

South East England Regional Assembly
South East Plan Demographic Projections
Paper for EIP Data Session on Demographic Forecasts
16 October 2006

NB: This paper should be read in conjunction with the Regional Assembly's Technical Note 5: Demography

1. Introduction

- 1.1 Until the publication of the DCLG household projections in March 2006, the most recent official household projections were 1996-based, published by the then DETR in October 1999. These were based on trends in household formation rates as measured by the 1971, 1981, and 1991 censuses, together with Labour Force Survey information for the period 1992 to 1997. The underlying population projections were the ONS 1996-based sub-national population projections, published earlier in 1999. These were based on migration trends between 1992 and 1996, and were consistent with the GAD 1996-based national population projections.
- 1.2 At the time that much of the technical work for the South East Plan was being undertaken (2003/2004), much of the information underlying the official household and population projections had been superseded by more recent data. In particular, the results of the 2001 Census had become available, while at the end of April 2004, ONS published their draft 2002-based sub-national population projections, based on migration trends in the five year period 1998 to 2002.
- 1.3 Since the Government's timetable for producing updated official household projections, taking account of this new information, suggested 2005 or 2006 as the most likely years for publication, the Regional Assembly decided to produce its own 'best estimate' of what the updated official projections would show by re-basing the projections to 2001, and estimating modifications to the 1971 to 1996 trends occasioned by the new bench marks in 2001.

2. Regional Assembly Third Round Projections

- 2.1 The Regional Assembly's Third Round Projections were produced by the Chairman of the Assembly's Demography Sub Group for 'virtual counties' in the South East region, ie. county areas as they existed before the creation of unitary authorities.
- 2.2 They differ from the official 1996-based projections in the following ways.
 - (i) The population projections were the draft ONS 2002-based sub-national population projections. These projections were for broad age groups and gender. For each county and unitary authority, they were disaggregated

to five-year age and gender groups assuming the same distribution as in the GAD 2002-based population projections for England.

- (ii) Private household populations for each year were calculated by subtracting the 2001 Census count of persons resident in communal establishments by quinary age group and gender from the 2002-based sub-national population projections for each year. The population resident in communal establishments were therefore assumed constant.
- (iii) A comparison of the marital composition of the 2001 Census population for the South East region with the Government Actuary's Department's 1996-based projections for 2001 showed that the proportion of the population married had declined less rapidly between 1991 and 2001 than indicated by the projections, while the proportions who were single and divorced had increased less rapidly than projected. The GAD 1996-based projections of the proportions married, single, widowed or divorced in 2001 were modified across all age groups, for each gender separately, by the ratio between the 2001 Census proportions and the 1996-based projected proportions for 2001. The amended marital status proportions, when applied to the 2001 Census private household population by age, gender and area, produced the correct total numbers by gender in each of the four marital status categories in each area.
- (iv) The GAD 1996-based marital status proportions for all years after 2001 were modified by the ratio between the 2001 Census proportion and the 1996-based projected proportions for 2001 by age, gender, marital status and area. These proportions were controlled to sum to unity for each age and gender group. Projections for 2026 were produced by assuming the numerical difference between the amended 2016 and 2021 marital status proportions applied equally to the change 2021 to 2026.
- (v) In the South East region as a whole, the DETR 1996-based household projections over-estimated total households in the region by 108,600. Errors in the 1996-based projections of population and marital composition accounted for 67,100 of this difference; the remaining difference of 41,500 was due errors in the projected household representative rates (HRRs). Overall, the 1996-based projected HRRs for 2001 projected larger than actual numbers of married couple, other multi-person, and one person households, and fewer than actual lone parent and cohabiting couple households.
- (vi) In order to modify the 1996-based HRR projections to take account of the 2001 Census information on household composition, an initial estimate of households by household type was obtained by applying the 1996-based HRRs for 2001 to the 2001 Census private household population by age, gender and marital status. The 1996-based HRRs for 2001 were then modified by multiplying the rates for each household type and gender by the ratio between the Census count of households by household type and gender, and the initial estimate of households by household type and gender. The same ratio was used for each age group within a household type. The amended household representative rates, when applied to the 2001 Census private household population by age,

gender, marital status and area, produced the correct total numbers of household representatives by gender in each of the five household types in each area.

- (vii) In order to reflect the difference between the calculated and projected HRRs at 2001 in the projections for future years, the projected change in the rates between 2001 and each future year were multiplied by the ratio between the calculated and projected change in the rate between 1991 and 2001, and this modified change added to the calculated rate for 2001. A degree of iteration was required in this process to ensure that the aggregate of the HRRs for any age, gender, marital status group did not exceed unity (they were, in fact, controlled not to exceed 0.9999). Projections for 2026 were produced by assuming the numerical difference between the amended 2016 and 2021 household representative rates applied equally to the change 2021 to 2026.
- (viii) It should be noted that in this exercise, the draft ONS sub-national population projections for 2002 to 2027 were treated as if they related to the period 2001 to 2026, ie. marital status and household representative rates for 2001, 2006, etc. to 2026 were applied to the draft sub-national population projections for 2002, 2007, etc to 2027. Whilst this will obviously have a small effect on the magnitude of the household projections for individual years, the effect on projected household change over the twenty-five year period is likely to be minimal.

3. Results

Population Projections

- 3.1 Table 1b shows the components of change in the ONS 2002-based sub-national population projections for the period 2002 to 2027. Tables 1a and 1c show the components of change in the ONS 1996-based and 2003-based projections for comparable twenty-five year periods.
- 3.2 In the 2002-based draft sub-national population projections, the population of the South East region is projected to increase by 1,094,800 between 2002 and 2027. This compares with increases of 1,009,700 and 1,141,800 in the 1996-based and 2003-based projections respectively over comparable twenty-five year periods.
- 3.3 These projections illustrate a fairly consistent trend in the ONS assumptions relating to migration, specifically a steady reduction in the assumed net in-migration to the South East from the rest of England, counterbalanced by a steady increase in the assumed net in-migration from outside England. These assumptions reflect the actual flows in the years immediately preceding the base years for the projections.
- 3.4 Projected population increase from natural change is substantially greater in both the 2002-based and 2003-based projections compared with the 1996-based. This is due to the significantly increased rates of improvement in mortality rates, particularly those for males, which the Government Actuary's Department first introduced in their 2002-based national population

- projections. The resulting lower mortality rates produce fewer deaths, and thus higher population growth from natural change for any given level of fertility.
- 3.5 The main reason that the 2002-based draft sub-national population projections for the South East project a lower population increase than the 2003-based projections over the twenty-five year period is the element termed 'Unattributable Population Change'. This element comprises that part of the difference between the population estimates for 2001, rolled forward from the 1991 Census, and the 2001 Census results, which ONS were unable to account for. It comprised predominantly males in the 20 to 39 age range, and was thought to result mainly from errors in the estimates of out-migrants from the UK to other parts of the world.
 - 3.6 Because it was thought likely that this would be an ongoing problem, the intention was to adjust each year's mid-year estimate by these district specific estimates. The draft 2002-based sub-national population projections therefore also incorporated these annual adjustments.
 - 3.7 ONS subsequently decided to abandon adjustments for Unattributable Population Change in both their population estimates and their sub-national population projections. As a result of this decision, the 2002-based sub-national population projections were abandoned prior to publication, and they moved forward immediately to the preparation of the 2003-based projections. These were finally published on 25 November 2004, four months after the Regional Assembly had completed work on its Third Round Projections.

Household Projections

- 3.8 Table 2b presents the results of the Regional Assembly's Third Round household projections for the period 2002 to 2027. Table 2c presents the DCLG 2003-based household projections for the period 2001 to 2026, while Table 2a shows the DETR 1996-based household projections for the period 1996 to 2021.
- 3.9 The Regional Assembly's Third Round projections indicated an increase of 847,000 households in the South East between 2002 and 2027. This compares with an increase of 890,000 households between 2001 and 2026 projected by the DCLG 2003 based projections, and an increase of 835,000 households 1996 to 2021 in the DETR 1996-based projections.
- 3.10 Relative to the Regional Assembly's projections, the DCLG projections project substantially more cohabiting couple and one person households, but fewer married couple, lone parent and other multi person households. The DCLG projections indicate an increase of 501,000 one person households between 2001 and 2021, compared with the 1996-based projection of 412,000 additional one person households for the same period.
- 3.11 Part of this difference will be accounted for by the differences in the population projections, but it is nevertheless worth recalling that the 1996-based household representative rates for 2001 resulted in an over-estimate of one person households of around 16,000, all of them males. An increase of 429,000

one person households between 2002 and 2022 is projected by the Regional Assembly's Third Round projections.

- 3.12 Notwithstanding the differences in detail between the three sets of household projections described above, the projections of average household size in 2021 are very similar. The DCLG's projected average household size of 2.13 in 2026 compares with the Regional Assembly's projection of 2.15 for 2027.

Table 1a: ONS 1996-based Sub-National Population Projections

	1996	2021	Change 1996 to 2021
South East			
Persons	7,895,300	8,905,000	1,009,700
of which:			
Natural Change			199,700
Total Net Migration			810,000
of which:			
Net Migration from the rest of England			525,000
Net Migration from other parts of the UK outside England and from the rest of the world			285,000

Table 1b: ONS Draft 2002-based Sub-National Population Projections

	2002	2027	Change 2002 to 2027
South East			
Persons	8,038,400	9,133,200	1,094,800
of which:			
Natural Change			346,200
Unattributable Population Change			-82,500
Total Net Migration of which:			831,100
Net Migration from the rest of England			499,400
Net Migration from other parts of the UK outside England and from the rest of the world			331,700

Table 1c: ONS 2003-based Sub-National Population Projections

	2003	2028	Change 2003 to 2028
South East			
Persons	8,080,300	9,222,100	1,141,800
of which:			
Natural Change			332,000
Total Net Migration			809,800
of which:			
Net Migration from the rest of England			420,800
Net Migration from other parts of the UK outside England and from the rest of the world			389,000

Table 2a: DETR 1996-based Household Projections (thousands)

	1996	2001	2006	2011	2016	2021	2026
South East							
Household types:							
married couple	1,703	1,667	1,638	1,624	1,620	1,616	N/A
cohabiting couple	257	330	394	441	472	494	N/A
lone parent	146	158	163	163	162	160	N/A
other multi-person	232	258	288	323	358	387	N/A
one person	887	990	1,084	1,183	1,294	1,402	N/A
All households	3,225	3,403	3,567	3,735	3,905	4,060	N/A
Private household population	7,745	7,985	8,195	8,384	8,570	8,749	N/A
Average household size	2.40	2.35	2.30	2.25	2.20	2.16	N/A

Table 2b: Regional Assembly Third Round Projections (thousands)

	2002	2003	2007	2012	2017	2022	2027
South East							
Household types:							
married couple	1,671	N/A	1,631	1,619	1,622	1,624	1,591
cohabiting couple	315	N/A	378	428	459	483	506
lone parent	189	N/A	210	221	230	240	251
other multi-person	193	N/A	215	241	266	287	312
one person	945	N/A	1,038	1,144	1,260	1,374	1,501
All households	3,313	N/A	3,472	3,654	3,837	4,007	4,160
Private household population	7,848	N/A	8,046	8,258	8,487	8,720	8,933
Average household size	2.37	N/A	2.32	2.26	2.21	2.18	2.15

Table 2c: DCLG 2003-based Household Projections (thousands)

	2001	2003	2006	2011	2016	2021	2026
South East							
Household types:							
married couple	1,660	1,644	1,616	1,584	1,568	1,563	1,556
cohabiting couple	299	310	359	429	487	532	570
lone parent	191	202	211	222	228	232	237
other multi-person	205	208	212	223	236	245	252
one person	940	984	1,046	1,168	1,304	1,441	1,570
All households	3,294	3,348	3,445	3,626	3,822	4,013	4,184
Private household population	7,833	7,890	8,017	8,239	8,469	8,705	8,925
Average household size	2.38	2.36	2.33	2.27	2.22	2.17	2.13