
**HOUSE PRICES AND EARNINGS
IN TYNE & WEAR 2004**

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PREFACE

House Prices, besides being a topic of popular fascination, have two very important economic effects. First, when rising they boost the wealth of (most) consumers. This encourages them to take on more debt and for consumer spending to be higher than it would otherwise be. Household debt is currently growing at about 14% pa.

Secondly, higher house prices are associated with higher business survival rates (especially small businesses). This effect works through houses providing greater collateral for loans for small businesses.

Both these effects have been evident in Tyne & Wear since the late 1990s.

House price booms have patterns in time and space. Specifically, they work out from London over a number of years. This report analyses this ‘tidal wave’ (§3.1).

At the present time, house prices are very high in relation to earnings (about six times), higher than at the previous peak in 1989. Moreover the burden of interest and repayments is about 10% of aggregate disposable household income, compared to about 15% around 1990. The latter level proved unsustainable for borrowers. Consumer spending actually fell in 1991 creating a major recession. A rise of a half in debt service costs (just two percentage points in today’s environment) could thus trigger a substantial downturn. Perhaps a fifth of new mortgages now are for buy-to-let. They have effectively displaced a substantial proportion of first-time buyers¹. The ‘bubble-theorists’ (such as Cambridge Econometrics, Capital Economics and now the IMF) rightly draw attention to these facts and the dangers ahead. The risks may have been exacerbated by widespread exaggeration by borrowers of their incomes so as to obtain mortgages in recent years².

The present situation is, however, different from 1989-91 in some respects. Interest rates are low and inflation is low. There may well be an element of ‘one-off adjustment’ to both these phenomena to a “new higher equilibrium” level of house prices. The Bank of England takes this line. Buyers can afford to pay more for houses in real terms, spreading the cost more evenly over the full-term of the mortgage.

One intriguing possibility is that we are seeing elements of both rational expectations, responding to low inflation and interest rates, combined with an element of adaptive expectations reacting to previous price rises. §3.2 considers the evidence for both these.

The margin for error for the Bank of England is quite narrow. Moreover the higher that house prices go, the more they can fall. The behaviour of buy-to-let investors may be crucial to future trends. Are they in for the long-term or for quick capital gains?

The future course for house prices is one of the likely key drivers of the growth rate of the local and national economy.

The Bank of England Monetary Policy Committee (MPC) is faced with the dilemma of whether it should raise interest rates significantly, in order to slow the runaway housing market, putting the rest of the economy at serious risk of stagnation. Current inflation rates are well below the Bank’s 2% target and seem likely to fall further, at least in the short-run. Further rate rises to tackle the problem could threaten long-run price stability; the very thing central bank independence was introduced to manage.

¹ Based on Council of Mortgage Lenders’ data.

² The BBC Money Programme (Oct. 2003 and Feb. 2004) reported this could extend to as much as 30% of the new mortgage market. The concerns focus on “self-certified” mortgages and now “fast-track” mortgages. The reporter was Michael Robinson.

KEY POINTS

- This report analyses House Price:Earnings (HPE) ratios since the 1980s. They are distinctly **cyclical**. This ‘wave’ pattern is an important indicator of a **potential bubble** in the housing market. Historically, Tyne & Wear HPE ratios **adjust 2 years after a fall in** the Greater **London** market. In contrast, in response to **rises**, the ‘adjustment lag’ appears to be **3 to 5 years**.
- **Falls** are much more drawn out; in the **North 10 years from peak to trough**, compared to only **7 years** in London.
- The **falls in HPE are very big**; from peak to trough **51% in London** and **32% in the North**.
- Since 2000, **HPE growth** has **accelerated in Tyne & Wear** whereas it has slowed in London.
- Structural characteristics identified from the data support the hypothesis of a bubble.
- **Earnings growth** in London and Tyne & Wear is slightly divergent, but is reasonably **linear**³ in structure.
- **Real earnings growth** is **positive** over the observed period – since inflation has fallen to a lower rate than earnings growth.
- **House price inflation** is clearly **non-linear**⁴ in **London**, but **more linear** in **Tyne & Wear**. This implies a greater likelihood of a bubble existing in London than in Tyne & Wear.
- A **bubble relies fundamentally** upon the buyers’ type of **expectation formation**⁵ of the real interest rate being **‘adaptive’**⁶. Adaptive expectations (AE) may help to explain the boom since 2000, but are insufficient to explain the 1980s boom.
- **Rational**⁷ expectations (RE) help to highlight, from the **mid-1990s**, a **structural change** in UK monetary policy and in the economy. A **smaller bubble**, particularly in London, is not ruled out by this perspective.
- **Cycles in real interest rates** have **shortened** by nearly **half, to 3 year ‘mini-cycles’** from the mid-1990s. They were 5-6 year cycles in the 1980s and early 1990s.
- For the **lowest earners**, HPEs in **Tyne & Wear have risen more quickly** than the **national average** (based on short-run data). Results for the North East are more likely to reflect low demand than better provision of affordable housing on the supply-side.

3 *Linear refers to the gradient or slope of the line depicting the variable in question. If a variable is termed ‘linear’ it implies that the gradient is constant, that is, the line is straight and not curved.*

4 *Non-linear is the opposite of linear. It refers to a variable which exhibits a distinct curve or erratic pattern with non-constant gradient.*

5 *Expectation formation is a statistical term to describe an individual’s perceived outcome of an event. It projects what the outcome of an event is expected to be, given the probability of each possible outcome occurring. In terms of this study, the expectation formation refers to what an individual perceives the real interest rate for the forthcoming period to be. A full account of the expectation formation hypotheses is given in Chapter 3.1*

6 *An adaptively formed expectation basically means that the perceived outcome is based solely upon what has happened in the past and does not take account of any information available about the current period. Essentially, the expectation is backward-looking and adjusts slowly to actual changes in the variable. A more detailed description and definition of the theory is given in Chapter 3.*

7 *A rationally formed expectation is much more accurate in predicting the actual outcome of an event as it assumes that all available information is used in forming the expectation. Not only does a rational expectation take account of the generating structure of the variable, but it makes no systematic error on average from the actual outcome. Therefore, the only deviations from a rational expectation and the actual outcome are unexpected random deviations. Again, full coverage of the hypothesis is given in Chapter 3.*

1.0 INTRODUCTION

The aim of this report into House Prices and Earnings in Tyne & Wear is to extend and combine the previous reports on House Prices (June 2002) and Earnings (2001/02). Specifically, we hope to achieve a clear portrayal of the links between House Prices and Earnings (HPE) in the region, also bringing into examination questions of affordability⁸.

Work carried out by Centre for Urban and Regional Studies on '*North East England: Changing Housing Markets and Urban Regeneration*' (2002) (CURS Report) developed the concept of affordability ratios. Whereas the CURS report was an attempt to look at the issue of 'low demand' in particular districts of the North East, this report is concerned with the key patterns in the housing market both nationally and regionally, paying particular attention to Tyne & Wear.

The analysis will be split into 3 distinct parts in the Results, Chapter 3:

Section 3.1 – The 'Tidal Wave' from Greater London to Tyne & Wear

- Data/Source: Tyne & Wear & Greater London (1988-2002) – Halifax Plc Semi-Detached House Prices
- Objective: To identify if the data displays a cyclical pattern and the degree of any adjustment lag between the markets.

Section 3.2 – Long-Run HPE and Affordability: A 'Bursting Bubble' or 'New Higher Equilibrium'?

- Data/Source: North, Greater London & England (1983-2003) – Halifax Plc All Properties House Prices
- Objective: To assess whether there is any evidence for the existence of a housing market "bubble". Alternatively, are there other, underlying structural reasons for the patterns in the data?

Section 3.3 – Affordability and Low Earners: Recent Trends

- Data/Source: Tyne & Wear, North East & England (1995-2003) – HM Land Registry All Properties House Prices
- Objective: To address the issue of affordable housing, giving particular emphasis to the lowest earners.

In addition to each of the house prices data sources, data on earnings is taken from the New Earnings Survey published by the Office for National Statistics as at April each year.

In each section, results of the analyses will be illustrated in chart/table format and the key points highlighted in the text supporting it. The results provide the user with a detailed breakdown of the key patterns in the national, regional and Tyne & Wear housing markets.

⁸ The terms 'affordability ratio' and 'HPE ratio' essentially mean the same thing. However, in certain contexts it is more appropriate to talk about affordability than HPE. Hence, certain sections of this report may use 'affordability' when referring to an individual's ability to purchase property, but the underlying variable is the same as HPE.

2.0 DATA SOURCES

The following chapter identifies the differing datasets and variables and their methods of construction for the three results sections in Chapter 3.

Section 3.1 – The ‘Tidal Wave’ from Greater London to Tyne & Wear

- Average House Price – Halifax Plc County Supplement (Semi-Detached Properties)

The choice of this dataset was somewhat imposed by the lack of better alternatives. The Halifax County Supplement was the only dataset which provided quarterly house price data to county level over a sufficiently long time-period.

This data provided only Q1 & Q3 figures for 1988-1991 and so Q2 & Q4 figures were estimated using a mid-point average of the preceding and following values.

- Average Gross Weekly Earnings (AGWE) – Constructed from NES & ABI data

This dataset was constructed by weighting the Male & Female Full-time AGWE from New Earnings Survey (NES) using MFT and FFT⁹ figures obtained from Annual Business Inquiry (ABI) (and its predecessors¹⁰) to estimate a figure for ALL Full-time Employees AGWE.

Note: Earnings data (taken from NES in April each year) are from workplaces in the county, not resident-based. Net in-commuting into Greater London is proportionately much larger than into Tyne & Wear [about 7% in 1991] and hence the data for London is more likely to contain bias due to this anomaly.

- Nominal & Real Interest Rates

Nominal: Retail Bank Base Rate

Real: Constructed from CPI inflation (IMF definition) and Nominal rate data

The quarterly nominal interest rate data were estimated using the Bank of England series for the Retail Bank Base Rate changes. The data was separated into quarterly sections and the average prevailing rate for the quarter obtained.

The real interest rate data was constructed utilising the nominal data and subtracting from it the *past* 4 quarters (annual average) inflation rate of the Consumer Price Index (CPI)¹¹

An alternative real interest rate was constructed in a similar manner using the forward 4-quarters inflation data. Whereas the first method is comparable to an ‘Adaptive’ expectations formation model (backward-looking), this method can be thought of as a perfect ‘Rational’ expectations formation model. The use of actual (or realized) forward data means that ‘expectations’ are a perfect prediction, with no systematic¹² error, of the rate of inflation.

- Average Annual Growth Rates – Constructed for 3 sub-periods between 1988 Q2 to 2002 Q2

This data was obtained utilizing the following formula

$$r = \left(\sqrt[n]{\frac{a_{ENDYEARQ2}}{a_{STARTYEARQ2}}} \right) - 1$$

Where $n = \{3, 6, 5\}$ for each of the respective sub-periods
 a = value of variable at start/end period

⁹ ‘MFT’ denotes ‘Male Full-time’, whilst ‘FFT’ denotes ‘Female Full-time’

¹⁰ Prior to ABI, the survey was the ‘Annual Employment Survey’ and prior to this it was the ‘Census of Employment’

¹¹ Data was from IMF International Financial Statistics Online [Note: This is not the Chancellor’s CPI, formerly HICP, but the IMF definition]

¹² Systematic error refers to a predictable error. If information about the expectation is correct then it will not deviate from the realised figure on average over time.

This formula gives annual growth rates that must constantly be applied to the variable each year in order to arrive at the end value.

Section 3.2 – Long-Run HPE and Affordability: A ‘Bursting Bubble’ or ‘New Equilibrium’?

- Average House Price – Halifax Historical Dataset *Online* for ALL dwellings.

As with Part 1, the choice of dataset over this extended 1983-2003 period was enforced rather than decided. In order to keep consistency with mix-adjustment¹³ methodology of house prices, the Halifax data was preferred to the alternative Nationwide Plc dataset as it is known that the two sources tend to give divergent estimates.

- Average Gross Weekly Earnings – same construction methods as 3.1.

With the splitting of the Northern Region into North East & Cumbria, the figures were constructed by combining data for North East & Cumbria and weighting them as before. The data was for male full-timers and female full-timers for NE & Cumbria obtained from Census of Employment, AES and ABI directly supplied by ONS Labour Market Division.

Missing observations within the data were estimated using mid-point averages if just 1 observation was missing, but the TREND¹⁴ function was used for periods where a forecast, backcast or several periods were missing.

- Other data used is constructed in the same way as in 3.1

Section 3.3 – Affordability and Low Earners: Recent Trends

- Average House Price – obtained from HM Land Registry (HMLR) for the four property type categories (detached, semi-detached, terraced, flat/maisonette) and total.

The period of this section is much more current and so more data sources were available for use in the report. Land Registry data, although not mix-adjusted, represented the most comprehensive dataset in terms of number of transactions. All housing transactions are recorded with HMLR, thus giving a much larger sample than the relatively small sample available through the mortgage lenders. HMLR data also records information to postcode level. If future reports use this, a much more localised approach could be made.

Where data for a particular county/area was given at a disaggregated level, the following formula was applied to obtain the average.

$$Av.HP = \frac{\sum_{i=1}^n \mu_i \cdot a_i}{\sum_{i=1}^n a_i}$$

where i = the sub-region (i.e. T&W, Northumberland, Co. Durham, or Tees Valley)
 μ = category (e.g. Detached) average price for area i
 a = number of sales for area i in category μ

- Bottom Decile AGWE – upper class limit of the NES data category (10% earner less than)
 % Change in HPE Bottom Decile Earners – Simply constructed from the % change from 1995 Q2 to 2003 Q2. This indicates how Tyne & Wear, although rising greater than rest of NE on average, is still well below the affordability problems of England.
- Other data constructed by same methods as in previous sections.

¹³ Mix-adjustment refers to the use of a weighting parameter for the relative importance of property types (and other less tangible characteristics) across each region, yet is time-invariant

¹⁴ Refers to the MS-Excel function used to estimate data along a linear trend

3.0 RESULTS OF HPE STUDY

3.1 Identifying the Tidal Wave

Tyne & Wear Vs Greater London (1988 – 2002)

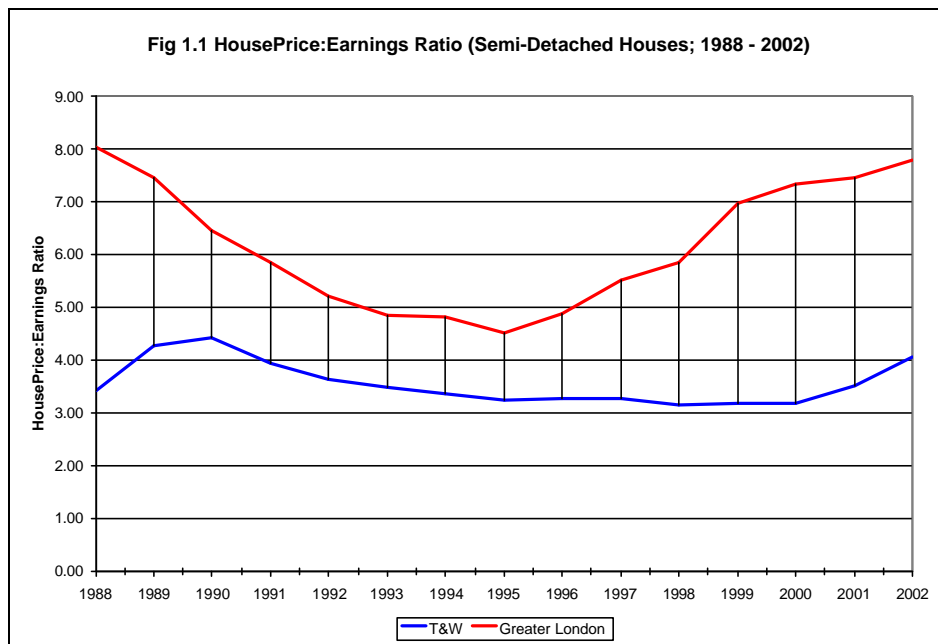


Fig 1.1 illustrates the long-run pattern of HPE of Tyne & Wear and Greater London. Although we cannot identify the exact peak in the London data, it would appear that the T&W series exhibits a 2 period (two-year) delay in responding to an HPE fall in Greater London. However, in response to rises in HPE, the lag could be anything from 3 to 5 years. The change in growth pattern for T&W is not clear enough to say for certain whether the response to the 1995 change in trend in London occurs in 1998 or as late as 2000.

The changes in HPE over the sub-periods¹⁵ show that Tyne & Wear is slightly less volatile in percentage terms. House price inflation, relative to earnings appears to be slowing in London. HPE growth was 32.7% (5.8% pa) over the period 1995-2000, whilst over the period 2000-2002 it was just 6.8% (3.3% pa). Over the same periods, Tyne & Wear recorded a minor fall of 3% (0.6% pa) and increase of 28.1% (13.2% pa) respectively.

In the periods in which HPE was falling in London, it fell 27.3% (8.4% pa) from 1988-1991 and a further 23% (5.3% pa) fall from 1991-1995. By contrast, Tyne & Wear recorded a 14.4% (4.6% pa) rise and subsequent 18% (5.7% pa) fall respectively.

The key finding of this section is that the pattern of the HPE series seems to exhibit the orthodox pattern of a market that contains a “bubble” element. However, the “bubble” is definitely much larger in Greater London than in T&W. Further consideration needs to be given before we can assert that a bubble exists and any future implications for the “HPE Gap”.

The ‘HPE Gap’ refers to the vertical difference between the two regions’ HPE curves. It is clear from the data that affordability in Greater London is a much larger problem than in T&W. Net commuting in-flows is one explanation, these are proportionately much larger in London (approx. 15%) than in Tyne & Wear (about 7% in 1991). International migration may also be a key factor in the London market.

¹⁵ Sub-periods refer to the periods 1988Q2 – 1991Q2; 1991Q2 – 1995Q2 and 1995Q2 – 2002Q2. The designation of these sub-periods was done on a subjective basis, based upon 3 identifiable periods in which the two areas were largely on a similar part of the market cycle (boom, downturn, recovery)

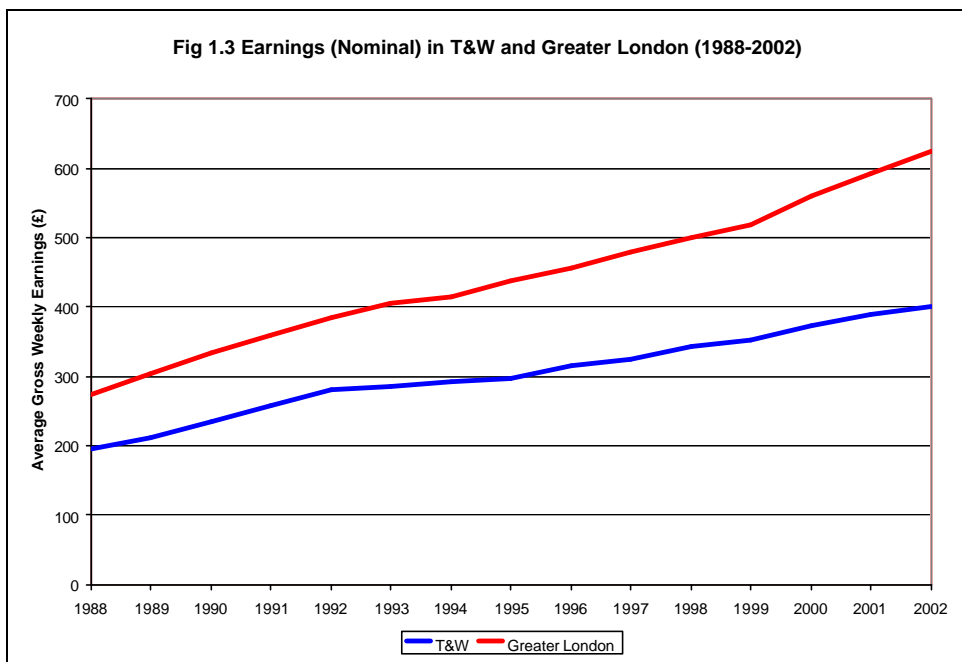
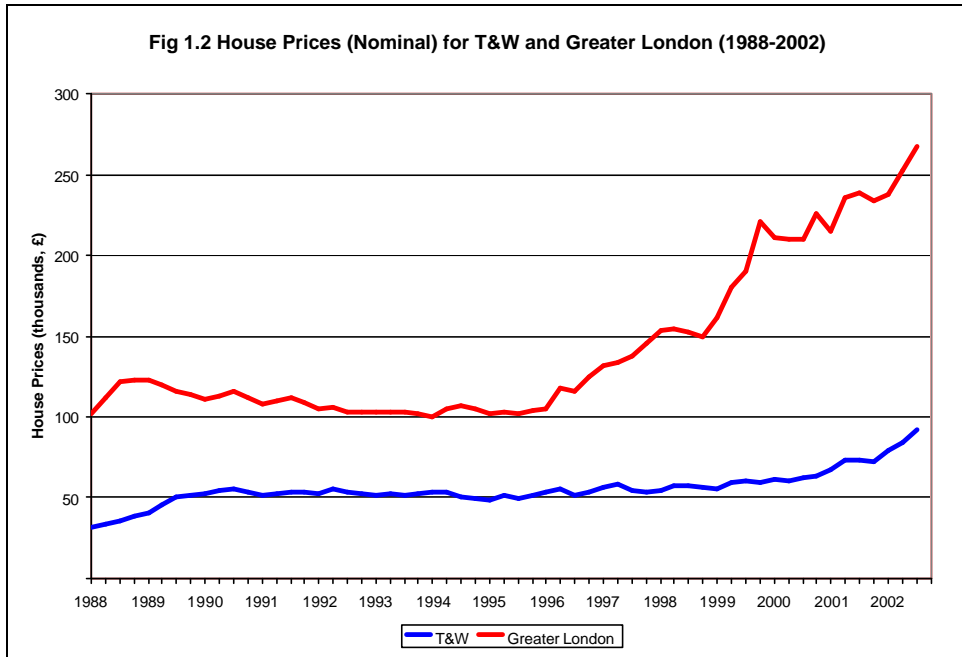


Figure 1.2 shows the contrast in house price levels in Tyne & Wear and Greater London.

Figure 1.3 shows very similar earnings growth rates in Tyne & Wear and Greater London

- Annual earnings growth is fairly similar at approximately 5.3% pa and 6% pa for T&W and Greater London respectively
- Inflation has been falling¹⁶
- Thus, **real earnings have been rising.**

The implications of this are considered in section 3.2 of the analysis.

It is clear that nominal house price inflation (Fig 1.2) from the mid-1990s has been far greater in the London market than in T&W.

- The differential in average house prices has risen by over £100,000.
- In absolute terms, average London prices have risen £166,452 whilst T&W prices have risen £60,094.
- Over the overall period, however, T&W house prices have actually grown at a greater annual rate, in percentage terms, than those in London; at 6.7% pa and 6% pa respectively.

However, we must take into account the fact that the Tyne & Wear market started from a much lower base than London and also that the ‘lag-adjustment’ factor in T&W means the two areas are at different phases of their respective cycles.

Table 1.1 Average Annual Growth Rates House Prices, Earnings and HPE (%), (3 sub-periods)

	T&W	Greater London	T&W	Greater London	T&W	Greater London
	1988-1991		1991-1995		1995-2002	
House Prices	16.0	-0.5	-0.8	-1.7	7.4	13.7
Earnings	9.8	9.7	3.6	5.0	4.4	5.2
HPE	4.6	-10.1	-4.7	-6.3	3.3	8.1

Source: Halifax Plc, New Earnings Survey [ONS (Crown Copyright)] and TWRI

Table 1.1 illustrates the relationship between price and earnings growth for the two geographic areas. The growth rates have been divided into 3 sub-periods to try take into account the cyclical nature of the data. The distinct lag in the T&W data, from the London cycle, also creates problems with identifying properly comparable periods for each area.

From the growth rates given in Table 1.1 we can deduce with greater certainty that:

- In the period 1988-1991, the London market experienced a market downturn/‘bust’, as HPE fell on average 10% pa. By contrast, Tyne & Wear was experiencing a boom in the market, when HPE rose by 4.6% pa on average.
- During the 1991-1995 period, London clearly experienced a continuation of the housing market recession, whilst Tyne & Wear’s housing market turned from boom to its own ‘bust’. HPE fell by about 5% and 6% pa in Tyne & Wear and London respectively. This fall was largely fuelled by falls in nominal house prices of approximately 1% and 2% pa for Tyne & Wear and London, which was combined with lower earnings growth per annum than in the previous period.

¹⁶ A copy of the CPI data series (IMF International Financial Statistics) can be found in the Appendix to this report

- From 1995-2002, the market in both areas exhibits a distinct 'recovery'. Rapid growth in nominal house prices, of about 14% pa in London, with only modest increases in the rate of earnings growth from the previous period pushed HPE up by an average of 8% pa. The gains in Tyne & Wear were less pronounced, with house prices growing by about 7% pa and HPE growth at approximately 3% pa.

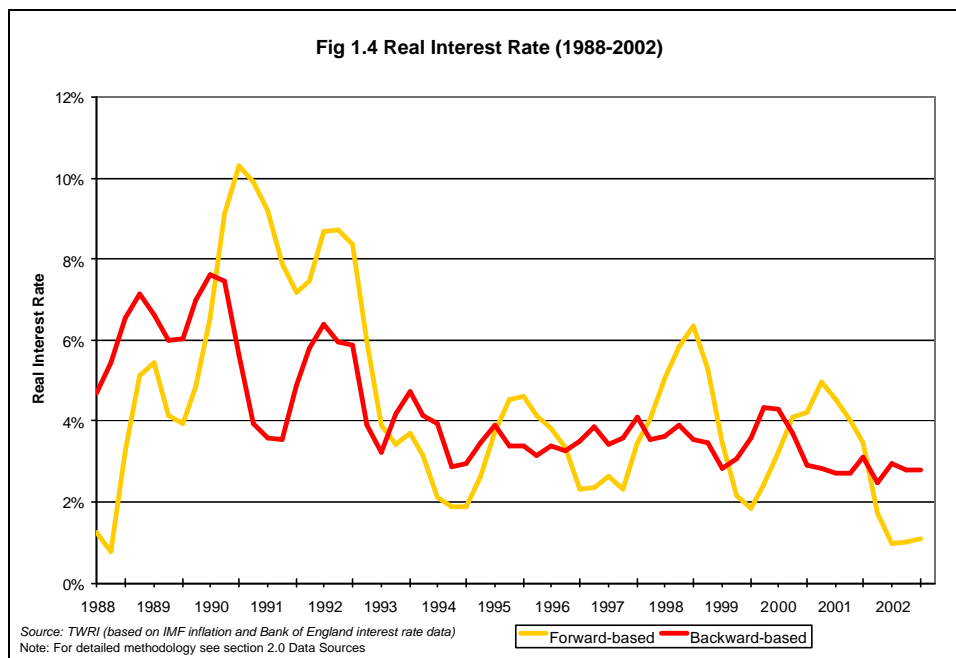


Fig. 1.4 depicts the *real* interest rate to illustrate and understand the cost of borrowing in real terms. Unlike nominal rates, the real rate of interest takes price inflation into account.

The two series depicted in Fig 1.4 are representations of the same data, yet constructed by two different treatments of the inflation data (forward-based and backward-based). The precise way people form expectations of inflation is central to the question of whether the housing market contains a bubble, or is simply an adjustment to structural change (to a 'new long-run equilibrium').

The principal difference in methodology is the direction in which individuals look in time when forming their expectations. In economics, there are two schools of thought on expectation formation, 'adaptive' or 'rational'.

On the one hand, the 'Adaptive Expectations Hypothesis' (AEH) asserts that people base their expectations of what will happen in the future based solely on what has happened in the past (for example, as in the backward-based series in Fig 1.4). If inflation has been high in the past (most starkly in 1991), people would expect it to be high in the future. 'Adaptive' individuals would predict inflation by looking only at inflation last year and in previous years.

The second school of thought comes from the 'Rational Expectations Hypothesis' (REH)¹⁷. Under rational expectations, it is assumed that actual outcomes do not differ systematically or predictably from what was expected. That is, it assumes, unlike the AEH, that people do not make 'systematic errors' when predicting the future. In the 'forward-based' series in Fig. 1.4, this is done by assuming

¹⁷ Rational expectations theories were developed in response to perceived flaws in theories based on adaptive expectations. The hypothesis of rational expectations addresses this criticism by assuming that individuals take all available information into account in forming expectations. Though expectations may turn out incorrect, the deviations will not deviate systematically from the expected values.

that the expected value of inflation is calculated by using the realised (actual) forward 4-quarters inflation data. Thus, no systematic, or even random, error is made.

The choice of which method is 'best' won't be made explicitly here, but each model will be used to help explain the arguments for and against the existence of a bubble. The 'best' model can then be implicitly inferred by its ability to explain housing market patterns, which will be considered now.

The latter periods of the 'backward-based' model can be identified as a period where borrowing has become relatively cheap, compared to the earlier periods. However, as this relates to a period in which both nominal rates and inflation are both low, the 'debt burden' of borrowing lasts much longer. So, although the 'cheap loans' theory might explain the most recent boom in house prices and thus high HPE ratios, the earlier 1980s housing boom is unlikely to be similarly explained. Real Interest rates were relatively high during this period and so borrowing was relatively expensive. Therefore, importantly, the existence of a housing bubble in the two periods is unlikely to have been caused by similar factors. However, the forward-based model of the real rate does exhibit some characteristics that could still explain the possible existence of a 'bubble'.

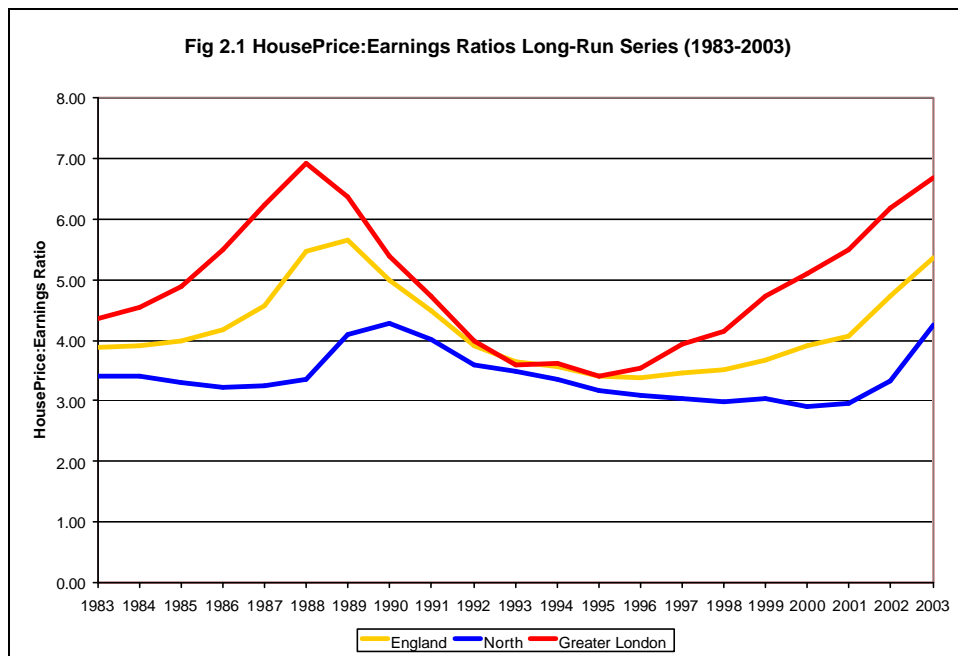
Chapter 3.2 will examine the influence of interest rates more closely, also considering alternative explanations to the bubble-theory. The forward-based 'REH'-type series for the real interest rate suggests a change in the 'structure of monetary policy'¹⁸ and thus could be an alternative hypothesis to explain the pattern of HPE ratios in recent times.

¹⁸ A 'structural change in monetary policy', in lay-man's terms, is a point at which the government's policy towards inflation, unemployment and interest rates changes. By giving the Bank of England independence (and control over monetary policy) in 1997, there was a distinct change in the 'structure of monetary policy'. Monetary policy was no longer a tool available to government to inflate/deflate the economy (an approach used in the early 1980s by the Thatcher administration to lower inflation, which had serious repercussions for unemployment).

3.2 Long-Run HPE and Affordability: A ‘Bursting Bubble’ or ‘New Higher Equilibrium’?

Northern Region, Greater London & England (1983 – 2003)

The use of a longer series, from 1983¹⁹, illustrates the cyclical pattern for each of the 3 areas. This cyclical peak/trough pattern is the prime evidence for the bubble-theorists.



The Greater London ‘wave’ has much greater amplitude, 3.53 in absolute terms, from peak to trough. In contrast, the North ‘wave’ only varies by 1.36 from peak to trough. In relative terms, HPE ratios fall 51% (6.1% pa) and 32% (2.8% pa) from peak to trough for Greater London and the North respectively.

A time-lag clearly emerges in the North data in response to changes in Greater London. Although not illustrated here, speculation is that data for any of the major UK regions (excl. Southeast) will exhibit a similar lag-adjustment period to changes in Greater London²⁰.

The patterns in the data cannot rule out the existence of a bubble in the housing market. To test for a bubble requires identifying the ‘fundamentals’ of the housing market, i.e. estimating what the *actual* price of housing should be based upon a price-determining model, which is beyond the scope of this study.

If we take this data in conjunction with Fig 1.4 and Fig 2.2, we can begin to try and capture some of the elements that are driving house prices, earnings and HPE ratios.

Certainly, Fig 2.1 seems to illustrate a “follow-the-leader” pattern and that appears to confirm the theory that the London housing market (along with the Southeast) is the major driver of regional house prices. However, the data also suggest that the regional response is much less evident in both absolute and relative terms.

¹⁹ At the expense of sacrificing regional disaggregation

²⁰ The series for England lies between that of the North and Greater London, which conforms to expectations, given that the series for England contains both the North and London data.

Table 2.1 Average Annual Growth Rates in House Prices, Earnings and HPE (%), (5 sub-periods)

	Eng	Nor	Lon	Eng	Nor	Lon	Eng	Nor	Lon	Eng	Nor	Lon	Eng	Nor	Lon
	1983-1988			1988-1992			1992-1995			1995-2000			2000-2003		
House Prices	14.67	6.19	19.63	1.56	12.2	-4.39	-1.71	-2.47	-1.15	7.45	2.52	13.25	16.46	17.57	14.74
Earnings	8.08	6.99	9.27	8.74	9.08	8.93	3.36	1.92	4.41	4.64	4.29	5.08	4.48	3.36	4.23
HPE	7.02	-0.35	9.67	-7.99	1.78	-12.89	-4.58	-4.07	-5.19	2.85	-1.73	8.44	11.13	13.36	9.41

Source: Halifax Plc, New Earnings Survey [ONS (Crown Copyright)] and TWRI

Note: Eng = England; Nor = North; Lon = Greater London

Table 2.1 illustrates explicitly the cyclical pattern in the data shown in Fig 2.1. From the table, it is possible to identify distinct boom, bust and recovery periods in each of the 3 markets.

- From 1983 to 1988, the **Greater London market was booming, but the North was stagnant**. House Prices were growing at a substantial rate of almost 20% pa, whilst the HPE ratio grew at almost 10% pa. The England market²¹ had slightly lower growth of about 15% and 7% respectively. In the North house prices grew at under at the rate of earnings growth (6% and 7% respectively) and the HPE ratio was falling at 0.35% pa.
- The period from 1988 to 1992 has a very different pattern: The **national and London markets have bust, but the North has a belated boom**. House prices in London fell by 4% on average, whilst national prices rose only slightly (1.5%). Earnings growth remained relatively strong (about 9%). As a result, the HPE ratio fell dramatically at 13% and 8% pa for London and England respectively. House prices grew at about 12% p.a, and while earnings growth was also strong at 9% pa, the HPE ratio rose by 2% pa.
- The early to mid-1990s (1992-1995) saw the **downturn spread throughout all three areas**. HPE ratios converged to within 0.2 of each other (3.2 – 3.4), the closest over the observed period the markets came to being equalised.
- The late 1990s period showed a **recovery in the Greater London (and national) market, but North house prices rose just 2.5% pa**. London house prices began to grow rapidly again at an average of 13% pa (England 7.5% pa), whilst earnings growth remained relatively low, compared to the early periods. The result was HPE ratio growth of over 8% pa (only 3% in England). The lag-adjustment of the North market was evident as the downturn continued. Earnings growth in the North was about on a par with the national average. HPE ratios continued to fall at 1.7% pa.
- The final period from 2000 to 2003 **house price rises were faster in the North (18% pa) than in London (15% pa)**. HPE ratios grew at 9% and 13% for the two areas respectively. However, it is worth emphasizing that growth in the Northern HPE ratio is not totally attributable to accelerated house price growth. Earnings growth for the period slowed to just over 3% pa, the lowest earnings growth of any of the 5 periods.
- The **key findings** are:
 - a) evidence of a **housing market bubble**
 - and b) the **distinct lag-adjustment** between the 'leader' market in Greater London and the 'follower' market of the North.

21 In each of the periods, inferences about the national market are tenuous as they are heavily influenced by the effect of the London and South East markets (respectively each about a tenth and a third of the England market). Separating these two markets from the England market to become 'Rest of England' would improve the accuracy of any conclusions drawn from the data.

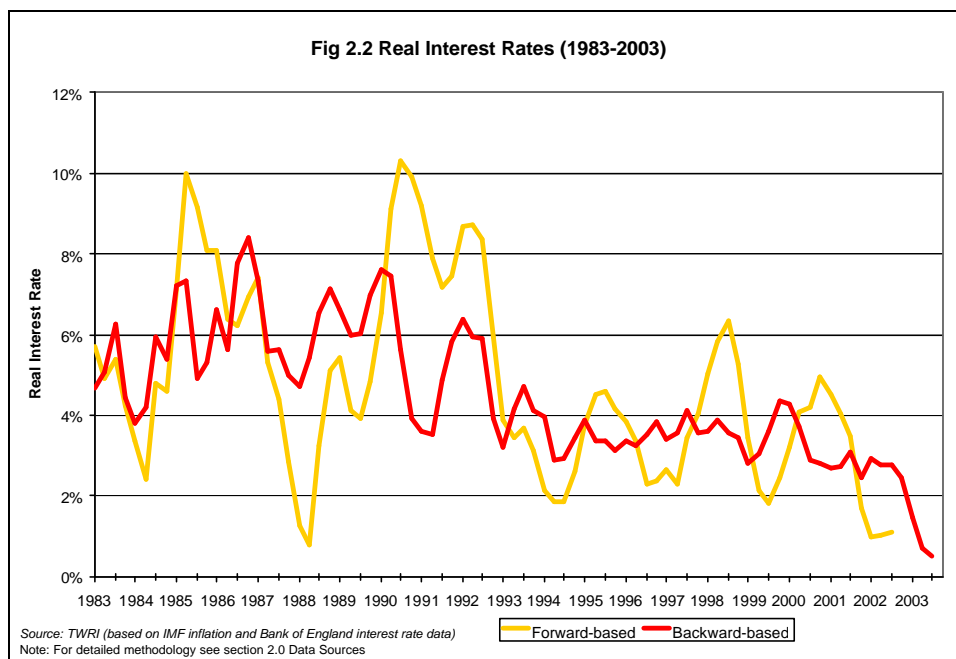


Fig 2.2 gives a longer series for the real interest rate than Fig 1.4. It shows the two methods for calculating the real interest rate (forward-based and backward-based) described in section 3.1. The implications of each of the models are considered below.

If we adopt the backward-based model for the real interest rate, there is not enough evidence to suggest that real interest rates fuelled the 1980s housing market boom, but that this could be a key factor in the post-2000 boom. If this is the case, then the existence of a housing bubble may hold, but the speculative element would be fuelled by differing factors.

However, if we assume that individuals use a more rational expectation formation model of inflation, as in the forward-based series, the evidence definitely indicates a change in the pattern of data, to **lower and more frequent real interest rate cycles**, in the latter half of the 1990s. This is just one indication that the most recent housing boom is not the result of a speculative bubble, but is more simply a 'structural shift' to a higher trend (and level) in house prices.

Although the data does suggest a distinct structural change, it does still contain a cyclical element, albeit on a less volatile scale and shorter time-span. Hence, it seems reasonable to hypothesise that:

1. A **bubble still exists** in the current market
2. **Unlikely** to be **as large** as the 1980s bubble
3. Should this **bubble burst**, it is likely that **HPE falls** will occur, but that they will be of a **smaller magnitude** than past falls.

The justification for 2 and 3 lies in the idea that a new, higher trend in prices has occurred from the structural changes to the UK economy in the 1990s.

There are two broad sides to this debate. The underlying reasoning for each of these cases is considered below.

A. 'Structural Change' in the UK Economy

- The Bank of England claims underlying **structural change** to the UK economy since the recession of the early 1990s is the main factor driving house price inflation.
- The Bank concedes that it may be difficult to argue against the existence of a bubble in Greater London, but are keen to emphasize that this is not a nationwide phenomenon²².
- Estimates by Bubble-theorists of the **long-run equilibrium** value of the housing stock are **flawed**. The flaw comes from the lack of consideration of the structural shifts, and economic reform, in the UK economy since the last housing boom (1980s).
- **De-regulation** in mortgage lending in the 1980s, meant the **linkage** between real **income growth** and house **price growth** broke down. Prior to this structural change, mortgage lending was rationed.
- Post-deregulation, the rapid increase in mortgage availability, despite relatively high real interest rates, could explain the surge in HPE as more people were able to obtain a mortgage.
- Without high inflation rates (See Fig 2.2), **high interest rates** should be **unnecessary**. Even if the Bank raises rates to 5% in 2004, as money markets expect, targeted inflation rates and base rates should remain relatively low and be consistent with **HPE at a higher trend** level than previous periods.
- A **linear trend** in nominal **earnings** growth, coupled with **falling inflation** rates, means the growth rate of **real earnings** has **increased**. Therefore, recent house price gains **reflect improved affordability** and structural 'shift' in house prices.
- In a comprehensive study of the UK housing market, the outlook must be gauged by 'affordability' as a factor of demand²³, as well as other structural drivers relating to demand, as well as new housing supply.
- Recent **gains** therefore **reflect**:
 - a) a **period of 'catch-up'** after the weaknesses in the 1990s.
 - b) a **structural shift** in response to the fall in base rates to a sustainable lower level.

B. A 'Bubble' About to Burst

- Bubble theorists claim the recent **downturn** in real **income growth** to just 1.6% in early 2002 (Source: *Times Online*, Aug. 2002) should cause house **prices to reflect** that downturn in a 'fundamentals' view of house prices. The fact that they haven't is circumstantial **evidence** of the existence **of a bubble**.
- Bubble-proponents claim **borrowers suffer** from '**money illusion**'. That is, borrowers do not understand that, despite low interest rates making them more willing to pay more for a house, low inflation rates mean the 'debt burden in real terms' is more lasting.
- Monetary **policy reforms** could (inadvertently) **stimulate** a housing market **crash** if the 'bubble' analysis is correct.
- Work by Case (Wellesley College) and Shiller (Yale) confirms that the market for housing is inefficient, compared to the 'efficient' financial markets. Their work suggests 'significant positive

22 *Times:Online* (Aug 2002) asserted that the housing bubble theory is simply an illusion fuelled by recent talk of bubbles in stock markets.

23 *Factors of demand* refer to the economic determinants that influence an individual's decision to buy. 'Affordability' refers to the individual's ability to buy. In this context it is the HPE ratio of house price to average gross earnings.

serial correlation' in the movements of house prices. That is, price changes in one year tend to be followed in the next year with a change in the same direction.

- Persistence in the movements of house prices (see Fig 1.2) tells us a great deal about the expectation formation of individuals. It suggests that expectations are formed by a 'backward-looking' method, similar to the 'backward-based' model used in this study for inflation expectations. However, it is insufficient to assume general inflation expectations are formed in the same way as house price expectations²⁴. Therefore, the implications of both the real interest rate models are still pertinent.

Based on the evidence, hypotheses and data in this section, it would be inaccurate to conclude in favour of either of these proposals. It is, however, important that they are highlighted as possibilities, that only time will prove otherwise.

Perhaps if the expectation formation of individuals could be accurately said to be similar to the 'forward-based' model, we could conclude that a structural change is the most plausible argument, in economic terms. However, the possibility of adaptively formed expectations is equally likely, and hence, a bubble cannot be ruled out.

Conceivably, the answer could lie in our 'forward-based' real interest rate data. In Fig 2.2, the data clearly illustrates a distinct change in trend around the mid-1990s. Yet, the data series still retains a cyclical element, whose magnitude is much reduced and more frequent, comparable to the cycles that surrounded the 1980s and early 1990s recessions. Hence, whilst most arguments in academic journals and the media attempt to stress the existence of a bubble *or* structural change to the economy, few actually consider that *both* of these phenomena could occur *simultaneously*. The reforms made in the mid-1990s could have resulted in a new, higher, trend in house prices, yet the view of housing as an investment asset, coupled with adaptively formed expectations, have caused the emergence of a bubble, smaller than that of the 1980s, in the market.

24 Although we assume that the consumer price index (CPI – IMF definition) expectation of inflation could be either backward-based or forward-based, the same cannot be said for house prices. Individuals potentially view housing as an investment asset, whose value it is expected will appreciate over time. If individuals had a perfect forward-based expectation of house prices, their decision to buy would be heavily influenced by this expectation. The future value of housing is dependent on consumer demand and hence an element of a 'self-fulfilling prophecy' would result from any forward-based expectation.

3.3 Affordability and Low-Earners: Recent Trends

Tyne & Wear, North East & England (1995 – 2003), including by housing type

In this section the issue is affordability for the lowest earners in T&W and how these compare to regional and national trends.

Recent commentary in the media has highlighted the regional differences and “slow-downs” (in the South East) and so these will be considered in turn.

The tables provide a greater insight than the charts in this section, so these results will be the primary focus.

Table 3.1: Average Annual Growth Rates in House Prices and Earnings (%) 1995 to 2003

		T&W	NE	Eng
House Prices	Detached	10.2	8.6	10.8
	Semi-Detached	8.6	7.7	10.8
	Terraced	8.7	6.7	10.4
	Flat/Maisonette	10.0	9.9	11.7
	Total	8.7	7.5	10.6
Earnings	All Earners	4.0	3.7	4.6
	Bottom Decile	4.2	4.6	4.3

Source: HM Land Registry (Crown Copyright), New Earnings Survey [ONS (Crown Copyright)]

Table 3.1 illustrates how the components of HPE are changing over the last 8 years. The most important aspect is the average annual rate of earnings growth. For ‘All Earners’ from 1995 to 2003, Tyne & Wear earnings growth is 0.3 percentage points above the NE rate, but is 0.6 percentage points below the national average. However, the picture is different if we consider the lowest 10% of earners in these areas, probably due to the introduction of the National Minimum Wage (NMW). T&W is just 0.1 percentage point lower than the national average. The North East, on the other hand, recorded growth 0.3 percentage points higher than the national average. This holds some important implications concerning local housing affordability.

If we examine the HPE figures for the two earnings groups (Table 3.2), there are two possible interpretations.

- a) Affordability is a greater problem in T&W than the NE, but less so than on the national average
- b) There is another underlying reason for the North East’s lower HPE ratio status

Table 3.2: Average Annual Growth Rates in HPE by Earnings Group (%) in HPE ratios, 1995 – 2003

		T&W	NE	Eng
HPE Ratio	<i>Detached</i>	6.0	4.7	6.1
(All Earners)	<i>Semi-Detached</i>	4.5	3.9	6.1
	<i>Terraced</i>	4.5	3.0	5.8
	<i>Flat/Maisonette</i>	6.1	6.2	7.0
	<i>Total</i>	4.6	3.8	5.9
HPE Ratio	<i>Detached</i>	5.7	3.8	6.4
(Bottom Decile)	<i>Semi-Detached</i>	4.2	3.0	6.4
	<i>Terraced</i>	4.3	2.1	6.1
	<i>Flat/Maisonette</i>	5.9	5.2	7.4
	<i>Total</i>	4.4	2.9	6.2

Source: HM Land Registry (Crown Copyright), New Earnings Survey [ONS (Crown Copyright)] and TWRI

Table 3.2 indicates that HPE ratio growth in T&W is actually below the national average annual growth rate for both “all earners” and the “bottom decile” of earners, but is above the average for the North East. From this we can conclude that ‘affordability’ problems in T&W are less pronounced than in the rest of the country, due to reasons of ‘low demand’ suggested by CURS.

In light of the results from the CURS Report, the logical conclusion would be the latter explanation. The other areas of the North East suffer more from ‘low demand’, which has kept house price inflation low. However, it would be reckless to abandon the higher HPE ratio in T&W as *simply* a case of higher demand, although this is *one* of the contributing factors.

Importantly, the rates of HPE ratio growth are opposing between the two earnings groups for T&W and England. Where the HPE ratio is actually growing at a greater rate for the lowest earners in England than ‘All Earners’, the opposite is true for T&W, where the ‘Bottom Decile’ HPE ratio growth is below that of the ‘All Earners’ group. The overriding implication of this for regional monitoring groups is that (at least from 1995 to 2003) T&W appears to be performing better than the national average concerning affordable housing for low earners.

However, 1995-2003 is a large range to observe as the cyclical nature of the data causes some distortion of the figures. If we simply take the most recent observations from 2000-2003 (Table 3.3) the conclusions are very different.

Table 3.3: Average Annual Growth Rates in HPE by Earnings Group (%) in HPE, 2000 – 2003

		T&W	NE	Eng
HPE Ratio (All Earners)	<i>Detached</i>	19.9	16.1	11.6
	<i>Semi-Detached</i>	19.3	16.4	12.4
	<i>Terraced</i>	17.6	12.6	9
	<i>Flat/Maisonette</i>	17.7	16.1	6.5
	<i>Total</i>	17	12.9	9.4
HPE Ratio (Bottom Decile)	<i>Detached</i>	18.4	15.7	11.4
	<i>Semi-Detached</i>	17.8	15.9	12.2
	<i>Terraced</i>	16.1	12.1	8.8
	<i>Flat/Maisonette</i>	16.2	15.7	6.3
	<i>Total</i>	15.5	12.5	9.2

Source: HM Land Registry (Crown Copyright), New Earnings Survey [ONS (Crown Copyright)] and TWRI

For “All Earners”, the HPE ratio growth rate for T&W is double and in some cases almost treble the national average. “Flats/Maisonettes” exhibit the widest gap between T&W and England (17.7% and 6.5% pa), inflated by new supply of ‘apartments’. ‘Terraced’ houses were not far behind (17.6% and 9.0% pa). Whilst total HPE ratio growth was only 0.2% pa slower in England for the poorest earners (9.2% pa and 9.4% pa), in Tyne & Wear growth was 1.5% pa slower for the lowest earners (15.5% pa and 17.0% pa).

The fact that Tyne & Wear HPE ratio growth rates are still well above the national average has two implications.

- if the existence of an ‘adjustment lag’ is accurate, then the figures simply exhibit a ‘catch-up’ effect in T&W as the downturn occurs in other regions (predominantly London).
- the growth in earnings, combined with lower inflation and base interest rates, is simply causing an improved *real* affordability. The movement is towards a new, higher, long-term trend in house prices and HPE as discussed in sections 3.1 and 3.2.

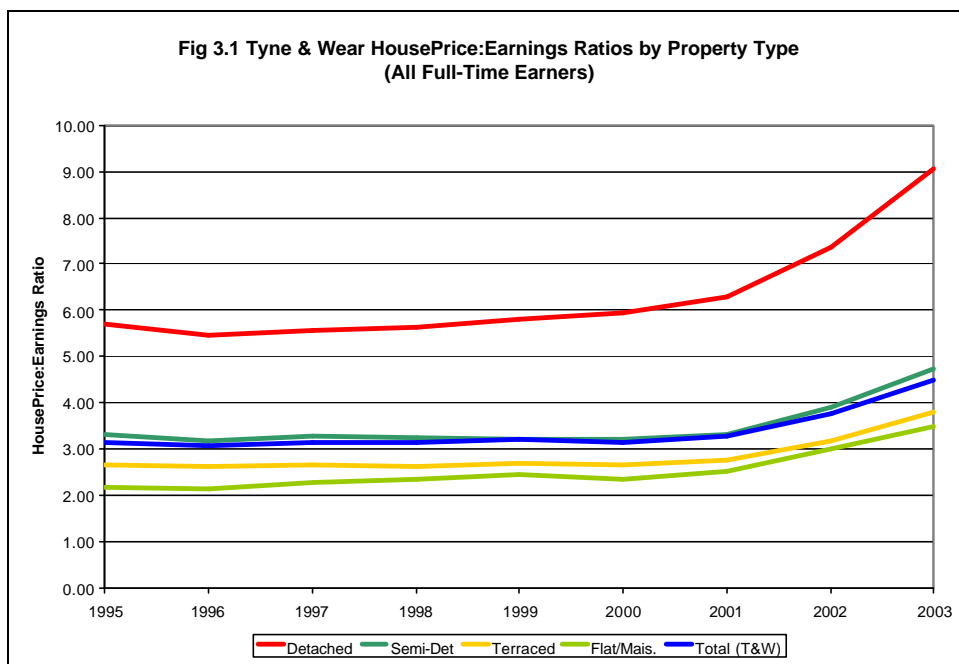
Table 3.4: % Change in HPE ratios (Bottom Decile Earners) (1995 – 2003)

	Terraced	Flat/Maisonette	Total
T&W	39.7%	57.7%	40.8%
NE	17.9%	50.4%	25.6%
Eng	61.1%	76.8%	61.9%

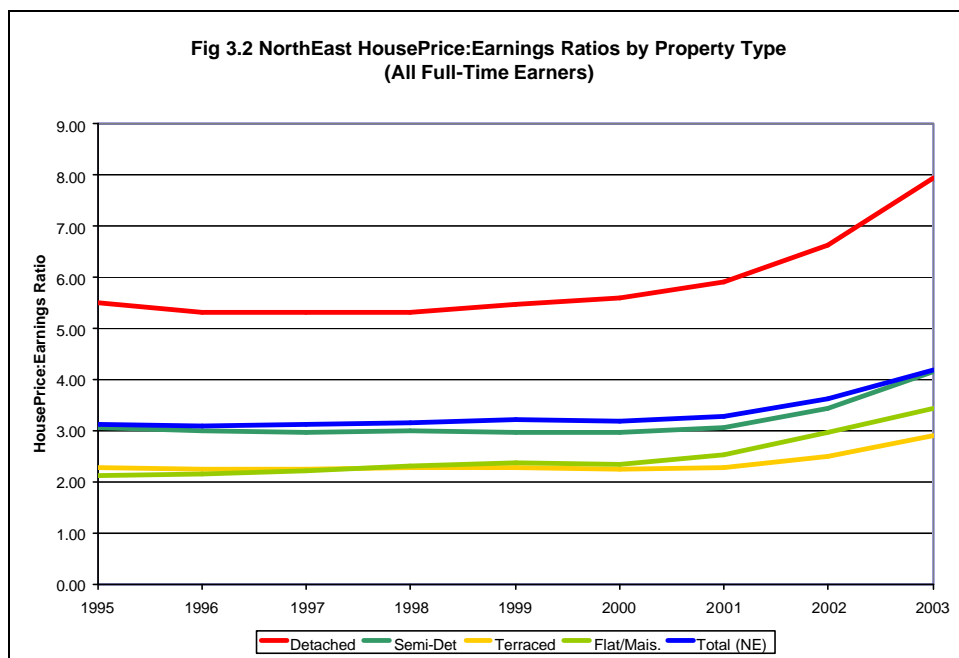
Source: TWRI [Note: Calculated from data in previous tables]

If we consider the charted data, it may help emphasise the points made in this section.

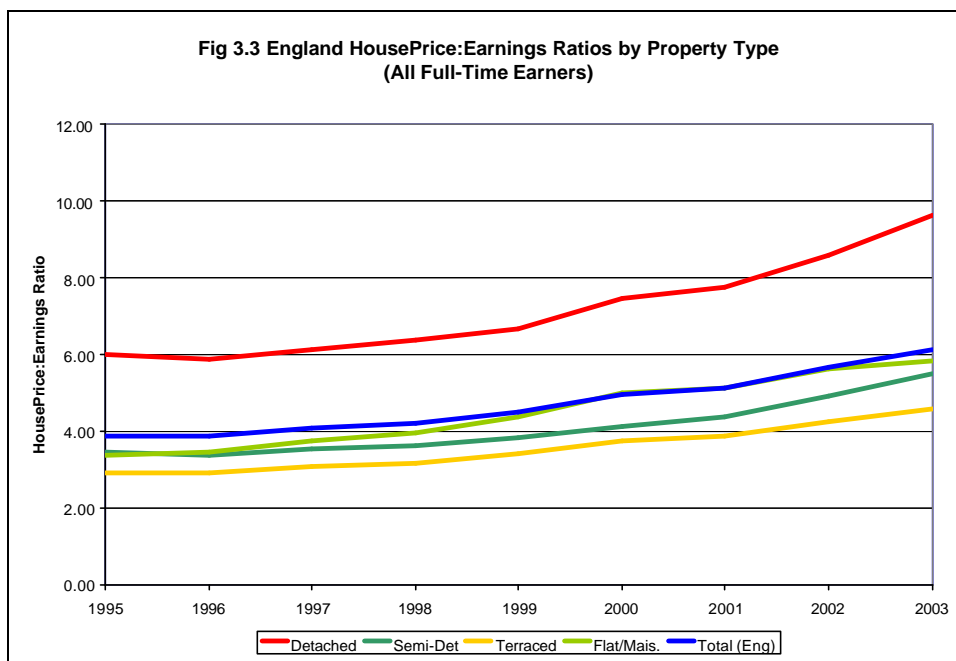
Figures 3.1 to 3.4 suggest that the two-year lag in T&W is accurate; HPE begins to accelerate in 1999 for England, yet is most noticeable in 2001 for T&W. From 2000 onwards, growth in HPE ratios is decreasing for England (Fig. 3.3) and yet continues to accelerate for T&W (Fig. 3.1) and North East (Fig. 3.2) for both earnings groups.



Tyne & Wear’s HPE ratios have risen sharply since 2000/01, for all housing-type categories. ‘Detached’ housing’s HPE ratio has accelerated more than the other categories. This may well be due to the wave (emerging from London and the South East) affecting detached house prices in Tyne & Wear first (notably in 2002). Other housing types in Tyne & Wear ‘took-off’ later (and less rapidly). There was a narrowing in the HPE ratio of ‘Flat/Mais.’ relative to ‘Terraced’ housing (2.52 and 2.75 in 2001 to 2.99 and 3.16 in 2002) before diverging again slightly in 2003 (3.49 and 3.8).



The North East shows, for each housing category, a broadly similar pattern to the T&W series, except ‘Flat/Mais’. For the North East, flats are now less ‘affordable’ than terraced housing, a reversal since 1995. One possible explanation is demographic; the increased number of single person households. The effect could explain the rise in T&W also, but the greater effect in the NE series would need to be compared with changes in household data to gain any solid evidence for this interpretation.

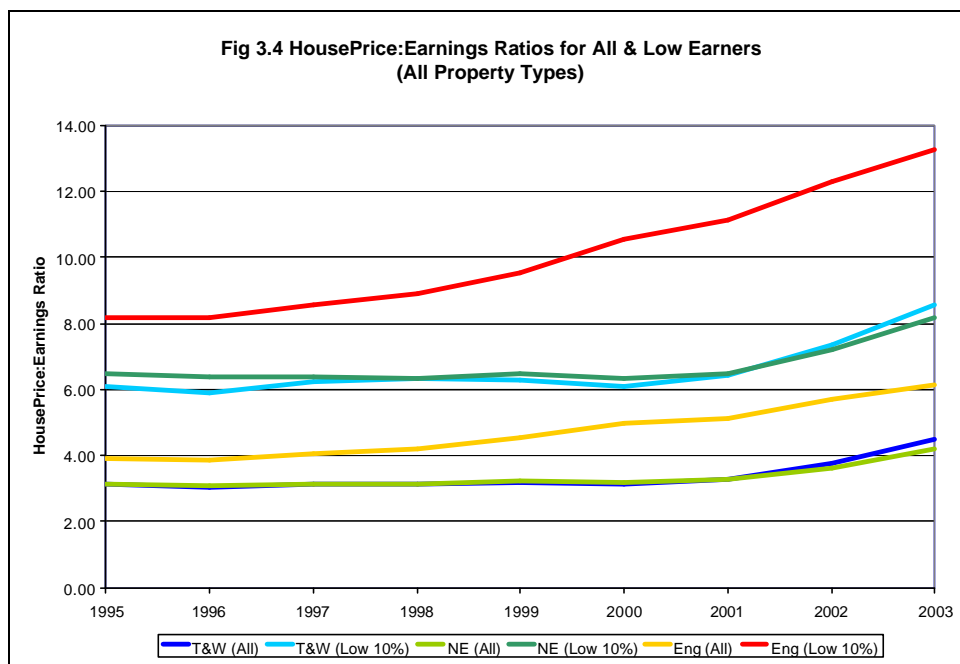


The national HPE series (Fig. 3.3) illustrates without a doubt the ‘adjustment-lag’ factor discussed in the previous sections. Although data for London would demonstrate this to a greater extent, the England series clearly reveals a much earlier acceleration in HPE ratios, from around 1996/7, than the 2000/01 acceleration in T&W. Hence, the suggestion from section 3.2 that T&W has a 2-year lag in responding to changes in the London market is corroborated, and even suggests that the lag is much greater. In section 3.2 it was suggested the lag between the North and national HPE was approximately 1 year. The short-run data here suggests this lag may be as great as 4 years²⁵.

Trends in HPE ratios for the lowest 10% of earners are shown in the Appendix (Figs 3.5 – 3.7²⁶) They do not particularly enhance any of the analysis that has already been covered, using the tables. The only noticeable differences are the magnitudes of the HPE ratios are much greater for lowest earners, which is to be expected.

25 This disparity could be partly associated with the difference in house price datasets, but is unlikely to account for such a significant difference. Alternative explanations for the disparity could be investigated in further reports.

26 Figs 3.5 – 3.7 can be found in the Appendix to this report



Finally, Fig 3.4 provides an illustration of the points mentioned earlier concerning regional performance of affordable housing. It is fairly clear that the national data for both earnings groups is diverging from the regional and T&W data, although in 2003 this gap has narrowed slightly. The fall in this 'HPE gap' is most readily explained by the transition from boom to downturn on the national cycle, whilst T&W still experienced its boom phase.

Within the North East, HPE ratios in Tyne & Wear have risen above the North East regional averages for both all-earners and low-earners. This could be an indication that the T&W housing market, although less affordable than its North East alternatives, is in a healthier state in terms of demand whilst representing greater affordability than the national average.

The rise of Tyne & Wear HPE ratios, above the North East, could be a temporary effect – a kind of regional centre to a wave (as London is to England). Alternatively, it could be reflecting faster employment growth and hence, higher demand growth for housing, than in the region.

Appendix

Table A1: IMF International Financial Statistics Consumer Price Index

Q1 1975	20.753	Q1 1980	42.31	Q1 1985	61.698	Q1 1990	80.751	Q1 1995	98.485	Q1 2000	112.372
Q2 1975	22.72	Q2 1980	44.77	Q2 1985	63.823	Q2 1990	84.531	Q2 1995	100.274	Q2 2000	114.474
Q3 1975	23.704	Q3 1980	45.732	Q3 1985	63.979	Q3 1990	85.917	Q3 1995	100.542	Q3 2000	114.653
Q4 1975	24.532	Q4 1980	46.581	Q4 1985	64.293	Q4 1990	87.259	Q4 1995	100.699	Q4 2000	115.369
Q1 1976	25.426	Q1 1981	47.677	Q1 1986	64.74	Q1 1991	87.773	Q1 1996	101.213	Q1 2001	115.235
Q2 1976	26.321	Q2 1981	50.025	Q2 1986	65.59	Q2 1991	89.607	Q2 1996	102.533	Q2 2001	116.666
Q3 1976	26.947	Q3 1981	50.875	Q3 1986	65.657	Q3 1991	90.01	Q3 1996	102.711	Q3 2001	116.71
Q4 1976	28.177	Q4 1981	52.127	Q4 1986	66.506	Q4 1991	90.882	Q4 1996	103.338	Q4 2001	116.576
Q1 1977	29.608	Q1 1982	52.977	Q1 1987	67.312	Q1 1992	91.374	Q1 1997	103.941	Q1 2002	116.643
Q2 1977	30.928	Q2 1982	54.677	Q2 1987	68.34	Q2 1992	93.342	Q2 1997	105.261	Q2 2002	118.097
Q3 1977	31.42	Q3 1982	54.945	Q3 1987	68.497	Q3 1992	93.274	Q3 1997	106.289	Q3 2002	118.499
Q4 1977	31.889	Q4 1982	55.348	Q4 1987	69.235	Q4 1992	93.655	Q4 1997	107.139	Q4 2002	119.551
Q1 1978	32.403	Q1 1983	55.616	Q1 1988	69.57	Q1 1993	93.029	Q1 1998	107.475	Q1 2003	120.221
Q2 1978	33.298	Q2 1983	56.734	Q2 1988	71.247	Q2 1993	94.527	Q2 1998	109.465	Q2 2003	121.653
Q3 1978	33.857	Q3 1983	57.494	Q3 1988	72.231	Q3 1993	94.795	Q3 1998	109.823	Q3 2003*	121.966
Q4 1978	34.461	Q4 1983	58.143	Q4 1988	73.752	Q4 1993	95.108	Q4 1998	110.315		
Q1 1979	35.534	Q1 1984	58.478	Q1 1989	74.937	Q1 1994	95.242	Q1 1999	109.845		
Q2 1979	36.831	Q2 1984	59.663	Q2 1989	77.084	Q2 1994	96.964	Q2 1999	111.008		
Q3 1979	39.291	Q3 1984	60.178	Q3 1989	77.8	Q3 1994	96.987	Q3 1999	111.097		
Q4 1979	40.409	Q4 1984	60.961	Q4 1989	79.343	Q4 1994	97.613	Q4 1999	111.925		

Source: International Monetary Fund IFS Online (November 2003)

* Indicates data that are new or have changed since previous issue of publication; does not indicate changes in dimension, unit, decimal, or the addition of countries to IFS

