2.26 Ensuring that high level growth objectives and funding streams are aligned across Whitehall and also between central and local government is vital. Decisions need to be taken at the right level and the right incentives need to be in place. These matters have been recognised in the Review of Sub-National Economic Development and Regeneration³ and in the housing Green Paper.

2.27 Sub-regions, through partnerships of local authorities and other strategic stakeholders, will take on an increasingly important role in the economic and social development of their areas. This will include housing delivery, where an understanding of local housing markets and the needs of local communities will be the foundation for achieving the step change in supply required.

2.28 Professional bodies and their memberships have considerable expertise about how best to deliver the growth of sustainable communities⁴. With experience from past and recent developments, bringing this best practice to bear will be vital.

2.29 Maximising competition and safeguarding consumer interests in the building and finance sectors is important to the wider economy. The Callcutt Review, which is due to report by the end of the year and the ongoing market study of the house building sector by the Office of Fair Trading, will either dispel criticisms of the sector as a barrier to increased supply or deliver tangible proposals for improvement.

2.30 The building industry has acknowledged the importance of improving its productivity performance, for example by developing its skills base and through innovation such as Modern Methods of Construction⁵. Rising expectations from consumers, higher environmental standards and the Government's new supply target make this improvement programme more important than ever.

³ Review of Sub-National Economic Development and Regeneration (2007) – HM Treasury, Department for Business, Enterprise & Regulatory Reform and CLG.

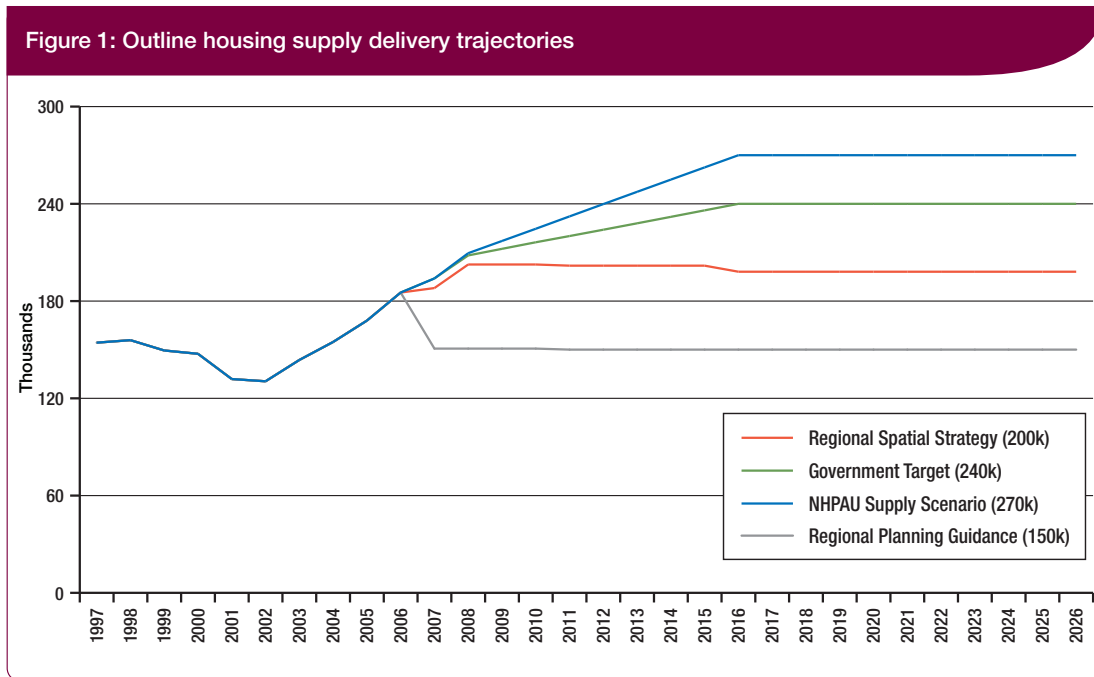
⁴ TCPA for CLG – *Best Practice in Urban Extensions and New Settlements* (2007).

⁵ Sir John Egan (2002) *Accelerating Change*. Strategic Forum for Construction.

2.31 As part of the Comprehensive Spending Review outcome announced earlier this month, the Government has identified improving long-term housing supply and affordability as one of its key targets⁶. The delivery plan provides a comprehensive overview of delivery partners' roles and the approach to measurement.

2.32 Taking all of these matters into account, on balance we consider that in developing our scenarios, focussing on 2016 to achieve the target supply is a reasonable approach. Clearly, earlier delivery would have a more positive impact on affordability.

2.33 Figure 1, which details the level of net additions between 1997 and 2006, illustrates the four broad scenarios identified in this paper, the previous RPG provision (150,000), current RSS plans (200,000), the Government's new target (240,000) and the NHPAU higher supply scenario (270,000). The scale of the delivery challenge is clear.



⁶ PSA Delivery Agreement 20: Increase long-term housing supply and affordability (October 2007) – HM Government.

3. A new national housing supply target

Regional Spatial Strategies

3.1 The Regional Spatial Strategy (RSS) process has been underway in all regions for a period of years, and most are now drawing to a close. Through various consultation exercises this process has engaged a wide range of stakeholders and has generated a considerable weight of data, evidence, analysis and comment.

3.2 The Panels overseeing each Examination in Public (EiP) – a key element of the RSS process – have weighed contributions and considered a range of competing planning objectives in coming to a view about proposals and making their reports to the Secretary of State.

3.3 Taken together, as they currently stand, RSS plans would deliver about 200,000 homes a year. Regional Assemblies have ensured an improvement in housing affordability prospects for their communities in replacing RPG provision with their RSS plans.

3.4 In 2000 the ratio of lower quartile house prices to earnings was 4 – it is now over 7. All things being equal, as we identified in our first publication *Affordability Matters*, our best estimate of the impact of RPG plans would mean affordability gets worse with the lower quartile house price to earnings ratio projected to deteriorate to nearly 11 by 2026 (Table 2).

Table 2: Illustrative impact of RPG housing plans on housing market affordability, by region.

Region	Existing RPG plans – average annual net additions to 2016	Lower quartile house price to earnings ratio – point estimates		
		2007	2016	2026
North East	6,000	5.3	6.0	7.8
North West	12,790	5.6	6.5	8.9
Yorkshire & Humber	14,765	6.0	6.5	9.3
West Midlands	14,902	6.7	7.5	9.8
East Midlands	13,700	6.5	7.3	9.9
East England	20,850	7.7	9.7	12.4
London	19,048	9.0	10.6	12.0
South East	28,050	8.4	10.5	13.1
South West	20,200	8.5	10.6	13.6
England	150,305	7.1	8.4	10.9

Table 3: Illustrative impact of RSS housing plans on housing market affordability, by region.

Region	Current RSS plans – average annual net additions to 2016 ⁷	Lower quartile house price to earnings ratio – point estimates		
		2007	2016	2026
North East	6,988	5.3	5.8	7.4
North West	23,111	5.6	6.2	8.0
Yorkshire & Humber	21,442	6.0	6.2	8.0
West Midlands	16,167	6.7	7.3	9.2
East Midlands	20,418	6.5	6.9	8.9
East England	26,830	7.7	9.2	11.3
London	30,500	9.0	9.9	11.0
South East	32,000	8.4	10.1	12.4
South West	23,612	8.5	10.2	12.9
England	201,068	7.1	8.0	10.0

3.5 Nevertheless, the position under RSS plans is still projected to deteriorate from its current unsustainable position. We estimate that by 2026 the overall affordability ratio will reach 10, and that average affordability will be worse in the South West, South East and East England than it is in London (Table 3).

3.6 One way to help understand the impact of worsening affordability is to estimate the effect on specific groups of people in specific circumstances. This sort of analysis has obvious limitations, but it does help to illustrate the difference in the potential outcomes of different scenarios.

Table 4: Projected impact of RPG housing plans on proportion of 30-34 year old couples able to buy.

By Region based on existing RPG plans	Percentage of 30-34 year old couples able to afford a purpose built flat			Percentage of 30-34 year old couples able to afford a terraced house		
	2007	2016	2026	2007	2016	2026
North East	76.8	63.3	36.8	74.8	57.9	34.0
North West	56.0	42.9	25.2	70.3	54.4	26.2
Yorkshire & Humber	55.4	44.6	25.7	62.2	51.8	26.2
West Midlands	64.9	53.6	28.5	55.3	42.8	23.5
East Midlands	67.6	52.9	29.8	61.6	46.0	20.2
East England	57.3	34.2	31.1	39.0	32.3	24.0
London	51.9	37.9	25.9	28.7	8.3	0.4
South East	49.7	37.5	32.1	38.0	33.2	22.2
South West	39.4	19.9	17.8	26.4	19.1	14.5
England	55.6	40.9	27.8	47.8	36.2	20.2

⁷ RSS figures are the latest available and will reflect Regional Assembly proposals, EIP Panel recommendations or the Secretary of State's proposed changes, depending on the stage of the process in each region. For West Midlands, an annualised rate of 16,167 calculated from figures in Structure Plans and Unitary Development Plans has been used. Where the RSS figures are greater than the current level of build, the RSS numbers have been assumed from 2008.

Table 5: Projected impact of RSS housing plans on proportion of 30-34 year old couples able to buy.

By Region based on current RSS plans	Percentage of 30-34 year old couples able to afford a purpose built flat ⁸			Percentage of 30-34 year old couples able to afford a terraced house ⁸		
	2007	2016	2026	2007	2016	2026
North East	76.8	69.4	41.2	74.8	64.1	38.8
North West	56.0	44.9	25.8	70.3	56.5	37.4
Yorkshire & Humber	55.4	48.9	27.2	62.2	55.6	35.9
West Midlands	64.9	55.3	32.3	55.3	44.7	24.3
East Midlands	67.6	60.6	35.0	61.6	49.2	30.0
East England	57.3	37.6	33.0	39.0	33.3	27.9
London	51.9	43.4	34.5	28.7	14.7	5.2
South East	49.7	37.8	33.9	38.0	34.3	25.2
South West	39.4	20.4	18.6	26.4	19.5	15.9
England	55.6	44.0	30.9	47.8	38.8	25.5

3.7 In this instance we estimate the ability of young couples to buy a starter home in the future. We have focussed on purpose built flats and terraced houses which are both typical entry level dwellings. This analysis is based on 30-34 year old couples who are both working. This analysis assumes couples take out a 100 percent mortgage, repaid over 25 years with repayments limited to 25 percent of gross income.⁸

3.8 As can be seen from Table 4, the projected impact of RPG plans on our 30–34 year old couples could have meant that whereas in 2007 56 percent would have been able to afford to buy a purpose built flat based on their income, by 2026 this would have fallen to about 28 percent. Under RSS housing plans the outlook is improved with 31 percent able to afford according to this measure (Table 5).

3.9 A problem with the operation of the RSS process has been a lack of flexibility in keeping up with developments. The requirement for planning authorities to consider the impact of housing plans on housing market affordability has yet to be given effect. The 2004-based household projections published in March, have also had only a limited influence on supply targets. Consideration of broader housing supply ranges in the RSS process would provide greater flexibility and enable planning authorities to better cater for change.

3.10 In some respects this is unsurprising. The RSSs have been developed over a long period and this will have involved regional partners in building broad coalitions, and brokering compromises between competing objectives. Change can be unwelcome and appears difficult to cater for within the current process.

3.11 The RSS plans are substantially short of the Government’s new target to deliver 240,000 new homes by 2016. In light of this, over the coming months regional partners will need to consider their housing plans through reviews, mini reviews, plans and monitoring reports at local, sub-regional and regional level.

⁸ These are households where the ‘head of household’ is working and aged between 30–34 and their partner is also working. This analysis does not reflect the proportion of couples who already own their own home, nor does it take into account those who may have access to savings, capital or shared ownership schemes.

Table 6: Average annual household growth projections (000s), 2002, 2003 and 2004-based projections.

	North East	North West	Yorkshire & Humber	East Midlands	West Midlands	East of England	London	South East	South West	England
2002 based	3.0	15.6	12.8	15.6	14.3	24.9	46.7	34.6	22.8	190.4
2003 based	5.3	21.9	17.7	19.5	17.8	27.8	36.2	36.3	26.4	209.1
2004 based	7.5	25.4	23.8	20.5	18.6	26.7	39.0	34.7	27.1	223.2

The Green Paper target for housing supply

3.12 The Government's new target to deliver 240,000 net additional homes a year by 2016 is consistent with the current 2004-based annual household projections, which reach a peak of almost 240,000 new households per annum by 2016.

3.13 Whilst some caution should be exercised in the use of these projections, they are the best available estimate of potential demand of newly forming households. Between now and 2016 the average annual growth projected is 234,000. The average over the period to 2026 is 223,000 per year.

3.14 An issue with household projections is their inbuilt circularity, for example recent trends in household formation will be affected by the suppression of potential housing demand which stems from worsening affordability. There is also a high degree of uncertainty about the levels of net migration going forward.

3.15 Household projections, which have been a key input to the development of the RSSs, have changed frequently (Table 6) capturing evolving demographic trends.

3.16 The bulk of the increase in households can be attributed to the trend towards a smaller household size and an ageing population (Table 7). About a third of the growth can be attributed to increased levels of migration.

3.17 Revised 2004-based population projections, reflecting improvements by the ONS to its methodology for charting the distribution of international migration, were published at the end of September 2007. Consequently, CLG will publish revised household projections as soon as possible.

Table 7: 2004-based household projections (000s), by household type, 2004-2029.

England	2004	2006	2011	2016	2021	2026	2029
Household types:							
married couple	9,527	9,415	9,182	9,050	8,978	8,898	8,832
cohabiting couple	1,987	2,181	2,605	2,944	3,204	3,424	3,552
lone parent	1,591	1,655	1,760	1,830	1,882	1,928	1,949
other multi-person	1,421	1,452	1,538	1,629	1,708	1,775	1,817
one person	6,536	6,816	7,562	8,384	9,200	9,951	10,347
All households	21,062	21,519	22,646	23,837	24,973	25,975	26,497
Population in households	49,200	49,808	51,044	52,331	53,625	54,787	55,381
Average household size	2.34	2.32	2.25	2.20	2.15	2.11	2.09

Uplifting RSS plans to achieve 240,000 net additions by 2016

3.18 One approach to illustrating the effect of the Government's new housing supply target would be to uplift existing RSS plans pro-rata. As well as being simple it can be argued that to some extent this would recognise the balance of the outcome of the RSS process, arrived at through consultations, detailed consideration and debate.

3.19 An alternative approach, given the consistency of the Government target with the 2004-based household projections, is to consider the impact of distributing the 240,000 net additions according to those projections.

3.20 The estimated affordability results from either approach are similar at a national level and would represent an improvement in the lower quartile house price to earnings ratio of 5 percent compared with existing plans (Table 8).

Table 8: Illustrative impact of HMG housing target on market affordability, by region – distribution according to the 2004-based household projections.

Region	240k distributed according to projected household growth		Lower quartile house price to earnings ratio – point estimates		
	Average annual net additions to 2016	Annual supply by 2016	2007	2016	2026
North East	7,986	8,613	5.3	5.7	6.8
North West	25,382	28,396	5.6	6.1	7.5
Yorkshire & Humber	23,367	26,116	6.0	6.1	7.5
West Midlands	19,654	20,351	6.7	7.1	8.7
East Midlands	21,407	22,407	6.5	6.8	8.5
East England	27,354	28,238	7.7	9.1	10.9
London	34,902	40,917	9.0	9.7	10.4
South East	35,031	36,234	8.4	9.9	11.9
South West	25,952	28,728	8.5	10.1	12.1
England	221,035	240,000	7.1	7.9	9.5

Table 9: Projected impact of Government target on proportion of 30-34 year old couples able to buy – distribution according to the 2004-based household projections.

By Region based on distribution of the 240k according to household projections	Percentage of 30-34 year old couples able to afford a purpose built flat			Percentage of 30-34 year old couples able to afford a terraced house		
	2007	2016	2026	2007	2016	2026
North East	76.8	71.8	49.1	74.8	67.1	45.2
North West	56.0	45.9	28.8	70.3	57.7	41.9
Yorkshire & Humber	55.4	50.3	34.7	62.2	55.9	40.0
West Midlands	64.9	55.7	39.5	55.3	47.6	31.2
East Midlands	67.6	62.3	37.0	61.6	50.0	32.5
East England	57.3	38.4	33.4	39.0	33.4	29.0
London	51.9	45.1	40.2	28.7	17.0	10.7
South East	49.7	37.9	35.1	38.0	34.9	27.5
South West	39.4	21.7	19.3	26.4	19.6	17.3
England	55.6	45.0	34.4	47.8	39.9	29.2

3.21 Table 9 projects the ability of 30-34 year old couples to buy a home over time. Compared with current RSS plans there is an increase of 11 percent in the number of couples able to buy a flat, and 14 percent able to buy a terraced house.

Is there a London Capacity Constraint?

3.22 All regions have challenges in achieving a better match between housing demand and supply. For example, London has a particular problem in that it has the highest projected housing need arising in the most densely populated region.

3.23 Capacity constraint as an argument was accepted by the EiP for the Mayor's Spatial Development Strategy (for our purposes London's equivalent of the RSS). The current minimum target is for 30,500 average net additions a year. This is set against the 2004-based household projections for London which reach 41,000 by 2016.

3.24 A potential impact of any under provision of housing in London is that there will be a spill-over into other regions. But the RSS process has not explicitly catered for this effect.

3.25 In this scenario (see Table 10) we explore the effect of unmet growth in London being met by the South East, East England and the East Midlands on the basis that these regions incorporate the Growth Areas and are the most likely hosts.

3.26 Compared to the distribution based on household projections (see Table 8), the estimated affordability prospects for London get worse with the lower quartile ratio moving from 10.4 to 10.6 by 2026. The Affordability Model already allows for inter-regional migration and so those regions catering for the overspill secure improvements in affordability.

3.27 Some argue that London can cater for more of its own household growth. Analysis⁹ of land use for an 18 month period between 2004 and 2005 noted that a substantial number of housing permissions granted were on land not previously identified for this purpose in the London Housing Capacity Study.

3.28 The Mayor has acknowledged this in his draft Housing Strategy, published in September. This includes proposals for a new London-wide housing capacity study to investigate whether it is possible to increase the current target.

⁹ Technical report by GLA for the London Plan Alterations EiP – April 2006.

Table 10: Illustrative impact of HMG housing target on market affordability, by region – distribution according to the 2004-based household projections with unmet London household demand spread across three host regions.

Region	London capacity constraint		Lower quartile house price to earnings ratio – point estimates		
	Average annual net additions to 2016	Annual supply by 2016	2007	2016	2026
North East	7,986	8,613	5.3	5.7	6.7
North West	25,366	28,396	5.6	6.1	7.5
Yorkshire & Humber	23,355	26,116	6.0	6.1	7.5
West Midlands	19,650	20,351	6.7	7.1	8.6
East Midlands	21,949	23,501	6.5	6.8	8.4
East England	27,971	29,617	7.7	9.0	10.8
London	32,959	36,675	9.0	9.8	10.6
South East	35,909	38,004	8.4	9.9	11.8
South West	25,938	28,728	8.5	10.1	12.1
England	221,083	240,000	7.1	7.9	9.4

3.29 Irrespective of the outcome of this particular issue, there is a real need for a mechanism to ensure that total housing demands are acknowledged in the planning process, and cross-regional issues dealt with explicitly. NHPAU will consider this matter.

Focussing growth in regions with the worst affordability

3.30 A market led approach to determining the distribution of housing growth would suggest that increased supply should be focussed in those regions where the affordability problem is greatest.

3.31 There is a broader economic rationale¹⁰, which has similar implications for the location of housing growth, which proposes that economic activity should be spatially concentrated to generate maximum productivity gains. These gains are achieved because of agglomeration economies, for example through the clustering of specialist and complementary human capital and firms.

3.32 It is argued that the planning regime has constrained this process and the size of many of our cities for decades and that price signals should be used to determine optimal growth in the future. Overall this approach would lead to an increase in the average size of cities, with growth focussed in those areas with high land values.

3.33 Initiatives such as the City-Regions, Growth Areas and the Regional Economic Strategies are in part influenced by urban economic thinking¹¹.

3.34 In terms of housing, a radical extension of this approach would be to increase significantly the proportion of new homes delivered by the southern regions. As we set out in paragraph 4.58, this approach would be the most efficient method of stabilising affordability, but would obviously be highly contentious.

3.35 Tables 11 and 12 set out the results of a rather more modest scenario in which 80 percent of the proposed growth in housing supply above the RSS plans is focussed in the South East, the East and the South West.

¹⁰ T Leunig and H Overman (2007) *Spatial Patterns of Development and the British Housing Market*. London School of Economics.

¹¹ CLG *Housing Market Update – August* (2007).

Table 11: Illustrative impact of HMG housing target on market affordability, by region – distribution of growth above RSS focussed in least affordable regions (the South East, South West and East England).

Region	Focus growth in least affordable regions		Lower quartile house price to earnings ratio – point estimates		
	Average annual net additions to 2016	Annual supply by 2016	2007	2016	2026
North East	6,971	6,115	5.3	5.7	6.7
North West	23,412	24,047	5.6	6.0	7.2
Yorkshire & Humber	21,807	22,673	6.0	6.1	7.4
West Midlands	16,822	16,822	6.7	7.1	8.4
East Midlands	20,825	21,245	6.5	6.8	8.1
East England	31,785	37,711	7.7	8.8	10.0
London	30,740	31,735	9.0	9.9	10.8
South East	39,928	45,864	8.4	9.7	11.1
South West	28,525	33,790	8.5	9.9	11.4
England	220,814	240,000	7.1	7.8	9.1

3.36 Leaving aside the wider economic benefits, this illustrates that focussing supply growth in those regions with the worst affordability problem has a larger effect on both overall affordability in England and for those regions catering for growth compared with previous scenarios where supply is more evenly spread. There is a ripple effect benefit to those regions taking a smaller share of the growth.

3.37 We have run a number of focussed growth scenarios. For example exploring the impact across the Growth Area regions, which provide similar results. These scenarios are useful to help us to understand the likely effect of distribution choices.

Table 12: Projected impact of Government target on proportion of 30-34 year old couples able to buy – distribution of growth above RSS focussed in least affordable regions (the South East, South West and East England).

By Region based on growth focused in least affordable areas (240k)	Percentage of 30-34 year old couples able to afford a purpose built flat			Percentage of 30-34 year old couples able to afford a terraced house		
	2007	2016	2026	2007	2016	2026
North East	76.8	72.3	50.9	74.8	67.9	47.1
North West	56.0	46.5	35.3	70.3	58.4	44.5
Yorkshire & Humber	55.4	50.1	35.9	62.2	55.8	42.4
West Midlands	64.9	55.8	42.6	55.3	47.6	32.5
East Midlands	67.6	63.2	44.4	61.6	50.8	35.3
East England	57.3	40.3	34.1	39.0	33.7	31.6
London	51.9	43.8	36.8	28.7	15.2	7.2
South East	49.7	38.0	36.6	38.0	35.5	30.7
South West	39.4	23.7	19.7	26.4	19.7	18.3
England	55.6	45.4	36.3	47.8	40.0	30.7

Housing Green Paper growth outcomes?

3.38 The Green Paper set out proposals for new Growth Points. For the first time this initiative will cover the northern regions which in the past few years have experienced the most significant rate of deterioration in affordability across England. About 50,000 additional homes are targeted through this measure.

3.39 In addition, the Green Paper set out plans to create 5 new Eco-Towns, which would deliver up to 100,000 additional homes. In each case the community would be designed to reach zero carbon standards. The Prime Minister has since announced that there will be 10 Eco-Towns, and that there will be at least one in each region.

3.40 Taken together Eco-Towns and the new Growth Points could deliver up to 150,000 additional homes by 2016. The process of sifting expressions of interest and selecting the successful partners for both schemes is unlikely to be finalised until the new year. The NHPAU is not involved in this process.

3.41 In the interim we have modelled the impact of these initiatives for illustrative purposes based on the following assumptions. All new Growth Points are spread across the 3 northern regions, pro-rata according to the 2004-based household projections. And the Eco-Towns are spread across all regions (Table 13).

Table 13: Illustrative impact of HMG housing target on market affordability, by region – distribution of growth above RSS plans is policy led.

Region	Policy driven growth		Lower quartile house price to earnings ratio – point estimates		
	Average annual net additions to 2016	Annual supply by 2016	2007	2016	2026
North East	7,964	8,566	5.3	5.7	6.8
North West	26,985	31,978	5.6	6.1	7.4
Yorkshire & Humber	25,086	29,946	6.0	6.1	7.3
West Midlands	19,106	19,265	6.7	7.1	8.7
East Midlands	22,115	23,829	6.5	6.8	8.4
East England	28,654	31,129	7.7	9.0	10.8
London	30,175	30,500	9.0	9.9	10.9
South East	35,667	37,516	8.4	9.9	11.9
South West	25,283	27,272	8.5	10.1	12.3
England	221,036	240,000	7.1	7.9	9.5

3.42 The implication is that restricting new Growth Points to the northern regions alone would not generate the best potential improvement in affordability. The level of building implied raises issues about managing lower demand markets, for example the North West has four of the nine market renewal pathfinders.

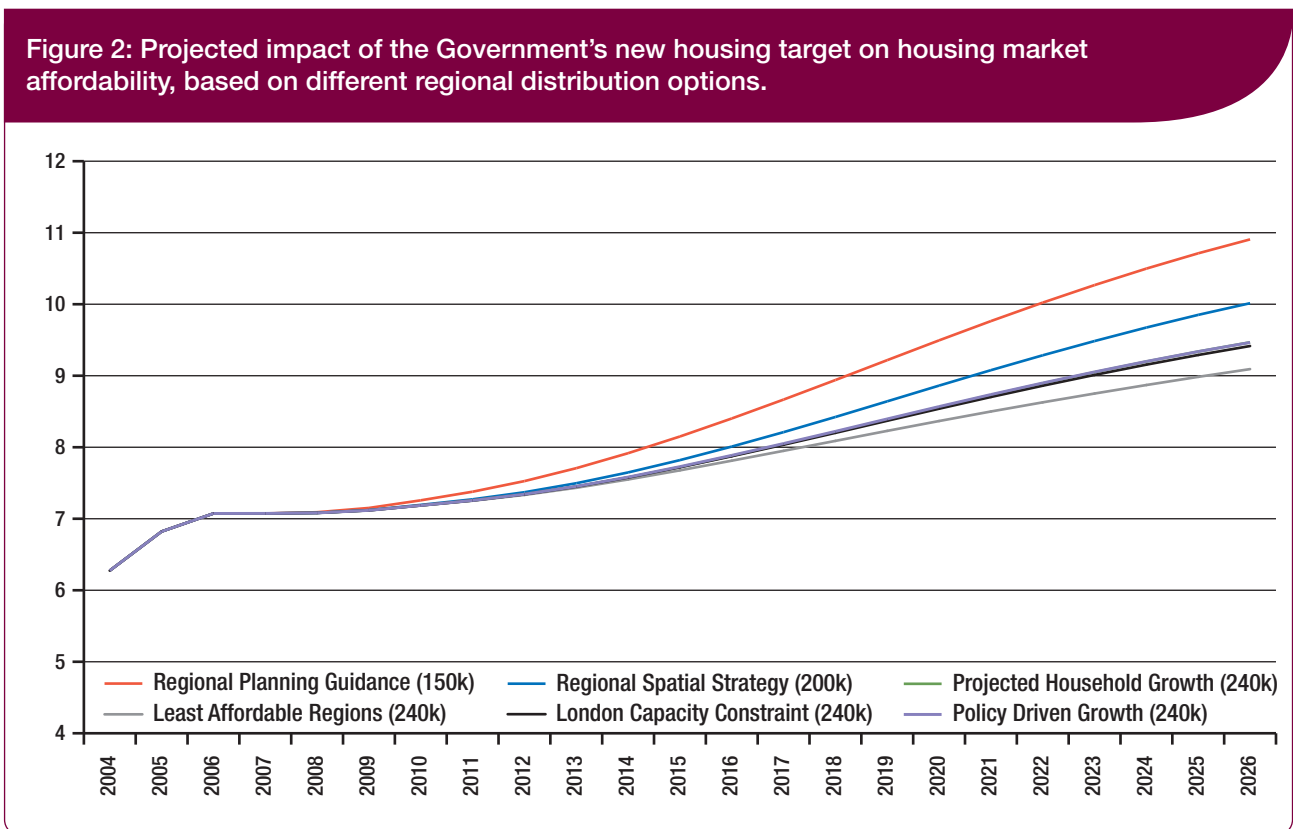
The potential impact of the Government's new target on affordability

3.43 All of the scenarios in this section based on the Government's target for 240,000 annual additions by 2016 would meet the commitment for two million more homes by 2016 and three million more homes by 2020.

3.44 All scenarios would deliver an improvement in the affordability prospects for future first time buyers. Just as the number of new homes delivered matters, so to do decisions about the distribution of new supply (Figure 2).

3.45 As we discuss in paragraphs 4.54 – 4.68, these results may understate the improvement that would be delivered by the increase in supply proposed. For example, housing type also has a significant impact on affordability prospects.

3.46 Therefore, if met, we believe that at a national level the delivery of 240,000 net additional homes a year by 2016 would represent important movement towards stabilising affordability over the next decade.



3.47 However, taking a view over the longer term, the NHPAU believes housing supply will actually need to increase further if affordability is not to get worse, given the demands of a growing, prosperous and aspiring population. We discuss the case for a higher supply target in the following section.

4. Is there a case for targeting higher levels of housing supply?

Increased demographic pressure

4.1 Household projections provide an indication of the level of newly forming households – a major element of demand. So an initial question in assessing pressures in the housing market is; are we delivering sufficient net additions to stock to cater for this growth?

4.2 Net additions to housing stock take into account changes in the use of existing buildings, conversions and demolitions, as well as newly built homes. In recent years, at a national level, net additions have been in line with completions.

4.3 It is not surprising to find that conversions and changes to use that add to the housing stock are most significant in regions across the south where house prices are highest. Demolitions are more significant across the northern regions.

4.4 Considering the net additions to stock in recent years against the projected growth in households set out earlier, a serious shortfall in supply is already accumulating.

4.5 In the two years between 2004 and 2006 projected household growth has exceeded net additions by over 100,000. It is likely that this under-provision will continue for at least another 3 or 4 years before the effect of new regional and local housing plans deliver on the ground.

4.6 It could be estimated that pent up demand will approach 150,000 by the end of 2007. To tackle this at a national level would imply increasing annual housing supply targets over the period to 2016 by over 15,000. Alternatively this backlog could be spread over a longer period to 2026 with an increase in planned net additions of over 7,500 a year.

4.7 Further demographic pressure is in the pipeline. ONS reported in September that the 2004-based population projections under-estimate migration. Data published indicates a net increase of 171,500 a year for the next 20 years compared to the previous estimate of 130,000.

4.8 It is of note that the new migration projection is tending towards the 'High' long-term migration estimate published as part of the original 2004-based population projections. Those projections indicated that migration on this scale would lead to an average annual household formation rate of 255,000 between 2004 and 2029, as opposed to the 'Principal' estimate of 223,000, an average increase of another 32,000 households a year.

4.9 Home Office Ministers have indicated that changes to the immigration system over the next year will mean that the levels of migration identified in most recent ONS projections will not occur. An alternative estimate has not been identified.

Table 14: Net additions to housing stock (000s) in England, 2001/02 to 2005/06

	North East	North West	Yorkshire & Humber	East Midlands	West Midlands	East of England	London	South East	South West	England
2001/02	3.1	10.3	10.2	15.2	11.2	17.9	15.7	25.1	21.8	130.5
2002/03	3.9	14.9	10.9	15.9	11.9	20.3	17.7	26.1	22.0	143.7
2003/04	3.8	18.6	13.7	14.7	10.7	21.1	21.8	28.0	22.4	154.8
2004/05	5.6	18.1	12.5	17.4	15.9	21.8	22.9	31.9	21.9	167.9
2005/06	5.5	20.6	16.1	20.1	18.7	24.5	24.0	33.3	22.2	185.3

4.10 If pressure builds and dwellings are not provided there will be a number of related social consequences¹². All things being equal these will include:

- A worsening of affordability prospects, with more people locked out of ownership, an erosion of the percentage of households in owner-occupation and an increase in the proportion of households in the private rented sector.
- A delay in the formation of households, an indicator would be an increase in the average age of first time buyers, currently 29, and a reduction in the rate of mortgages taken out by this group.
- A decline in housing market activity. In 2006 there were 1.6m transactions in England and Wales, representing about 7 percent of the stock.
- An increase in over-crowding. Official estimates indicate that in 2006 overcrowding stood at 2.5 percent of all households. The position in London being worse, with nearly 7 percent living in overcrowded conditions.
- An increase in the demand for housing support from the state. In 2006 there were 1.6 million households on the social housing register (applying for social housing). And the most recent data indicates that 85,000 households are in temporary accommodation.
- Further concentration of wealth amongst owner occupiers, with the younger age groups losing out relative to older age groups.

Increased demand for more housing from existing homeowners

4.11 As a general rule, as people become more prosperous they demand more housing services. One form of increased demand from existing homeowners is the purchase of second homes. The main reasons given for owning a second home¹³ are for holiday and weekend use, to provide a base for working during the week so as to avoid commuting, and as an investment.

4.12 According to council tax returns for 2006 about 240,000 properties were identified as second homes in England. This source may be an underestimate, for example because some owners adopt tax efficient approaches to declaration.

4.13 The regional distribution of second homes varies significantly for example, with 21 percent in the South West, 21 percent in London and 17 percent in the South East. At the other end of the scale the North East accounts for 3 percent of second homes and the East Midlands 4 percent.

4.14 Average annual growth in second homes captured by council tax returns over the past few years has been consistent with growth in the economy at around 3 percent. Analysis of demographic trends¹⁴ – in particular the increase in the number of affluent 50-60 year olds – suggests future growth could be stronger. This is supported by results from the Affordability Model.

4.15 It would be prudent, in particular in those regions with a significant concentration of second homes, to take this growth into account. Across England we should be planning for another 5,000 to 10,000 net annual additions to stock for second homes.

4.16 Increased demand for housing services is also exhibited by people seeking bigger and better homes, buying homes for their children at university and reinstating family homes previously divided into flats. It may also entail moving to an area which offers access to improved facilities/amenities e.g. cultural, recreational and social infrastructure.

4.17 As discussed in paragraphs 4.59 – 4.63, simulations using the Affordability Model suggest that ensuring that the right mix of homes is delivered is as important as achieving the right number of new homes.

4.18 Crudely, a distribution of the type of housing that reflects existing and future demand will have a more significant impact on overall affordability than a supply that is skewed towards, say, small basic flats. Given rising prosperity, an undersupply of larger homes means increased prices at this level, as well as further down the property chain as more people compete in constrained supply pools.

¹² CLG Housing Market Update – July (2007).

¹³ Direct Line (2005): Second Homes in the UK: Direct Line Insurance.

¹⁴ J Gilbert (2001) *Second Homes: A Market Report*. Council of Mortgage Lenders.

Regional Economic Strategies

4.19 Each Regional Development Agency must develop a Regional Economic Strategy. RDA objectives focus on achieving improved economic growth prospects, directly or indirectly by targeting action to improve productivity and increase employment rates.

4.20 Most RDAs have been actively engaged in the RSS process and have put the case for rates of home building to support their economic strategies. This is both in terms of quantity as well as quality where the ambition is to deliver new build which attracts highly skilled and aspiring groups to particular areas.

4.21 On average, RDAs argued for rates of home building that were more than 10 percent above the level of housing provision proposed by the Regional Assemblies. Some argue that RDA objectives are aspirational and that finalised housing plans have properly taken into account historical and current economic performance.

4.22 The recent outcome of the Government's Review of Sub-National Economic Development and Regeneration, which signals the transfer of responsibility for the RSS to RDAs over the next 3 years, is in part designed to achieve a better alignment and consistent evidence base for all regional strategies.

Effective stock and operation of the market

4.23 There are around 22 million dwellings in England. Around 70 percent are owner occupied, 12 percent privately rented and about 18 percent are rented from social landlords and local authorities.

4.24 As well as new build, the bulk of supply of homes to the market for sale is made up from existing stock, as people change up, down or relocate. In 2006 there were 1.6 million transactions equating to about 7 percent of the stock.

4.25 In 2006 there were about 700,000 (3 percent) vacant dwellings. The bulk of these, around 600,000, were in the private sector. Over half of vacant dwellings are short term (empty for under 6 months), and relate to the normal operation of the market. Longer term vacancies arise for a variety of reasons including obsolescence and the probate process.

4.26 Research suggests¹⁵ that the level of vacancies in England is low by international standards. For example, the rate in Germany is around 8 percent and in France nearly 7 percent. These data are consistent with the tighter market and higher house prices that we observe in England.

4.27 In considering their housing plans during the RSS process some regions allow for a 3 percent adjustment for transactional vacancies. This is appropriate and applied to the Government's new target for 240,000 homes a year by 2016 requires planning for another 5,000 to 10,000 net additions.

4.28 Over time, as supply is increased then we should expect the rate of vacancies to increase a little. At this point we have not allowed for the impact of this potential increase in vacancy rates on overall supply. As a rule of thumb 1 percent of stock would equate to around 220,000 dwellings.

4.29 As well as a small increase in the level of vacancies, there are a number of reasons why we should expect a healthier housing market to generate an increase in the level of demolitions from its current level, which has averaged around 20,000 a year since 1999.

4.30 Some homes are simply not in the right place or of the right type for potential buyers. It is also of note, taking into account the state of repair, provision of modern facilities and services, and a proper degree of thermal comfort, that in 2005 about 6 million homes were assessed as being of a 'non-decent' standard.

¹⁵ A Evans and D Hartwich (2005) *Unaffordable Housing: Fables & Myths*. Policy Exchange, London.

4.31 These dwellings do not provide the same level of service or 'effective stock' as other properties. Indeed, as housing standards improve, for example in relation to achieving more sustainable environmental standards, the attractiveness of some of the existing stock will deteriorate further.

4.32 Around 19 percent of dwellings in England were built pre 1919. The same number date from between 1919 and 1944. About 22 percent of stock was built between 1945 and 1964 and a further 25 percent between 1965 and 1984.

4.33 However, housing quality does not necessarily correlate with the age of a property. Hedonic analysis, which considers the value of different characteristics of homes, indicates¹⁶ that rather than, say, the replacement of popular Victorian terraced dwellings, any increase in demolitions is most likely to occur in poor stock from the 1950s and 1960s.

Investor activity

4.34 In 2006 there were about 850,000 buy-to-let (BTL) mortgages outstanding. Cash purchases and investment by companies mean that there are many more dwellings in this category. BTL properties perform an important role as part of the private rented sector.

4.35 Concerns have been raised about the significant growth of the BTL sector over the past decade. There are questions about the impact on overall house prices and whether investors are crowding out first time buyers. Another concern has been the 'buy to sit' phenomenon where it has been suggested that some properties are kept empty.

4.36 Much of the comment around BTL is anecdotal and so NHPAU is currently researching this matter. Irrespective of the findings of our research, ultimately if people are living in BTL properties then that is meeting a demand for housing services and this has important benefits.

4.37 However, if there is an element of the net additions to housing stock that are not being utilised as dwellings then, depending on how significant this is, either some adjustment to housing plans to cater for this is appropriate or stronger policy instruments could be implemented to discourage this behaviour.

¹⁶ G Meen, J Meen and C Nygaard (2006) *A Tale of Two Victorian Cities in the 21st Century*.

Where is the balance of risk – too many or not enough homes?

4.38 The evidence for under-supply of housing has been strong for some time¹⁷ and this has been a factor in long-term house price growth.

4.39 The demand for housing is multi-layered. For most it is about securing a decent place to live for ourselves and our families. And we know that around 90 percent of people aspire to own their own home. Current delivery of homes against CLG projections for household growth is worrying. Pent up demand is growing.

4.40 As people become more prosperous they want bigger and better homes. Depending on the stage in their life people want access to good schools, transport systems, health care and social, recreational and cultural infrastructure.

4.41 Some existing owner-occupiers buy additional homes. This can be for holiday or work purposes. Some people view property as an investment, or a nest egg to supplement pensions.

4.42 Property is also viewed as a business opportunity, growth in property development and the BTL sector over the past 10 years has been considerable. Property investment by large companies is also significant.

4.43 Some of the elements of demand are more tangible and easier to plan for than others. But that there is a substantial and increasing demand is not in doubt.

4.44 In recent weeks many commentators have said that the housing market is cooling. The main trigger for this sentiment is the 'credit crunch', where there has been a reduction in the level of lending between banks because of the uncertainty surrounding the risks associated with exposure to the sub-prime mortgage loan market.

4.45 The increase in the short term interest rates of major lenders that we have seen in recent weeks reflects a reassessment of risk and the pricing of this into mortgage deals. On the other hand we have also seen some long-term interest rates fall slightly as the mortgage market prices in expectations about the future direction of central bank interest rates.

4.46 While the latest statistics show that annual house price inflation remains in double digits¹⁸, many are predicting single digit growth or stagnation next year. Some have predicted falling house prices.

4.47 For the short run, over the next 2 or 3 years, much will depend on the confidence of consumers and lenders and the reaction of financial markets. In the medium and long-term market fundamentals – supply constraint, rising incomes, low unemployment, pent up demand and relatively low interest rates – indicate that affordability prospects for first time buyers are likely to remain very difficult.

4.48 This analysis is supported by simulations we have conducted using the Affordability Model. Based on delivery of the Government's new housing target and assuming that there is no real house price growth for the next 3 years, all other things being equal, we find that the ratio of lower quartile house prices to earnings would still deteriorate from 7.1 to over 9 by 2026. A cooling housing market in the short run does not provide a solution for our affordability problem in the long run.

4.49 Against this backdrop, the balance of risk is that we will fail to deliver sufficient homes to meet need or demand, with the social and economic consequences set out previously. Hence NHPAU believes that there is a strong case for going beyond the Government's national target when establishing regional supply ranges.

¹⁷ K Barker (2004) *Review of Housing Supply: Final Report*. HMSO.

¹⁸ CLG and the Halifax reported annual rates of 12 and 11 percent respectively for September 2007.

Table 15: Illustrative impact of building 270,000 homes on market affordability, by region – distribution of growth above RSS plans across southern regions.

Region	Focus growth in least affordable regions (270k) – Average annual net additions to 2016	Lower quartile house price to earnings ratio – point estimates		
		2007	2016	2026
North East	7,006	5.3	5.6	6.0
North West	23,730	5.6	5.9	6.5
Yorkshire & Humber	22,107	6.0	6.1	6.8
West Midlands	17,308	6.7	7.0	7.6
East Midlands	21,136	6.5	6.7	7.3
East England	35,886	7.7	8.5	8.8
London	31,159	9.0	9.9	10.5
South East	45,152	8.4	9.4	9.6
South West	32,630	8.5	9.5	9.8
England	236,113	7.1	7.7	8.2

A Higher Supply Target

4.50 In this scenario (Table 15) we have examined the impact on market affordability of increasing supply beyond the Government's target to reach 270,000 net additions a year by 2016. We have focussed 80 percent of growth above the existing RSS levels across the South East, the South West and the East of England.

4.51 This scenario would result in the delivery of 150,000 more homes by 2016 than the Government's commitment of two million. And by 2020 it would result in 270,000 more homes than the Government's commitment of three million new homes.

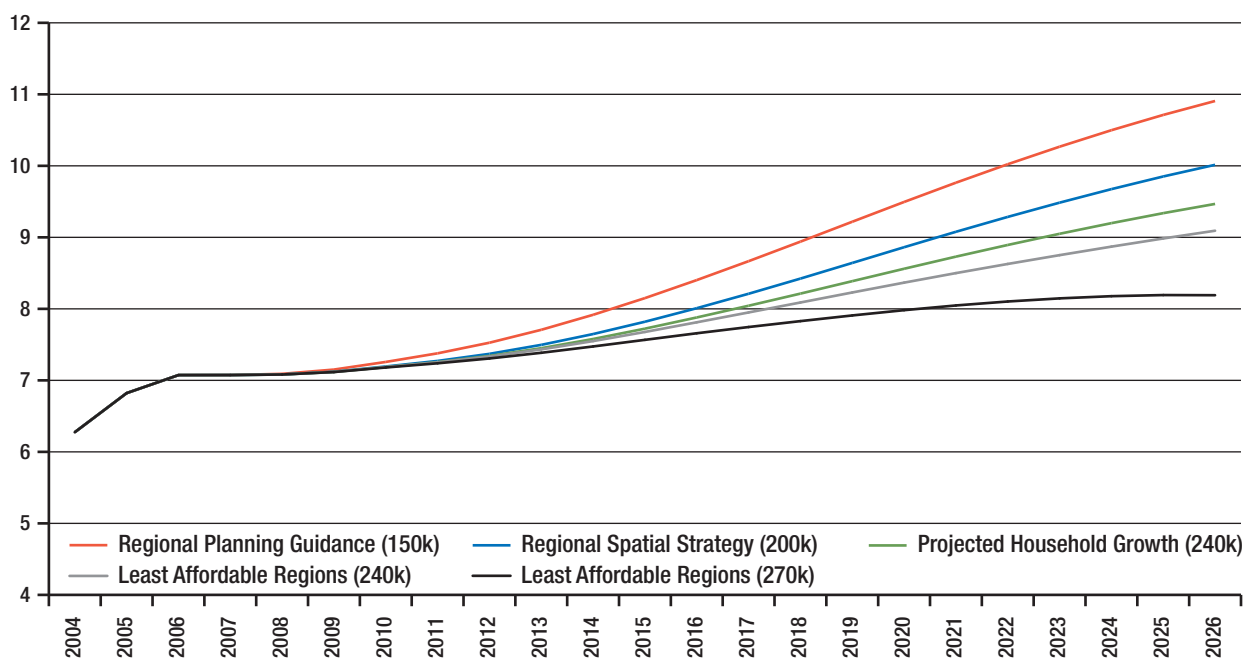
4.52 This scenario delivers a reduction of nearly 20 percent in the estimated affordability ratio by 2026 compared with existing RSS plans. This improvement is reflected in an increase in young couples able to buy starter properties in the future, for example for those purchasing purpose built flats rising from 31 percent under RSS plans by 2026 to around 42 percent over the same period (Table 16).

4.53 Of course, this is illustrative. We want to discuss particular demand and supply circumstances in each region with the Regional Assemblies, Government Offices and the Regional Development Agencies. For example what is the scale of pent-up demand, second homes and the extent of the affordability challenge that should be catered for?

Table 16: Projected impact of NHPAU supply scenario of 270,000 homes on proportion of 30-34 year old couples able to buy.

By Region based on growth focused in least affordable areas (270k)	Percentage of 30-34 year old couples able to afford a purpose built flat			Percentage of 30-34 year old couples able to afford a terraced house		
	2007	2016	2026	2007	2016	2026
North East	76.8	73.6	60.4	74.8	70.3	55.8
North West	56.0	48.2	42.4	70.3	60.3	53.8
Yorkshire & Humber	55.4	50.9	41.9	62.2	56.2	46.5
West Midlands	64.9	56.9	52.7	55.3	49.9	42.8
East Midlands	67.6	64.3	53.1	61.6	52.6	46.1
East England	57.3	41.7	40.4	39.0	34.0	33.7
London	51.9	44.1	38.7	28.7	15.7	9.1
South East	49.7	38.2	38.0	38.0	36.2	35.6
South West	39.4	26.9	24.3	26.4	19.9	19.7
England	55.6	46.5	41.8	47.8	41.0	36.3

Figure 3: Projected impact of the RPG, RSS, Government target and NHPAU supply scenarios on housing market affordability.



How can housing market affordability be stabilised or improved?

4.54 Some may view the affordability results set out in this paper as disheartening, or even as demonstrating that increases in supply cannot make a significant difference to the affordability problem. This would be a serious mistake.

4.55 Improving affordability prospects is about delivering the right number of new homes of the right type, in the right place and at the right time. We have already shown that the impact of increasing the supply of new homes, if delivered, would improve the prospects for tens of thousands of people over the long-term.

4.56 We have deliberately constrained our analysis using assumptions about the existing pattern of delivery, for example the RSS plans providing the bulk of new supply. And that the profile of the type of homes delivered remains constant.

4.57 If we think outside of these constraints we can begin to consider what sort of factors could help to have a more significant impact on affordability prospects. These maybe extreme simulations, but they do provide an indication of what the direction of travel could be.

4.58 Where should we build the new homes? If stabilising affordability in each region and across England is the goal then modelling suggests that the most efficient way of achieving this would be to increase the proportion of homes delivered by the southern regions of London, the South East, South West and East England from around 55 percent to over 70 percent. Overall supply would need to reach around 270,000 net additions by 2016.

4.59 What is the role of housing quality? Since 2005 the Affordability Model has undergone important development, in particular by allowing for housing quality and tenure. This work has concluded¹⁹ that matching newly forming households and the number of new homes in terms of units will not be sufficient to stabilise affordability over the long-term. To do this household services need to rise at a faster rate.

¹⁹ G Meen and M Andrew (2007) *Planning for Housing in the Post-Barker Era: Affordability, Household Formation and Tenure Choice*. Reading and Cass Business Schools

Table 17: Illustrative impact of property type on affordability prospects.

The effect of property type on affordability prospects – 240k net additions RSS uplifted	Lower quartile house price to earnings ratio – point estimates		
	2007	2016	2026
A bias towards 2 bedroom properties	7.1	8.4	10.6
A bias towards 4 bedroom properties	7.1	7.8	9.1

4.60 As people become more prosperous they demand more housing services i.e. bigger (more space internally and externally) and better homes (for example, higher environmental standards). They also want access to improved facilities/amenities e.g. cultural, recreational, social infrastructure.

4.61 For our main scenarios the underlying assumption is that the overall supply of homes is ‘quality constant’ i.e. broadly speaking, the profile of the type of homes does not change significantly over time.

4.62 A distribution of new supply that better caters for future demand – including crucially from existing homeowners – will have a more significant impact on overall affordability. An undersupply of larger homes means higher prices at this level and increased competition for properties at lower levels in the chain from those unable to move up, thus increasing price pressure here as well.

4.63 In a simple simulation (Table 17) the number of rooms is used as a rough proxy for bigger and better homes. It begins to help us understand the importance of building not just the right number of homes, in sensible locations, but also the right type of homes.

4.64 This analysis has implications for land supply²⁰. PPS3 on housing took effect in April 2007 and we will need to assess its practical application. In theory it should provide a much more flexible, responsive supply of land – managed in a way that makes efficient and effective use of land. This will include careful consideration of density targets. The key is to provide planning authorities with incentives.

4.65 PPS3 should provide greater certainty for developers, planning authorities and local communities, with the identification of a rolling 5 years of developable land and a further 10-15 years of land supply earmarked for housing. This should generate increased competitive pressure in the land market with positive effects on the affordability.

4.66 When we consider other research this leads us to believe that the effect on affordability of increasing supply by the scale indicated in our previous scenarios could be even greater. For example:

- Bramley and Leishman (2005)²¹, in comparing the results of their econometric modelling, based on 90 local housing markets, with analysis from the original Affordability Model, estimated that a more modest increase in private stock could stabilise affordability. Although allied to this was a projected need for substantial increases in land supply and social housing provision.

²⁰ P Cheshire (2007) *Reflections on the Nature of Planning Restrictions on Housing Supply*. London School of Economics.

²¹ G Bramley and C Leishman (2005) *Planning and Housing Supply in two-speed Britain: Modelling Local Market Outcomes*. Urban Studies, Vol 42.

- Work on the role of expectations in affecting house prices by G Cameron, J Muellbauer and A Murphy (2007)²² indicates that if a step change in housing supply can be achieved this could have a dampening effect on short run price inflation.

4.67 We can also expect that in the short-term as homes increasingly move out of the reach of many first time buyers, and as that trend continues, then poor affordability, also impacted by a tighter lending environment, will itself become a factor in moderating house price inflation.

4.68 Taken together, NHPAU believes that there is a realistic possibility of stabilising the affordability of market housing over the long-term if a supply target for 270,000 net additions to stock, in the right place and of the right type can be adopted through the planning system for delivery before or by 2016.

²² G Cameron, J Muellbauer and A Murphy (2007) *Housing Markets and the economy: An Assessment*. Oxford University.

5. Next steps – developing our advice to Government

5.1 The housing supply scenarios set out in the previous sections provide a starting point for the dialogue we will now enter into with the key regional partners – the Regional Assemblies, Government Offices and the Regional Development Agencies.

5.2 The scenarios highlight some issues specific to particular regions and some broader questions. The intention is to raise some of the key issues that we need to consider in developing our advice to Government. The purpose at this stage has not been to identify all issues particular to individual regions.

5.3 Drawing on the range of scenarios we have run, as a starting point for discussion with the regional partners the following table identifies an illustrative supply range.

5.4 Engagement with the key regional partners will take place over the remainder of the year. This will include working meetings in the regions between the partners and members of NHPAU. This will provide an important opportunity to test and iterate analysis on both sides.

5.5 New information from the centre will also lead to the refinement of this initial work, including:

- An update of the 2004-based household projections, which is likely to reflect some significant distributional changes for some regions;
- Confirmation of the funding streams for social and low cost housing covering the Comprehensive Spending Review period; and
- Decisions about the scale and location of Eco-Towns and the new Growth Points.

Table 18: Illustrative housing supply range by region.

Region	Minimum of supply range by 2016 ²³	High point of supply range by 2016
North East	8,600	9,000
North West	28,400	32,000
Yorkshire & Humber	26,100	30,000
West Midlands	20,400	23,000
East Midlands	22,400	27,000
East England	28,200	38,000
London	40,900	41,000
South East	36,200	46,000
South West	28,700	34,000
England	240,000	280,000

²³ The minimum target at an England level cannot be less than the Government's overall target for 240,000 net additional homes by 2016. This illustrative distribution is based on the 2004-based household projections.

5.6 We will need to establish a target range that has the best potential to be responsive to ongoing policy developments and new information about demographic trends and housing market signals. Given current circumstances the Government's supply target for 2016 will form an overall minimum requirement.

5.7 We will deliver to Government by the spring our first advice about a range of supply to be tested by each region as it moves forward in existing or future reviews of its planned housing provision.

If you have any questions about this publication then please contact the unit.

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Annex A

NHPAU Board Members



Stephen Nickell (Chair)

Currently Warden of Nuffield College Oxford. He was an External Member of the Bank of England Monetary Policy Committee from 2000 – 2006 writing a number of pieces about the impact of the UK housing market on the wider economy. Until 2005 he was School Professor of Economics at the London School of Economics, following his role from 1984 – 1998 as Professor of Economics and Director of the Institute of Economics and Statistics at the University of Oxford.



Prof Glen Bramley

Professor of Housing and Planning/ Urban Studies at Heriot-Watt University in Edinburgh since 1994 leading research on planning, housing and urban policy. Prior to this he lectured in Urban Studies at the University of Bristol specialising in local government finance, housing and economic aspects of public policy. He has published papers and extensive research analysing the economics around housing affordability and its relationship with planning and house building.

Glen is the linked Board member for the South West and North East regions.



Prof Paul Cheshire

Has been Professor of Economic Geography at the London School of Economics and Political Science since 1995. Prior to this he was Professor of Urban and Regional Economics at the University of Reading and has spent time at Washington University in the USA. He has written extensively and conducted research on applied urban and regional economics, particularly the economics of housing, land markets and land use regulation.

Paul is the linked Board member for London and the East Midlands region.



Max Steinberg

Has been Chief Executive of Elevate East Lancashire, a housing market renewal pathfinder since 2003, following 25 years at the Housing Corporation where his roles included, Director of Investment & Regeneration for the North and Regional Director of the North West and Merseyside. He is a leading UK practitioner in Urban Regeneration and Housing. Max is Chair of the Board of Liverpool John Moores University European Institute for Urban Affairs and the Chair of Governors at King David High School in Liverpool.

Max is the linked Board member for the Yorkshire and Humber region.



Bob Lane

Is currently Chief Executive for North Northants Development Company responsible for growth and regeneration in the area. His previous roles include Chief Executive of Speke Garston Development Company, Liverpool, Assistant Chief Executive of the Merseyside Development Corporation and roles at Oldham and Lambeth Councils managing urban programmes. He is a specialist in the delivery of complex urban regeneration projects, with more than twenty five years experience as a regeneration practitioner/manager.

Bob is the linked Board member for East England and the North West regions.



Dr Peter Williams

Is now an independent consultant on housing and mortgage markets. His clients include the Intermediary Mortgage Lenders Association and Acadametrics. He was previously Deputy Director General of the Council of Mortgage Lenders. Prior to that he was Professor of Housing Management at Cardiff University, Deputy Director at the Chartered Institute of Housing and an academic at the Australian National University and the University of Birmingham. He previously served on the Board of the Housing Corporation (1995 - 2002) and Housing for Wales (1989 to 1993). He is a Visiting Professor at the Centre for Housing Policy at the University of York.

Peter is the linked Board member for the West Midlands and South East regions.

Annex B

The Affordability Model – A Summary

Purpose of the Affordability Model

The *Barker Review of Housing Supply* has become one of the most important documents for housing policy in recent years and the Government quickly adopted many of its recommendations. One of the important recommendations was to understand affordability at national and regional levels.

A team of 15 Economists from different universities and research institutes were asked to derive an appropriate methodology whereby national affordability targets could be translated into regional housing targets. This methodology had to be consistent across the regions. Therefore, regional targets had to reflect the national target and changes in house prices and migration flows in one region, for example, had to be consistent with changes in other regions. The central indicator of affordability in the project was *the ratio of lower quartile house prices to incomes*. The modelling project was designed to quantify, at a regional scale, the relationship between affordability and construction.

The model was published in *Affordability Targets: Implications for Housing Supply in 2005*²⁴. That was the early stage of the model development and the results used in this publication are from a recent version of the model, where the basic structure remains the same with additional improvements. This model, as it is true for any other model, is continuously tested and validated.

Model Structure

An Overview

The Affordability Model is an econometric model developed to target affordability based on market demand for housing. While there can be different definitions of affordability, in this model, the central indicator of affordability is *the ratio of lower quartile house prices to lower quartile incomes*. This is a commonly used measure for affordability. The Barker Review of Housing also suggested that lower quartile house prices to lower quartile earnings could be used as a measure of market housing affordability.

The model consists of three interrelated modules:

- a demographic module
- a housing module
- a labour market module

The modules are constructed for all of the English Government Office Regions, including London. The regions are all linked, primarily through migration flows and through relative house price movements. But, in addition, the model takes into account spatial contiguity. Therefore, for example, earnings in any region are related to earnings in contiguous regions. Commuting flows, for example, would be expected to produce earnings contiguity even in the absence of migration. In the context of the house price equations, the well-known ripple effect provides another example of spatial relationships between areas that can be captured by including contiguity terms into the equations.

An important aspect of the model is that it works through number of equations and elasticities. Elasticities (responsiveness) are an important feature of working of economic variables. Elasticities measure the responsiveness of one variable with respect to changes in another variable. For example, if the price elasticity of housing demand is -0.5 , this means that if house prices rise by 1 percent, demand falls by 0.5 percent. Note that these are percentage changes. The key elasticities in the model are:

- the elasticity of real house prices with respect to housing supply (both the stock and new supply)
- the price elasticity of demand for housing
- the elasticity of household formation with respect to real house prices
- the elasticities of earnings and employment with respect to real house prices
- the elasticities of gross inter-regional migration flows with respect to relative regional house prices

²⁴ The publication is available online at www.communities.gov.uk. Most of this appendix is based on the document and a recent paper by Geoffrey Meen and Mark Andrew, forthcoming in an academic journal.

Key elasticities in the model are presented in table [1].

Table [1] Key Elasticities

Elasticities	Simple version of the Model (Stock)	Complex version (Stock & Flow)
The elasticity of real house prices with respect to housing supply	The long-run elasticity of house prices with respect to the housing stock is estimated as minus two. (If housing stock increases by one percent, house prices will fall by about two percent.)	
The price elasticity of demand for housing	-0.34	-0.5
The elasticity of household formation with respect to real house prices;	The price elasticity of new household formation is in the range -0.1 to -0.15 (in London the elasticity is -0.2)	
The elasticities of earnings and employment with respect to real house prices	0.87 (income elasticity of demand for housing)	1.0 (income elasticity demand for housing)
<ul style="list-style-type: none"> • One percent rise in working age population relative to the housing stock has a short run effect of the order of 1.5 to 2 percent on the region's house price index. • The elasticity of house prices with respect to real incomes is approximately 2.0 (= income elasticity/price elasticity = 1.0/0.5). In other words, a 1 percent increase in real incomes would be expected to raise house prices by 2 percent, holding other influences constant. 		
The elasticities of gross inter-regional migration flows with respect to relative regional house prices.	-0.003	-0.003 to -0.021
Interest rate	If interest rates rise by one percentage point, house prices will fall by around three percent	

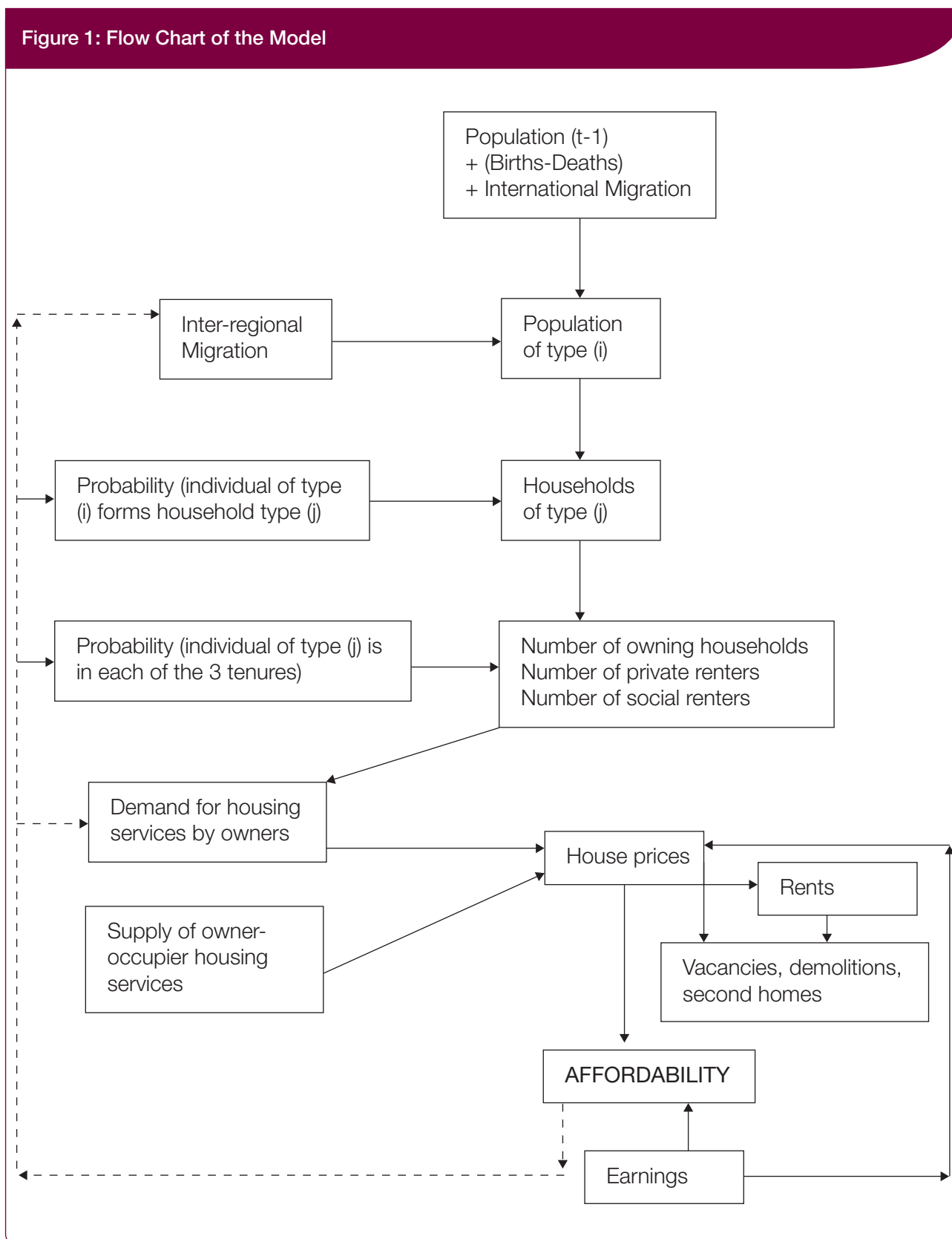
The model captures the relationship between housing supply and affordability through the interplay of demographic trends, incomes, the labour market and the housing market. The results from the model are housing decisions determined entirely by market process.

A simplified flow chart of the model is presented in Figure 1. In the figure, the econometric relationships in the model are given on the left-hand side. Remaining parts of the figure define the central aggregate outcomes. These are the total number of

households, the allocation of total households across the tenures, house prices, rents and affordability, and vacancies/demolitions/second homes. The arrows indicate the directions of the actions and for some cases there can be two-way affect. Affordability trends are also important; all the variables in the model are affected if the future trend in affordability changes relative to the past. Also note that the population at the end of the previous year (t-1), births, deaths, international migration and average earnings are determined outside the structure of the model²⁵.

²⁵ Births, deaths and international migration may all be affected by housing affordability, but the likely elasticities are assumed to be fairly low and the central ideas can be illustrated without the addition of these variables.

Figure 1: Flow Chart of the Model



Key equation and influences that determining the model's properties are presented in table [2] below.

Table [2]. The Key Equations: Summary of the Main Influences

Key Equations	Influences
Demand for Housing Services (or house prices)	Number of households, the stock of dwellings, real earnings, interest rates.
Probability of Household Formation	Marital status, age, gender, children, real housing costs, real incomes, previous household status.
Tenure	Tenure costs, real incomes, credit conditions, previous tenure, marital status, age, children, gender.
Inter-regional Migration	Relative house prices, housing availability, relative earnings, unemployment.

Key exogenous variables in the model are presented in table [3] below. Population data is used to project household formations. These households are the outcome of a market based housing system; this is in contrast with the ONS housing projection that considers past trends without any economic factors. Mortgage interest rate in the model works through user cost of housing. Labour demand is also assumed to be exogenous and works with labour supply from the model to determine earnings.

Table [3]. The Key Exogenous Variables and data sources

Key Variables	Influences	Data sources
Population	Household Formation in the Model	ONS
Mortgage Interest rates	User cost of housing and Income	Financial Statistics – ONS
Labour Demand	Earnings	ONS

The Demographic Module

Considerable effort has been devoted to the modelling of the demographic module and particularly household formation at an individual level. The model takes the following steps:

- Population at age (r) in year (t) is determined (by identity) as population of age ($r-1$) in year ($t-1$) plus net interregional migration plus net international migration minus deaths (plus births for age group 0). Since birth and death rates and international migration are exogenous. Inter-regional depends on relative housing and labour market conditions. Therefore, as housing construction is varied, the migration flows also change, generating different population projections from official publications.
- The population identities also require the migration flows to be distributed by age. For both the endogenous inter-regional flows and the exogenous international flows estimates are, first, made in terms of totals and, then, a fixed weight age distribution is applied to each of the gross flows. The younger age groups have the largest weights since they are the most mobile.
- The important step is to move from population estimates to the number of households. This requires estimates of headship rates. The household formation model uses BHPS data. The probability that any individual will form a separate household depends on; income, housing costs (but not the availability of new housing), marital status, age, gender and number of children.
- This disaggregation means that the model distinguishes 256 household types – far more than could be identified from aggregate time-series data on headship rates. But this degree of disaggregation helps the reconciliation with traditional household projections. In fact, the demographic factors are quantitatively more important than the economic factors (incomes and housing costs). This accords with most of the literature, which suggests that the income and price elasticities of household formation

are low. The estimates for the model, obtained by aggregating over the household types, suggest that the price elasticity is in the range -0.1 to -0.15 .

- Given the population and headship rate break down, disaggregated household projections are obtained.

It should be noted that the household formation rates are not held constant over the projection period. The probabilities change with the underlying regional economic conditions – housing costs, incomes and unemployment. Typically the probabilities of household formation rise, although relatively slowly, over the medium term and level off over the longer term.

Inter-regional migration is endogenous in the model. In this case, two versions of gross inflows and outflows equations have been estimated. The literature generally suggests that both housing and labour market variables are important in determining flows but, although a simplification, housing market factors e.g. the desire for better housing or neighbourhood are more important in determining short-distance moves, whereas relative labour market opportunities are more important for longer-distance moves. But it should be remembered that the greatest proportion of moves are very short-distance. Most are within local authorities and travel-to-work areas. Therefore, contiguity effects are expected to be important. But, in general, the estimated model includes both housing and labour market effects, since both long and short distance moves are included in the data.

The Housing Module

The most important equation in this module (and the model as a whole) is the house price equation. Although the final affordability indicator is in terms of lower quartile house prices, the main econometric modelling is conducted in terms of mean mix-adjusted house prices. Long time-series of quality-adjusted median and lower quartile prices are not available. An important assumption of the model is that the relationship between mean, median and lower quartile house prices remains constant over the future.

In the UK, large numbers of empirical studies of national house prices have been published. It has been argued that at the theoretical level, there has been little distinction between the specification of national and regional house price models. Regional price models have been a simple extension of national models with an allowance for spatial spill-over. Explaining the ripple effect has been a topic of particular interest in the literature. Typically, regional house price equations in each region have been related to prices in either the South East or London – a form of spatial contiguity. However, regional price models suffer from data inadequacies compared with their national counterparts. For example, national models may include wealth indicators, which are not available at the regional level.

Two versions of the price equations have been estimated, but, in both cases, the key principle is that house prices clear the market, although market clearing does not necessarily occur in all periods. Given supply (from both the stock and new supply), if the price and income elasticities of housing demand are known, the required change in prices to clear the market can be calculated. The central issues, therefore, are the long-run house price and income elasticities and there is considerable evidence on these parameters in the literature.

Each set of equations models the log change in real house prices in each region (approximately equal to the percentage change in real prices). The long-run solution to the more complex equations (used in the stock and flow version of the model) implies that real prices depend on:

- Real non-property income. All regions are influenced not only by own region income, but also incomes in Britain as a whole.
- The stock of dwellings relative to the number of households. In this specification owner-occupied or private rented dwellings have a larger effect on prices than social housing. Also, the housing stock in Britain as a whole influences prices as well as the region specific stock. The long-run elasticity of house prices with respect to income is estimated to be two and with respect to the

housing stock, is estimated as minus two. The fact that the former is not one sometimes causes surprise since this would imply a constant long-run price to income ratio. In fact, this is not a requirement as a systems property. This long-run elasticity is common to all regions.

- Each regional equation contains a region specific intercept and time trend. In all regions, these trends have positive coefficients of the order of one percent per annum in the long run. This may reflect trends in quality, for example, through conversions and improvements.
- Other level effects in the long-run solution include the log tax adjusted nominal mortgage rate, an index of credit conditions, which measures credit supply to UK households, which has greatly expanded since 1980; and the interaction of this index with the real mortgage rate. The combination of a log level nominal effect and the credit weighted real interest rate effect is consistent with findings for mortgage demand in literature. The log nominal effect means that a reduction of rates from 5 percent to 4 percent has a stronger effect on house prices than a reduction from 10 percent to 9 percent. The short run nominal interest rate effects are stronger in London and the South East.
- Another important level effect is the log price of house prices in London relative to GB, which is allowed to vary by region. This has a positive effect in the regions adjoining Greater London, capturing some of the role of London as a driver of UK house prices.
- As an indicator of downside risk in the housing market, the average value over the previous 4 years of the negative return in the region's housing market is incorporated. If the return is positive, the variable is set to zero.
- In the dynamics, the persistence of the previous year's house price growth rate is measured through a coefficient common to all regions. However, the relative weight attached to the own region and other regions growth varies by region.

- As highlighted earlier, an important hypothesis concerns the question of stock and flow equilibrium effects on house price determination. To recap, if the flow of new housing affects prices directly, then an increase in new housing is likely to have a strong effect on house prices. But if the effect is only indirect through the housing stock, then the effects are expected to be more modest. The model tests both stock and flow effects; the latter is approximated by the percentage change in the housing stock relative to population changes. The idea is that short-term increases in the housing stock (through new construction) relative to population lead to short-term local excess supply, with downward pressure on local prices. Conceivably, this could also reflect an expectations effect in that market participants may believe that a higher rate of house building relative to population growth could have an impact on future house price changes. There is a significant effect, suggesting that a 1 percent rise in working age population relative to the housing stock has a short run effect of the order of 1.5 to 2 percent on the region's house price index. In summary, both stock and flow effects are found to be significant.
- It was also investigated whether the growth in the regional proportion of households in the main ages for first time buyers (20 to 39) had any effect. The estimated effect of this variable is statistically significant and positive.
- Income dynamics are also important. Both current and the previous year's income growth rates are significant.
- It is often thought that the stock market or financial wealth more generally, has an effect on the housing market. The rate of growth of the FTSE index in real terms has significant positive effects, especially in London and the South East. It is sometimes suggested that relative returns or relative risks in housing and shares influence the allocation of investment between the two sectors. A simple measure of downside risk for the stock market is included. Again this takes a zero value when the index is rising. This effect is important in London and the South East, where share ownership and active portfolio investors are most likely to be concentrated, but irrelevant outside these regions.

A key property of this equation is that, for all regions, the implied long-run price elasticity of housing demand is -0.5 , whereas the income elasticity is 1.0 . These values can be calculated from the estimated long-run elasticities of house prices with respect to income and the housing stock.

The second version of the model contains a heavily restricted set of regressors. The key variables are:

- Regional real per household consumers' expenditure. This is a proxy for permanent income. Although there is evidence, at least at the national level, that house prices affect consumers' expenditure, in simulation, we allow per capita consumption to fluctuate only with changes in average earnings, in effect keeping the marginal propensity to consume constant.
- The housing stock, but there is no term from new housing supply.
- The number of households.
- The nominal mortgage interest rate.
- Contiguity effects from prices in other regions. The key driver is prices in the South East, which appear in all regions outside the South.
- In estimation, the nine English regions are divided into three meta-regions – the South, Midlands and North. The estimated coefficients within the meta regions are common but not across the meta regions.

As long as they are not biased, these sets of coefficients are sufficient to answer the affordability question. Furthermore, the equations are set up to ensure market clearing in the long run. As a check, the model includes an explicit measure of excess demand or supply in each time period, since market clearing does not occur in all time periods. As noted above, the more complex price equations include price (-0.5) and income (1.0) elasticities of housing demand that are common to each region. The alternative versions have somewhat lower price and income elasticities of housing demand, i.e. -0.34 and 0.87 . But these are still well within the range suggested in the literature.

The Labour Market Module

The central equations in this module are for full-time average earnings, total employment and unemployment in each region. These are based on the work in literature. In each case, the equations are expressed in terms of deviations from the GB averages with the national averages imposed from outside the model.

Average earnings are related to:

- Expected house price changes.
- The level of relative house prices.
- The growth of employment in own and contiguous regions.
- The mortgage interest rate (real and nominal).
- The growth in stock market prices.
- The proportions of working age population in different age bands.
- The proportion of employment in the financial services sector. High percentages raise earnings, but the effect is interacted with a house price term. A boom enhances the effect.
- The proportion of employment in the government sector.

The dependent variable in the employment equation is the number of employees divided by the working age population i.e. the employment share. This is related to:

- Employment in contiguous regions.
- Relative expected house price appreciation.
- The level of relative house prices, interacted with the owner-occupation rate.
- Earnings in own and contiguous regions.
- The proportion of employment in the production sector, interacted with the mortgage rate. Separate terms also interact production with the real exchange rate.

- The growth in the stock market index.
- The age distribution, proxying demographic effects on the working population.
- The proportion of employment in the financial services sector, again interacted with the house price term.
- The proportion of employment in the government sector.

Unemployment is related to:

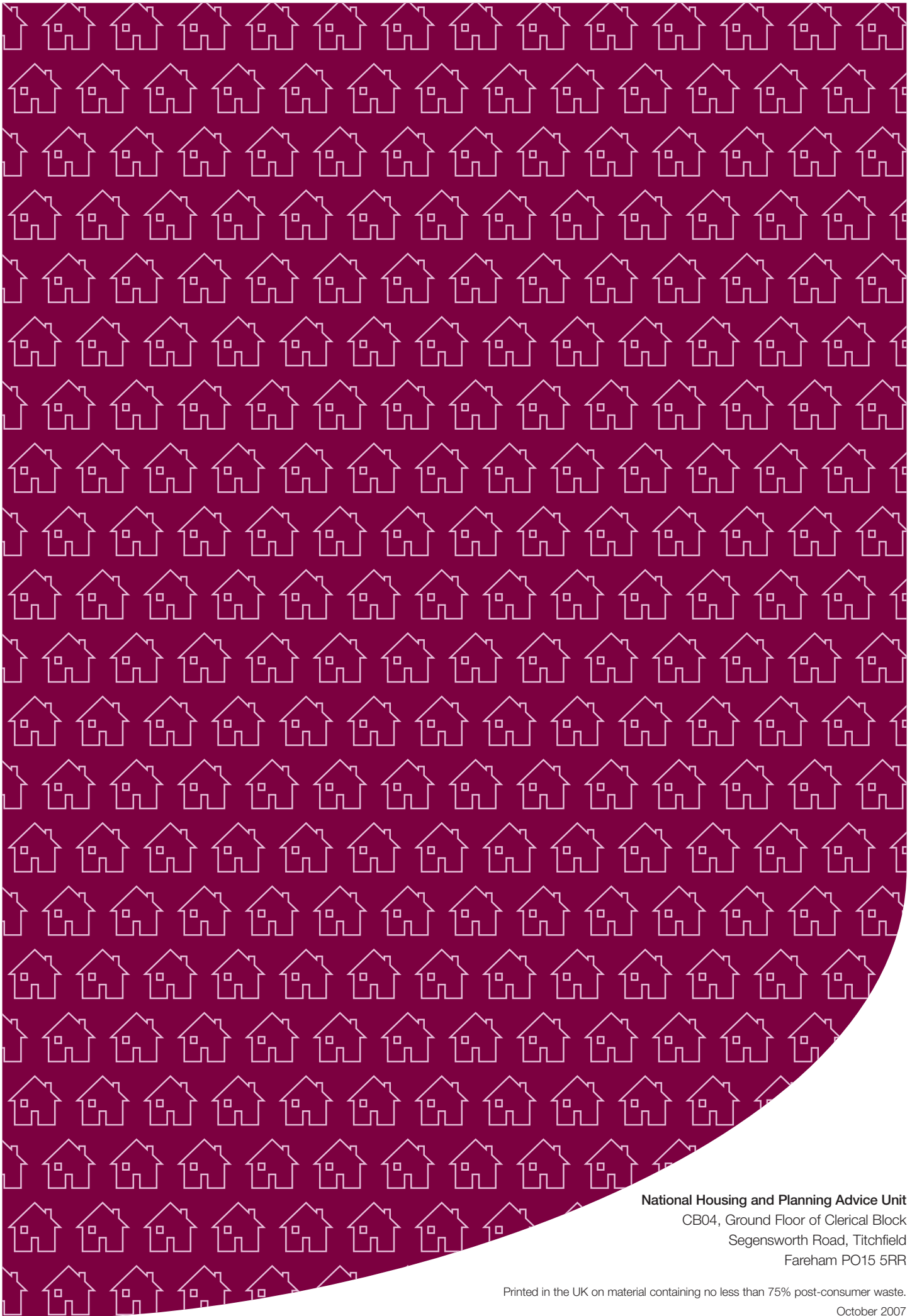
- Real relative wages. The effect is positive.
- The real exchange rate, scaled by the proportion of employment in the production sector (positive).
- Real house price appreciation scaled by the proportion of employment in the financial services sector (negative).
- Expected relative appreciation of house prices (negative).

Therefore, the three equations are determined by very similar variables and can be considered as a reduced form labour market model. The model is clearly complex, but, in practice, most of the non-housing market variables are extrapolated according to simple trends over the future and have little if any effect on the model properties. But this does imply that if the trends changed – for example, if industrial structure began to favour the North – then housing demand would also change geographically.

In terms of the housing market influences, expectations of capital gains clearly play a central role. In the wage equation, higher expected capital gains reduce wage claims. This can be considered as a form of user cost effect. This improves the ability of firms to hire workers more cheaply. However, the level of relative house prices has a positive effect on earnings since higher house prices reduce the real wage. In the employment equation expected capital gains increase employment (although the coefficient is insignificantly different from zero), whereas the level of relative house prices reduces employment. This suggests that higher land and housing costs in any area limit the location of firms and jobs in that region.

Key Points

- The model uses data from number of sources which are considered to be appropriate and good source of data for that purpose. For example, the probabilities of household formation and tenure choice are estimated on individual data from the British Household Panel Survey.
- Data in the model are updated as new data become available. For this publication, data on international migration, inter-regional migration and population has been updated up to 2006. In addition, international migration data for 2007 onwards has been replaced with estimated adjusted data based on revised mid year population estimates.
- Demographics determine household formation, but economics determines the tenure distribution. Using the distribution of population by age, gender, marital status, number of children and income, the expected total number of households of each type has been obtained (estimated using a probit model) using the probability that individuals with each of the above characteristics will form a separate household.
- The affordability ratio is calculated based on three modules discussed above and each of the modules itself has different equations and coefficients. The affordability ratio is the outcome, once we input housing numbers in the model, which work through these equations and associated coefficients that considers national and regional economic issues. The equations are estimated based on historical data of 20-30 years. Appropriate econometric techniques were used and a considerable attention has been paid to errors in data.
- Stabilisation of affordability requires the supply of housing services (rather than housing units) to rise faster than number of households. It is the net addition to the stock that is important, which include conversions and changes in property uses, and the reduction due to demolitions, as well as new construction.
- The demand for housing services or house price equation implies, as incomes rise, *existing households* demand a higher quantity of housing services than they currently hold. This might imply bigger houses in better neighbourhoods, for example. It may also involve a tenure change. The model accounts for this and considers higher income households to move to higher quality homes, while the homes they vacate become available to households in lower income groups.
- Some studies argue vacancies are low in England compared to other countries. Real house prices are high by international standards and intuitively, the cost of holding dwellings empty rather than selling or renting is high. A certain level of vacancies is necessary as part of the transactions process in the housing market and, therefore, a well-functioning housing market will always require a certain level of vacancies (for search).
- A large increase in new building does not necessarily mean a higher use of Greenfield sites or the break up of urban communities. The reason is that housing services rather than housing units are required to stabilise affordability. Moreover, net addition can be achieved through new construction, conversions and changes in use. Regeneration in urban areas can also be considered.



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