Housing Need in the Derby HMA

Sensitivity Testing Analysis

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1 INTRODUCTION

Summary Review of National Research

1.1 There are various papers which have been prepared dealing with demographic projections and forecasting housing requirements over the last 18 months. These include:

- PAS (Nov 2013) *Ten Principles to Owning your Housing Number – Finding your Objectively Assessed Needs;*
- CCHPR (March 2013) *Choice of Assumptions in Forecasting Housing Requirements – Technical Notes;*
- Holmans, A. (Sept 2013) *New Estimates of Housing Demand and Need in England, 2011 to 2031;* and
- CCHPR (Jan 2014) *Planning for Housing in England – Understanding Recent Changes in Household Formation Rates and their Implications for Planning for Housing in England.*

1.2 Understanding the timing here is important. The PAS Paper and *Choice of Forecasting Assumptions* were published prior to the CLG 2011-based Household Projections which were made available in April 2013. In April 2013 the ONS also released revised Components of Population Change data for the 2002-11 period to take account of the 2011 Census.

1.3 The *Choice of Forecasting Assumptions* Paper sets out that projections assume that 'trends continue.' It considers the various components of population and household projections, concluding that projections for housing need are particularly sensitive to assumptions on migration and household formation rates and that on this basis sensitivity testing would reasonably focus on these. It cautions against reducing assumptions on migration relative to trends without clear evidence; but recognises the uncertainty particularly in predicting future international migration. At the point at which it was published in advance of the CLG 2011-based Household Projections it was arguing that household formation patterns in the official projections should be used unless strong local evidence indicated to the contrary. In some respects the debate has moved on from this in light of the 2011-based Projections and more recent demographic data.

1.4 The 'Holmans Paper' from September 2013 for the TCPA reviewed the latest 2011-based Household Projections. Looking at data for England as a whole it identified an abrupt break with longer-term trends in household formation between 2001-11. It broad terms, it suggested that across England between 2001-11 the net growth in households was 20% less than might have been expected based on trends in household formation since 1971 with 370,000 fewer households forming. The Holmans analysis suggested that of this 370,000 fewer households, around 200,000 could be attributed to over-projection of households due to the much larger proportion of recent immigrants in the population whose household formation rates are lower. Holmans suggested that this effect will not be reversed. It suggested that the other 175,000 is attributed to the economy and

the state of the housing market and is assumed to gradually reverse. On this basis Holmans revised household projections, adjusting household formation rates on the basis of a partial return to long-term trends.

1.5 The Holmans Paper is significant in that it does suggest that household formation rates in the 2008-based Household Projections are likely to over-estimate future trends. Equally it suggests that household formation in the 2011-based Household Projections – when looking over the longer-term – may be on the conservative side.

1.6 The January 2014 RTPI Paper on *Understanding Recent Changes in Household Formation* identifies that undertaking demographic projections at a time when established trends have changed significantly is challenging and that projecting forward trends in the 2011-based Household Projections should be undertaken with some caution. It reaffirms the Holmans analysis in regard to household formation rates and identifies that in considering the appropriateness of recent demographic trends in planning terms, the following questions need to be considered:

- The extent to which patterns of household formation locally have been affected by an increase in international migrants;
- The extent to which household formation patterns have departed from previous tends, including through analysis of changes in household formation rates for different age groups; and
- Whether there have been significant changes in the projected net migration flow to/from other local authorities in the 2011-based projections, and the degree to which these are consistent with the underlying evidence / previous projections.

1.7 In regards to migration, this paper is picking up a particular issue with the modelling approach in the 2011-based Interim Population Projections on which the Household Projections are based. The critical made in the paper related to the need to look at household formation trends, and undertake sensitivity testing at a local authority level.

1.8 **These recent studies raise questions regarding the robustness of both the CLG 2008- and 2011-based Household Projections**. They point to a need to look in detail at demographic dynamics, particularly in regard to projections of migration and household formation rates. The need for housing is particularly sensitive to these two factors.

Purpose of this Paper

1.9 In light of these research studies, and particularly the most recent research which has emerged since the publication of the Derby HMA SHMA in July 2013, this paper:

- Considers the most recent evidence regarding migration trends to test if the underlying population projections on which household growth is projected remain sound; and
- Provides a sensitivity analysis of the projections prepared in the Strategic Housing Market Assessment Update considering alternative scenarios for household formation.
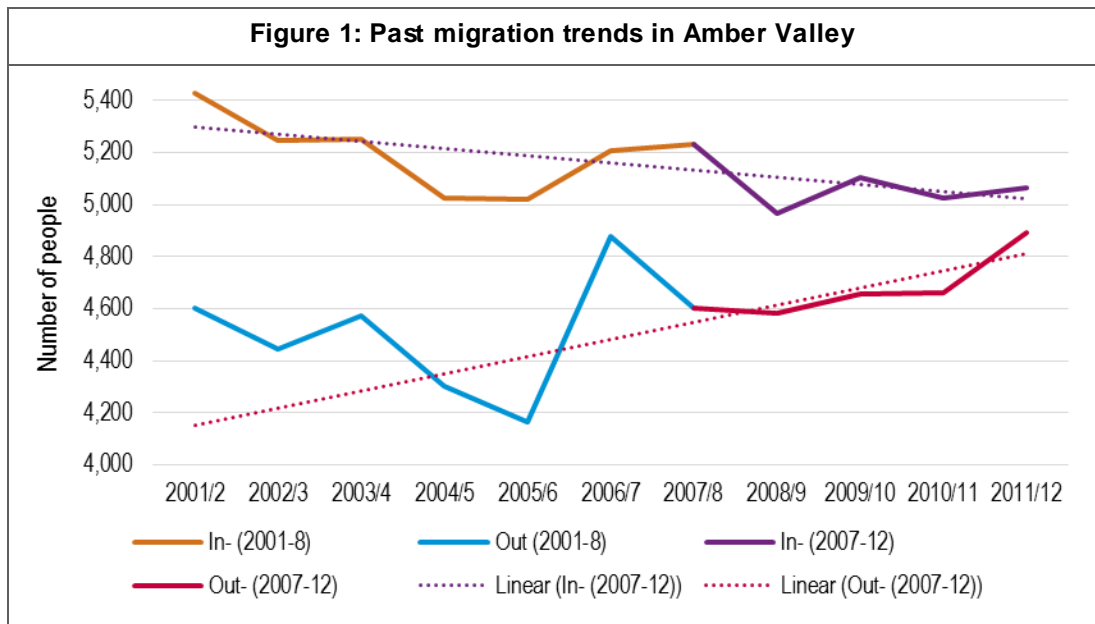
2   MIGRATION TRENDS

2.1   Demographic projections are particularly sensitive to trends in migration and household formation rates. This section considers the latest evidence of migration trends, and assesses whether this continues to support the 'trend-based population projections' set out in the July 2013 Derby HMA Strategic Housing Market Assessment Update.

2.2   This analysis considers ONS 'Components of Change' data (up to mid-2012) and compares this with the migration data used in the SHMA and previously derived in the 2012 Derby HMA Housing Requirements Study (HRS). Each of the three Derby HMA authorities – Amber Valley, Derby and South Derbyshire – is considered in turn.

2.3   As recommended in the In Derby where international migration is a significant component of trends, trends are considered separately from internal migration as recommended in the RTPI Research on *Understanding Recent Changes in Household Formation* (Jan 2014).

Amber Valley

2.4   Figures 1 and 2 show trends of in- and out-migration to/from Amber Valley over the 11-year period from 2001 to 2012. The data is based on information from the ONS Components of Change data series which has been updated to take account of Census data in the 2001-11 period. This therefore represents the most up-to-date information available about migration (and indeed other elements of population growth such as births and deaths). It is however migration data in which we are most interested as this will be the most variable component of population growth.

2.5   The data shows over the period studied that Amber Valley has consistently seen a level of net migration. This has been declining over time. Over the past five years there has been an average level of net in-migration of some 401 people per annum. In projecting migration ONS have historically used trends over the proceeding 5 year period. The 2007-12 period is the period which will be used by ONS in their forthcoming 2012-based subnational population projections (SNPP) – expected to be published in May 2014.

2.6   An alternative way to look at migration trends is through tracking the changes over time. Figure 1 shows a linear trend for each of in- and out-migration (based on the past five years). This has been shown as such an approach is more consistent with that taken in the HRS (and taken forward into the SHMA) to provide a start point for projection analysis.

2.7   In the case of Amber Valley the data suggests a trend 'start point' of net in-migration of about 220 people per annum.

2.8 Figure 1 shows in- and out-migration for all components combined (i.e. both internal and international migration). This is because (as was observed in the HRS) levels of international migration are very low in Amber Valley. The more recent ONS data confirms that this is still the case.

Figure 1: Past migration trends in Amber Valley

Source: ONS Components of Change

Figure 2: Past migration trends in Amber Valley			
Year	In-	Out-	Net
2001/2	5,429	4,603	826
2002/3	5,249	4,445	804
2003/4	5,250	4,572	678
2004/5	5,026	4,305	721
2005/6	5,019	4,163	856
2006/7	5,206	4,879	327
2007/8	5,233	4,604	629
2008/9	4,967	4,581	386
2009/10	5,103	4,655	448
2010/11	5,028	4,660	368
2011/12	5,065	4,893	172
Average (2007-12)	5,079	4,679	401

Source: ONS Components of Change

2.9 The data for Amber Valley suggests that the projections used in the HRS and SHMA are still sound. In the SHMA it was assumed that net migration would start at a level of 398 people per annum (with a figure of 400 used in the HRS). The latest data covering the 2007-12 period indicates average net

in-migration of 401 persons per annum. This would suggest that the migration assumptions in the 2013 SHMA for Amber Valley remain reasonable.

2.10   In addition, we can consider Unattributable Population Change (UPC). UPC is an adjustment made by ONS in the 2001-11 period to reflect differences between the population in 2011 and the sum of the components of population change in the decade to 2011.

2.11   ONS indicate that the UPC is likely to reflect a combination of sampling variability, or other issues, in the following[1]:

- Internal migration estimates (at sub-national level);
- Census estimates, both in 2001 and 2011; and
- International migration estimates.

2.12   In Amber Valley the UPC average for the 2001-11 period was zero and does not suggest any additional consideration needs to be given to this.

Derby

2.13   The same process has been undertaken in Derby although in this instance we have looked at internal and international migration separately as in Derby, international migration is a significant component of past population trends (and projections moving forward).

2.14   Figures 3 and 4 shows trend data for internal migration. The data shows that throughout the 2001-12 period that there has consistently been a level of net internal out-migration (to other parts of the UK). Over the past five years (2007-12) the net out-migration is estimated to have been 593 people per annum on average. If we were to use a linear trend over the past five years we would arguably reduce this slightly, to a net out-migration of around 350 persons per annum.

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[1] See ONS (2014) *2012-based Sub-National Population Projections for England – Report on Unattributable Population Change*

Figure 3: Past migration trends in Derby City (internal migration)
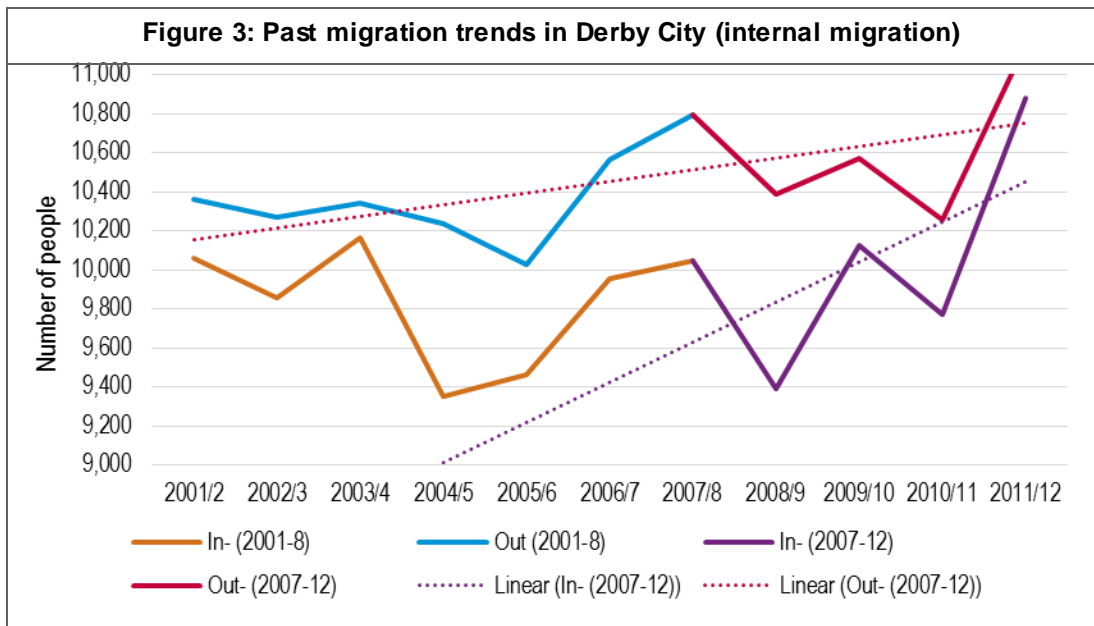
Source: ONS Components of Change

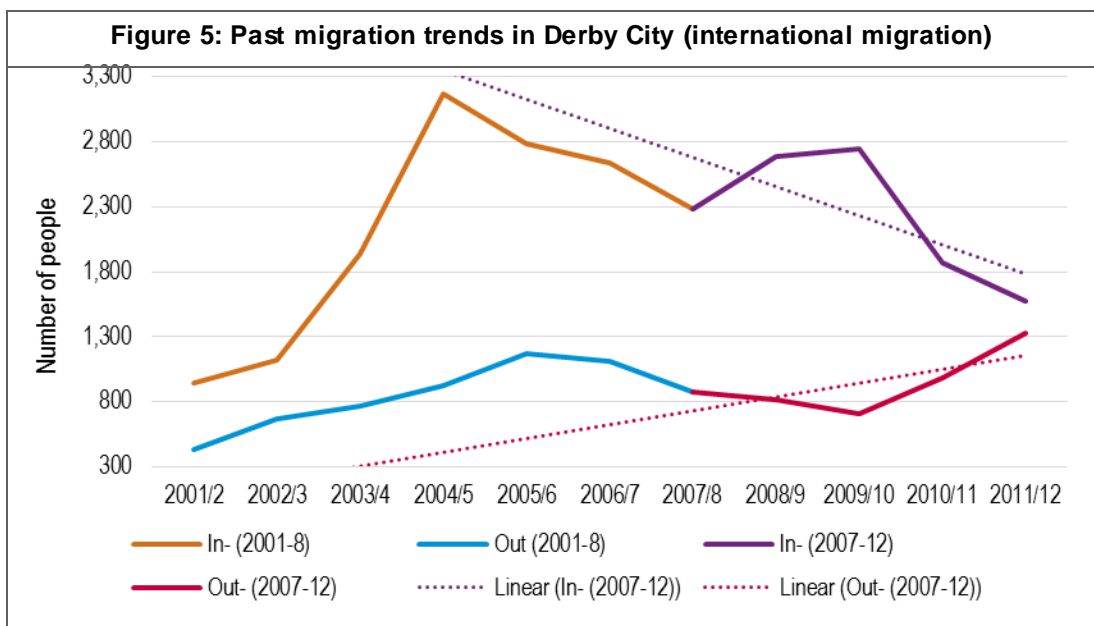| Figure 4: Past migration trends in Derby City (internal migration)			
Year	In-	Out-	Net
2001/2	10,061	10,359	-298
2002/3	9,855	10,272	-417
2003/4	10,164	10,344	-180
2004/5	9,350	10,238	-888
2005/6	9,460	10,024	-564
2006/7	9,956	10,566	-610
2007/8	10,044	10,797	-753
2008/9	9,388	10,385	-997
2009/10	10,122	10,570	-448
2010/11	9,774	10,254	-480
2011/12	10,877	11,163	-286
Average (2007-12)	10,041	10,634	-593

Source: ONS Components of Change

2.15   The average net internal out-migration from Derby of 593 persons per annum over the 2007-12 period can be compared with figures used in the HRS and SHMA. In the HRS it was suggested that internal net out-migration should start at about 800 persons per annum and increase moving through to 2028. Given that the original HRS modelled on the basis of a net internal out-migration of 800 persons per annum at start of period and data now suggests around -600 it is arguable that the SHMA modelled slightly underestimates net internal migration. In the SHMA the start point level of

net internal out-migration was set at a level of 877 per annum (again above the more recent figure of 593).

2.16   The second migration component is international migration. Figures 5 and 6 show how this has changed over the past 11-years. In Derby for the whole of the period studied there has been a level of net international in-migration. This looks to have been particularly strong from about 2004/5 to 2009/10 with lower figures (in net terms) over the past two years.

2.17   Taking data for the past five years (2007-12), the analysis shows an average level of net international in-migration of some 1,286 people. Using a linear trend over the period would move a 'start point' to something significantly lower (about 700 persons per annum). The average net international in-migration of 1,286 per annum to Derby compares with a figure of 1,470 used in both the HRS and SHMA.

Figure 5: Past migration trends in Derby City (international migration)

Source: ONS Components of Change

Figure 6: Past migration trends in Derby City (international migration)			
Year	In-	Out-	Net
2001/2	940	434	506
2002/3	1,118	674	444
2003/4	1,940	763	1,177
2004/5	3,167	922	2,245
2005/6	2,786	1,167	1,619
2006/7	2,638	1,109	1,529
2007/8	2,286	880	1,406
2008/9	2,683	819	1,864
2009/10	2,744	711	2,033
2010/11	1,866	982	884
2011/12	1,575	1,331	244
Average (2007-12)	2,231	945	1,286

Source: ONS Components of Change

2.18   By drawing the above data on internal and international migration together, we can compare levels of overall migration as seen in the most recent trends with those used in projections in the HRS and SHMA. This is shown in Figure 7. The table shows the start points used in each of the two previous projections along with the trend over the past five years (simply taken as the average over this period with no adjustment for increasing or decreasing trends). The data suggests there is some consistency between the overall figures with recent trend suggesting a level of net in-migration of 693 people per annum compared with a figure of 670 used in the HRS and 593 when updated in the SHMA.

| Figure 7: Comparison of Start Point for Net Migration - Derby			
	HRS	SHMA	Recent Trends
Internal migration	-800	-877	-593
International migration	1,470	1,470	1,286
5 Year Average Net Migration (Per Annum)	670	593	693

2.19   Whilst this data suggests that recent migration trends might put a small degree of upward pressure on population growth and housing requirements it is possible to again consider the Unattributable Population Change (UPC).

2.20   In Derby, UPC averaged 220 over the decade to 2011 (an over-estimation of past population growth) and so it is arguable that past trends in net migration could be lower than indicated in

Figure 7. Overall therefore the analysis in the HRS and SHMA looks to be reasonable on the basis of more recent trend data.

South Derbyshire

2.21   Finally, we have looked at migration trends in South Derbyshire. As with Amber Valley, both internal and international migration are considered together given that the international component of migration flows is relatively small. The data (as shown in Figures 8 and 9) shows a level of net in-migration for the whole period studied (2001-12) but at a generally decreasing rate (in net terms) over time.

2.22   Over the past five years there has been an average level of net migration into South Derbyshire of 731 people per annum. This figure would be lower if we look at the trend over this period to derive a 'start point' for future projections.

Figure 8: Past migration trends in South Derbyshire
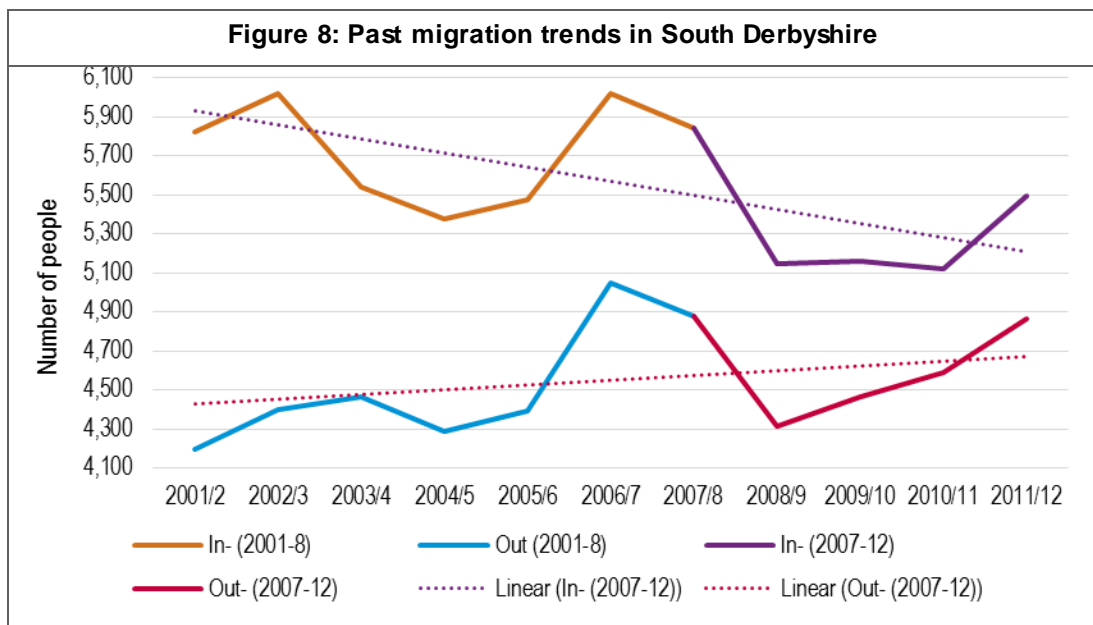
Source: ONS Components of Change

Figure 9: Past migration trends in South Derbyshire			
Year	In-	Out-	Net
2001/2	5,822	4,193	1,629
2002/3	6,016	4,396	1,620
2003/4	5,543	4,462	1,081
2004/5	5,378	4,287	1,091
2005/6	5,475	4,394	1,081
2006/7	6,021	5,050	971
2007/8	5,841	4,878	963
2008/9	5,149	4,316	833
2009/10	5,159	4,462	697
2010/11	5,120	4,588	532
2011/12	5,494	4,865	629
Average (2007-12)	5,353	4,622	731

Source: ONS Components of Change

2.23 In the HRS the level of net migration was modelled to start at 830 per annum. This was reduced slightly to 783 in the SHMA (based on more up-to-date information). This latest data suggests that some downward moderation could justifiably be applied to the projections although the difference is fairly modest.

2.24 Regarding Unattributable Population Change (UPC) this amounted to an average of 22 people per annum in the 2001-11 period which would suggest that migration might be lower still (again at a pretty moderate level), albeit that it is not possible to specifically disaggregate the reasons for UPC.

Case for Considering Unattributable Population Change (UPC)

2.25 In areas where the UPC figures are substantive they can have very significant impacts of population projections. As an example, the population of Cambridge grew between 2001-11 by 11.6%; however the 2011-based Interim Projections expect it to fall in the future. Correcting the projections to take account of UPC sees the City's population growing in line with trends. In contrast for Tendering in Essex the population was broadly static between 2001-11, but ONS projections see indicate growth of 14% to 2021. Again correcting for UPC provides a more reasonable projection which makes sense.

2.26 Whilst there are a range of factors which could account for the UPC – effectively the difference between the sum of data on the components of population change and the actual estimates of population – we would expect a significant component of this to be associated with international out-migration which is particularly difficult to accurately estimate. In areas where international

migration is significant, and there is a large number of people in the UPC category, it would thus be prudent to undertake a sensitivity analysis considering the implications of this.

Conclusions on Migration Trends for Derby HMA

2.27   This paper has assessed more recent data with regards to migration and concludes that the figures used in the original Housing Requirements Study and subsequent Strategic Housing Market Assessment remain sound.

2.28   For each of the three authorities, the following conclusions can be drawn from the updated evidence:

Amber Valley

In the HRS/SHMA it was concluded that net migration should start at about 400 per annum and rise slightly moving forward to 2028 (based on analysis of the 2010-based SNPP). More recent ONS data suggest over the past five years a level of net migration of 401 per annum (i.e. virtually the same). We have no evidence to suggest that the 'trend' of an increase in migration in the future does not remain sound and given no apparent significant change in local demography in the recent past consider that the new 2012-based projections (when published) will probably support a similar migration level.

Derby

2.29   In Derby the HRS/SHMA suggested that migration should start at about 670 per annum and decrease in the future. A decrease is the sort of pattern expected in many urban areas and is consistent with a changing age structure. We have no reason to believe the reducing net migration will not also be a feature of the 2012-based SNPP. More recent data about migration suggests a 5-year trend of about 693 net in-migration which is very close to the 670 figure in the HRS.

2.30   Overall therefore the levels of migration predicted in the HRS and SHMA continue to look to be reasonable. There are however some small differences with regards to the components of migration (i.e. international vs. internal) with more recent data showing a lower level of international migration (offset by declining internal out-migration). These differences could have some impact on the age structure and hence housing needs, although this is unlikely to be significant.

2.31   With regards to Derby the level of unattributable population change (UPC) should also be noted. Over the decade from 2001 to 2011 this component of population change was some 220 people per annum. It is likely that some proportion of this (possibly a significant proportion) will be related to an over-estimation of migration and hence it is arguable that levels of migration could be lowered from those in the HRS/SHMA.

South Derbyshire

2.32   This is the one area where the evidence may suggest that our HRS/SHMA migration figure might be adjusted. In the HRS/SHMA it was suggested that migration should start at 830 per annum and reduce very slightly over time. The more recent ONS data now puts a past trend at some 731 per annum. Hence it is arguable that the HRS/SHMA calculations will be over-estimating population growth in the future.

2.33   Levels of UPC in South Derbyshire are quite low (average of 22 over-estimation of population growth). This again would potentially also put some downward pressure on housing needs.

2.34   Whilst the analysis in this document is predominantly focused on studying the impact on different assumptions around household formation rates we have, at the end of this report, provided an indication of what levels of housing need might be if the modelling were to be updated on the basis of the most recent demographic data published by ONS. This is to ensure that a balanced view of the sensitivity of projections is presented.

3   SENSITIVITY TO HOUSEHOLD FORMATION RATES

3.1   The SHMA report currently bases the main projections on 2011-based CLG household formation (headship rates) which have been rolled forward to 2028.

3.2   There is some recognition that these rates project forward lower household formation relative to longer-term trends, given that they are based on the period from 2001 to 2011 where data shows fewer households were formed relative to population change than was expected based on previous trends. This can be demonstrated by an analysis of household sizes in comparison of the sizes expected in the 2008-based CLG projections (as shown below).

3.3   Figure 10 shows the average household size in 2001 and 2011 (as informed by the Census) along with the average household sizes as expected in the 2008-based CLG Household Projections. The projected change in average household sizes in the 2011-based CLG projections is also shown.

3.4   The data suggests in Amber Valley that whilst household sizes have declined this has not been at the same rate as was expected in the 2008-based Household Projections; and moving forward there is expected to be a continued reduction at a lower rate than in the 2008-based Projections.

3.5   In Derby the data shows that average household sizes have increased over time, whereas the 2008-based CLG Household Projections were expecting this to drop quite notably. Moving forward from 2011, the latest CLG (2011-based) Household Projections do expect household sizes to fall, although this is at a slightly lower rate than in the 2008-based Projections.

3.6   In South Derbyshire, the data shows that the average household size in 2011 was actually lower than expected in the 2008-based Projections (hence arguably there is no evidence of constrained household formation). However, in the future the reductions in average household size are more modest when compared to the 'trend' expected in the 2008-based Household Projections.

3.7   Overall this data therefore indicates that household formation trends shown in the 2011-based Household Projections are lower than in the 2008-based Projections.

Figure 10: Trends and projected average household size
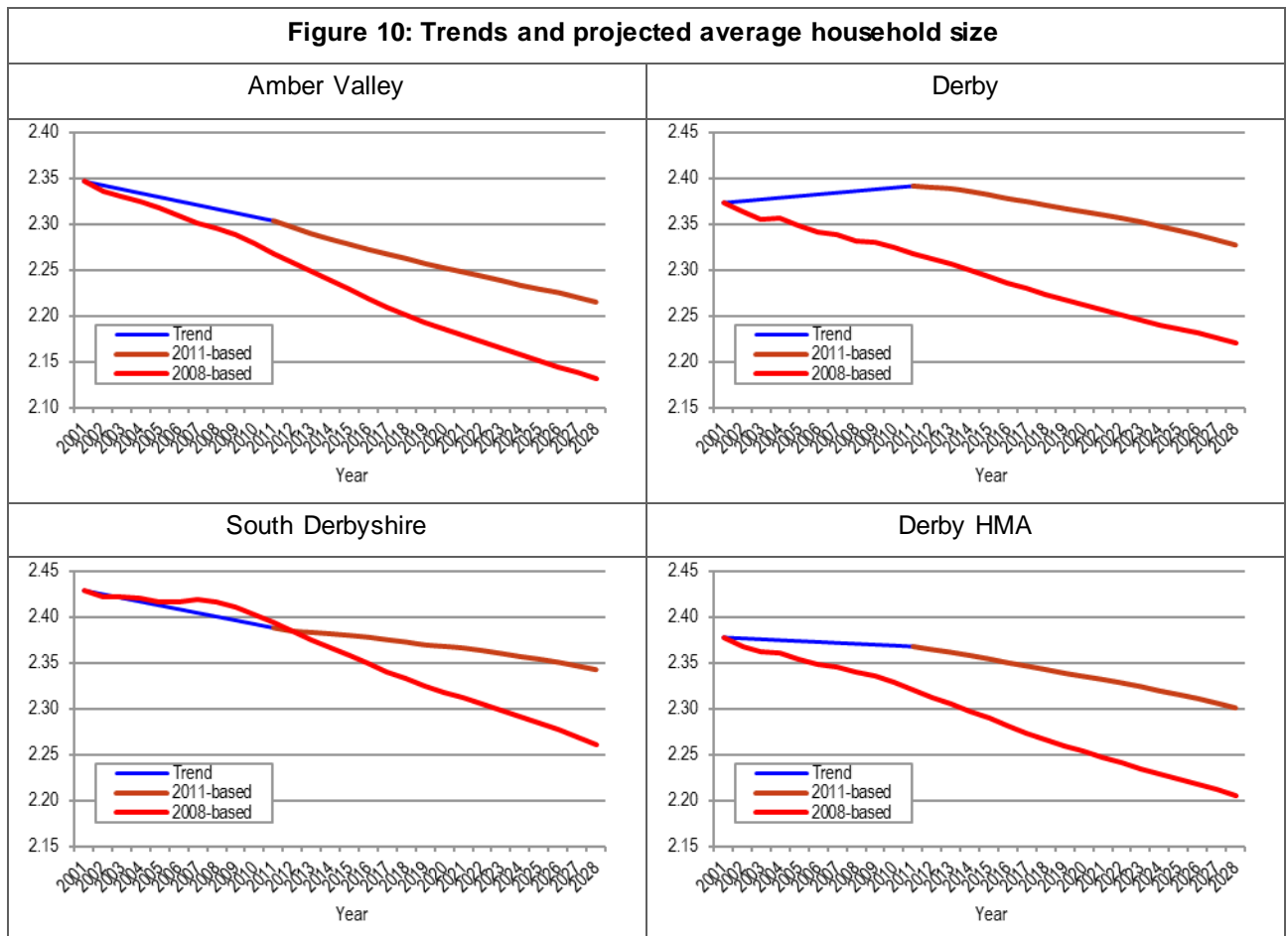
3.8 The national research highlights two possible factors which may have underpinned lower levels of household formation over the 2001-11 period relative to previous trends. The Holmans Study (TCPA, Sept 2013) sets out:

"The central question for the household projection is whether what happened in 2001 – 11 was a structural break from a 40-year trend; or whether household formation was forced downwards by economic and housing market pressures that are likely to ease with time. At the time of the 2011 Census, the British economy was still in recession and the housing market was depressed. The working assumption in this study is that a considerable part but not all of the 375,000 shortfall of households relative to trend was due to the state of the economy and the housing market. 200,000 is attributed to over-projection of households due to the much larger proportion of recent immigrants in the population, whose household formation rates are lower than for the population as a whole. This effect will not be reversed. The other 175,000 is attributed to the economy and the state of the housing market and is assumed to gradually reverse."

3.9   Holmans indicated that across England the net growth in households between 2001-11 was 20% lower than predicted in the 2008-based Household Projections. The 'working assumption' in his paper is that around half of the lack of expected households is due to market factors, with roughly half attributable to other issues (notably international migration). This observation drives the analysis in this section.

3.10   In the future, household formation trends are likely to be effected by the speed and pace of recovery in the economy and housing demand (as well as growth in housing supply). These factors are inherently difficult to accurately predict.

3.11   Given the uncertainty about how household formation rates might change in the future and whether or not we might see some improvement in the ability of households to form (relative to the trends in the 2011-based Projections) it is worthwhile to consider different scenarios for housing need by undertaking a sensitivity analysis around household formation rates.

3.12   The additional scenarios tested are to some degree justified by analysis carried out by CCHPR at a national level which suggests that about half of the difference between long-term trends in household formation (as in the 2008-based Household Projections) and trends over the 2001-11 decade (as in the 2011-based Household Projections) is due to higher levels of international migration and growth in BME communities; with about half being due to market factors (such as constrained household formation due to a lack of mortgage availability).

3.13   There are a number of alternative ways to look at this issue. In this paper we discuss three alternatives:

- Method 1: A Partial Return to Trend
  This is the methodology used by CCHPR and looks to return headship rates back towards those in the 2008-based Projections, in a partial way and phased over time.

- Method 2: Using 2011-based Household Formation Rates to 2021 and then 2008-based Rates (suitably rebased) thereafter.
  This method has been used in a number of studies and models household formation based on the CLG 2011-based Household Projections to 2021. It recognises the influence of housing market conditions on rates of household formation. In the longer-term it assumes that household formation will be more similar to longer-running trends as shown in the 2008-based Household Projections.

- Method C: Tracking Headship Rates at a midpoint between 2011- and 2008-based rates (from the mid-2011 baseline)
  This method is similar to Method 1, above although it takes a more consistent position between different areas and doesn't attempt to over- or under-correct in locations that have seen a bigger/smaller divergence from the 2008-based Position.

3.14   We have therefore run a series of additional projections looking at the impact of a range of different assumptions about household formation (headship) rates. The projections are still based on the population projections in the SHMA which as discussed above continues to be reasonable, although potentially slightly on the high-side set against the latest demographic data.

3.15   For clarity the three additional scenarios are:

- A: Part Return to Trend
- B: 2011-based Headship Rates to 2021 then tracking 2008-based Rates
- Tracking midpoint between 2011- and 2008-based Headship Rates

Sensitivity A: Modelling a "Part Return to Trend" in Household Formation

3.16   One method to look at household formation rates is to project for there to be some return to the long-term trends shown in the 2008-based CLG Household Projections. This approach has been used by CCHPR in a number of recent assessments, including in preparing demographic projections for the West Northamptonshire Joint Planning Unit (JPU).

3.17   Essentially for a number of (particularly younger) age groups there has been a significant shift away from long-term trends in rates of household formation (as included in the CLG 2008-based Household Projections) which in part is considered to be due to market conditions such as difficulties in obtaining mortgage finance.

3.18   The methodology employed has been based on the CCHPR work for West Northamptonshire although there are some small differences in the detail. CCHPR make the following assumption:

A 'Partial return to trend' projection. This assumes that after 2015 household formation rates recover towards the 2008-based rates, reaching the mid-way point by 2025. Thereafter, they are assumed to remain half-way between the two until 2031. There is no particular science behind the 'half-way' assumption: it is an assumption chosen on the basis that it is unlikely that there will no move back towards the previous trend and improbable that there will be a full return to that trend in the foreseeable future.

3.19   Our analysis follows this broad approach but considers that household formation rates begin to recover from 2011 and that they reach the 'midpoint' by 2028 (which is the end of the projection period covered in the report). In line with CCHPR research all analysis is applied for individual age (and sex) groups.

3.20   As noted in the CCHPR report:

"It is our assumption that a full return to trend is highly unlikely over the plan period in part because economic improvement is expected to be slow and in part because there are structural factors suggesting some slowdown in formation rates. "

3.21   Before providing the outputs of this projection we can study the particular impacts of different age groups.

3.22   In Figure 11 we have set out household formation rates, which show the proportion of households in different age groups who are the 'head of a household.' For the purposes of setting out the charts, we have combined males and females and used broad 10-year age categories. In the detailed modelling carried out, headship rates have been derived for 5-year age groups and for both sexes. For the various charts below the scale is different, but in all cases the range is 0.2 to allow relative differences between age groups to be easily compared.

3.23   The data confirms that differences between the CLG 2008- and 2011-based Household Projections are mainly in the younger age groups, with all age groups up to 44 showing lower rates of household formation in the 2011-based Projections when compared with 2008-based figures. The most notable differences are for the 25-34 and 35-44 age groups. The analysis below shows that in both cases the part return projection sees an expected increase in household formation rates against a backdrop where the 2011-based rates expected household formation to either fall or remain largely unchanged.

3.24   The difference between the 2011- and 2008-based household formation rates for all other age groups are pretty minor. It is however interesting to note that the 2011-based Projections actually expected a higher headship rate amongst those aged 75-84 and 85 and over than was observed in the 2008-based Projections (which could for instance reflect a trend towards lower proportions of people resident in care homes).

Figure 11: Projected household formation rates by age of head of household (both sexes combined)
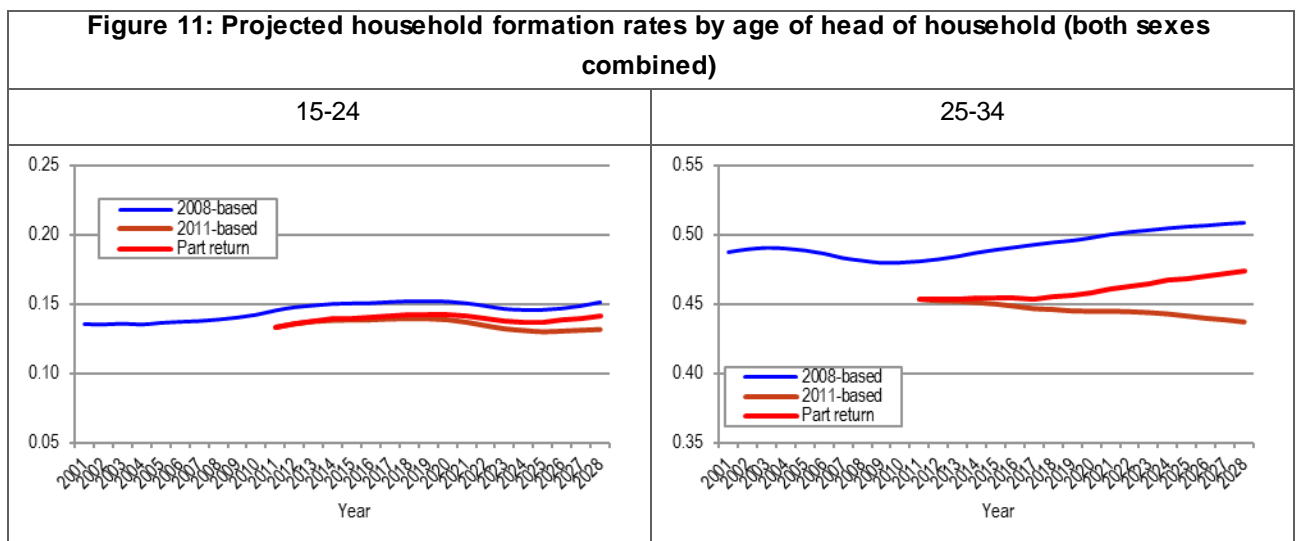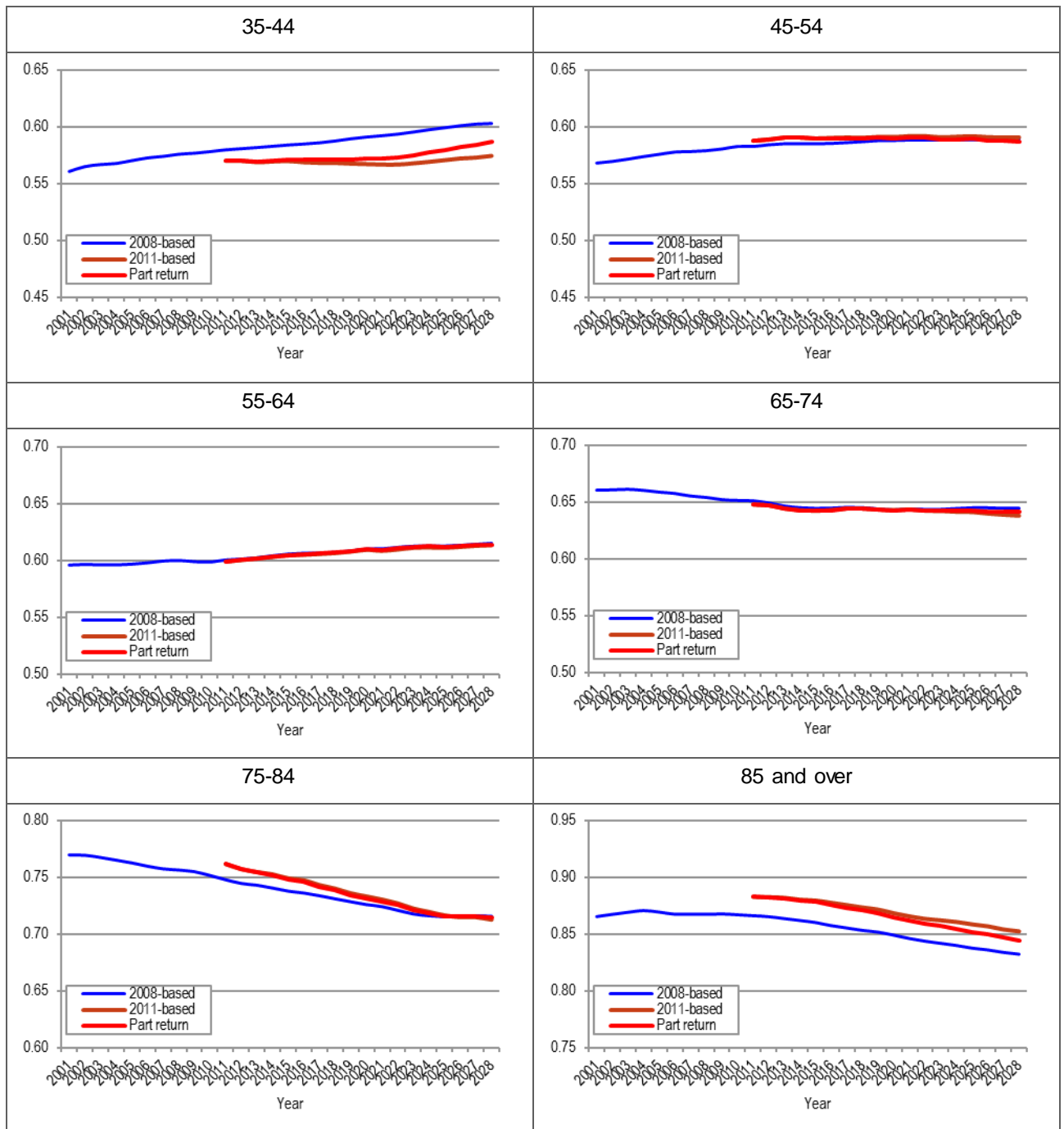
3.25   The rates above (in their more refined form in terms of age/sex groups) can be run through our demographic analysis. The outputs in terms of housing numbers can be seen in Figure 12 below (the figures are compared with those in the SHMA).

3.26   The data shows that with this partial return to trend methodology, a higher level of housing need is shown. Taking the 17-year period to 2028 the analysis shows a need for 2,020 dwellings compared

with 1,802 using the household formation assumptions in the 2011-based Household Projections. This is an increase of 12%.

3.27   Looking at the individual authorities, the analysis shows a notably higher housing need in Derby and Amber Valley with South Derbyshire seeing relatively little change. The differences will be to a large degree be related to the extent to which the start point in 2011 is different to the expected position in the 2008-based Projections. This explains the smaller change for South Derbyshire compared to other areas.

Figure 12: Updated demographic projection – partial return to 2008-based Rates				
Area	Part return to trend	SHMA	Change	% change
Amber Valley	460	403	+57	+14%
Derby	1,005	860	+145	+17%
South Derbyshire	555	539	+16	+3%
Derby HMA	2,020	1,802	+218	+12%

Using 2008-based Household Formation Rates post 2021

3.28   The second alternative view of headship rates is slightly more simplistic and is based on using the 2011-based rates up to 2021 (which is the full length of time those projections are available for) and then using 2008-based trends thereafter (rebased to a 2021 start point). This methodology essentially assumes that household formation continued over the period to 2021 in line with 2001-11 trends; but increases in line with long-term trends thereafter.

3.29   The outputs of this projection are shown in Figure 13 below. As with the 'return to trend' scenario, this headship methodology also shows a higher housing need than the projection linked to 2011-based headship rates (as in the SHMA). Over the 17-year period to 2028 the estimated housing need is for 1,950 dwellings, which is 8% above the SHMA figures. The variation between areas is less than was seen in the part return to trend methodology.

Figure 13: Updated demographic projection – 2008-based rates post 2021				
Area	2008-based post 2021	SHMA	Change	% change
Amber Valley	434	403	+31	+8%
Derby	950	860	+90	+10%
South Derbyshire	566	539	+27	+5%
Derby HMA	1,950	1,802	+148	+8%

Tracking Midpoint between 2011- and 2008-based Household Formation Rates

3.30   The final alternative view of headship rates takes the 2011- and 2008-based figures and projects forward on the basis of the midpoint in trends between the two. In many ways this methodology will reflect the work carried out by CCHPR at a national level where it was observed that about half of the movement away from household size trends was due to international migration and growth in BME communities with the other half being due to market factors (suppressed household formation).

3.31   The outputs of this projection are shown in Figure 14. As with the other scenarios, this headship methodology also shows a slightly higher housing need than the projection linked to 2011-based headship rates. Over the 17-year period to 2028 the estimated housing need is for 1,964 dwellings, which is 9% above the 2011-based figures.

Figure 14: Updated demographic projection – tracking midpoint between 2011- and 2008-based rates				
Area	Tracking 2011- and 2008- based	SHMA	Change	% change
Amber Valley	435	403	32	+8%
Derby	964	860	104	+12%
South Derbyshire	565	539	26	+5%
Derby HMA	1,964	1,802	162	+9%

Conclusions on Headship Rates

3.32   Drawing together the analysis together, the sensitivity testing indicates that household formation rates could be stronger than modelled in the 2013 SHMA Update taking into account the recent research evidence.

3.33   Overall, the level of need in the 2011-28 period increases by 8%-12% depending on the scenario being run. The sensitivity analysis projections indicate a housing need for between 1,950 and 2,020 dwellings per annum across the three authorities in the HMA, compared to 1,802 dwellings per annum in the SHMA analysis).

3.34   Considering each of the methodologies in turn, the issue with the partial return to trend approach (Method 1) is that international migration has been shown (in Section 2) to have been an important component of population trends in Derby in particular. This can be expected to have some continuing effect on household sizes for key age groups, and means that trends which see some return towards 2008-based household formation rates over time may over-estimate household formation.

3.35   Given an improving housing market position (at least nationally) it does seem that we may some improvement in household formation rates relative to trends in the 2011-based Projections in the period before 2021; whilst assuming that household formation post 2021 is in line with longer-term trends, based on the Holmans analysis, is arguably optimistic. These are relevant to evaluating Method 2.

3.36   Whilst there is merit to each of the methodologies developed we would consider that using a midpoint between 2008- and 2011-based headship rates is probably the most robust – taking account of both supressed household formation and also the likelihood that some of the change in average household sizes is due to international migration and the growth in BME communities.

3.37   In drawing conclusions on overall housing need, as well as considering headship rates it is appropriate to reflect both on the recent migration evidence and the analysis of economic performance and potential in the 2012 HRS and 2013 SHMA Update.

4   INTEGRATING ANALYSIS WITH THE WIDER EVIDENCE

Economic Forecasts

4.1   The HRS included projections which related to both population trends and expected future economic performance.

4.2   An economic-driven scenario was presented in the HRS (and taken forward in the 2012 SHMA) which modelled what population growth would be necessary to support forecast growth in employment. Between 2012-2028, Experian forecasts indicated (net) employment growth of 1,600 jobs in Amber Valley, 5,900 in Derby and 1,200 in South Derbyshire.

4.3   The 2013 SHMA Update modelled the implications of this on housing need. Compared to the projections based on past population trends (trend-based) which indicated a need for 1,800 additional homes a year between 2011-28, the economic-driven projections indicated a need for 1,235 homes a year. This represented a level of need 32% lower than projected based on the population trends.

4.4   Whilst the Derby HMA authorities have not sought to develop planning policies based on the economic projections, future employment growth clearly represents a potential downside risk to the level of housing need identified based on projections of past population trends.

Updating Population Projections

4.5   The final analysis in this document considers the potential impact of the more recent demographic information studied in Section 2. This is mainly in relation to migration where the projections use the average level over the past five years as the 'start point' level for projecting migration moving forward.

4.6   A further projection is set out below which remodels migration based on the most recent data. This further projection is based on the following:

- The 'start point' level of migration is based on the average level over the past five years (2007-12). Internal and international migration are treated separately in this respect;
- Moving forward, migration is assumed to change in line with the incremental changes shown in the 2011-based SNPP to 2021. Post 2021, the incremental changes are based on the 2010-based SNPP.

  For Derby and South Derbyshire this sees a decreasing level of net migration moving forward, with the opposite being true for Amber Valley. This pattern of changing migration is consistent with past ONS projections and also consistent with the approach taken in the HRS/SHMA. We

have no evidence to suggest that such a 'trend' will be any different in the next round of (2012-based) SNPP when these are published in May 2014;

- Two projections are run; one based on the straight migration figures and a second takes account of Unattributable Population Change (which mainly impacts Derby City);

- In all cases modelling based on the 'midpoint headship' rates set out above have been set out for comparative purposes.

4.7   Figure 15 shows a summary of the outputs of updating the demographic projections. The data shows that updating migration but not taking account of UPC that a housing need from 2011 to 2028 of 1,940 homes per annum across the HMA is shown. This is not much different to that currently shown in the demographic projections in the SHMA (1,964 homes per annum across the HMA if applying midpoint headship rates, as shown in Figure 14).

4.8   Under this projection the identified housing need for Derby increases slightly, whilst for South Derbyshire it goes down. These differences are consistent with the migration trends shown and described above. For Amber Valley the new projection shows a very slightly lower housing need – although the start point for migration analysis being virtually the same there are some differences in the components of migration (i.e. in-, out and internal vs. international) as well as how these are expected to change in the future. The difference (of 10 units per annum) is however relatively modest.

4.9   If we additionally take account of UPC we find that the projected housing need comes out somewhat lower. This is almost entirely due to a reduction in expected housing need in Derby (down by 133 per annum) with South Derbyshire reducing by 10 homes per annum and no change being seen in Amber Valley. Overall, this alternative demographic projection shows an annual housing need which is very similar to that shown in the 2013 SHMA (1,797 vs. 1,802), although the derivation of the figures is somewhat different.

Figure 15: Updating demographic projections to take account of more recent migration and population change data				
Area	New projection (excluding UPC) – midpoint headship	New projection (including UPC) – midpoint headship	SHMA (with midpoint headship)	SHMA (as published)
Amber Valley	425	425	435	403
Derby	988	855	964	860
South Derbyshire	527	517	565	539
Derby HMA	1,940	1,797	1,964	1,802

Drawing the Analysis Together

4.10   Overall the analysis suggests that the demographic modelling carried out in the HRS and SHMA remains sound. More recent migration data suggests that small changes could justifiably be made to the analysis but that overall this would not have a big impact on the figure. If however we were to include Unattributable Population Change (UPC) in the analysis then the projections do decrease somewhat.

4.11   Regarding UPC it is worthwhile noting that ONS are at present not proposing to include this as part of their 2012-based projections but are currently consulting on the methodology with UPC being the main aspect about which comments are being sought. For information, JGC has submitted a detailed response to ONS suggesting that UPC should be taken account of in the projections. This was accompanied by a short paper explaining the reason why such a consideration should be made.

4.12   Regarding household formation rates it is recognised across the HMA (and most notably in Derby and Amber Valley) that there is evidence that household formation rates could be stronger than indicated in the 2011-based Household Projections which were used in the SHMA. This paper has sought to provide some indication of the impact on the housing numbers of applying different assumptions about how headship rates might change moving forward. These sensitivities suggest that the housing requirement (for 2011 to 2028) might be between 8% and 12% higher depending on which assumptions are used. However, the analysis suggests that there are a number of factors which could be used to justify either higher or lower housing numbers than currently being planned for and as derived in the SHMA analysis.

4.13   Figure 15 indicates that taking account of the latest migration data and adjusting household formation to sit at the 'midpoint' between those shown by the CLG 2008- and 2011-based Household Projections, the total level of housing need would fall between 1,797 – 1,940 homes per year across the HMA. The findings of the 2013 SHMA sit within this range.

4.14   Amending headship rates would put some upward pressure on housing need whilst more recent migration data (taking account of UPC) would put some downward pressure on (albeit this cancels out when considering both recent trends and headship rates together). Furthermore the economic evidence, whilst this did not directly inform the conclusions of the SHMA, provides a potential downside risk to projections of demographic trends.

4.15   The sensitivity analysis herein overall highlights the range of factors which could affect future housing need and difficulty in projecting housing need over 15+ years. Overall the balance of the evidence does not undermine the analysis undertaken as part of the 2013 Derby HMA SHMA.