

POPULATION PROJECTIONS WORKING GROUP (PPWG)

Accuracy of the Sub-National Population Projections for Scotland

Comments are welcome on any points covered in this paper, either at the meeting or by e-mail to Esta Clark (esta.clark@gro-scotland.gsi.gov.uk).

Key points:

- The estimated population at mid-2005 for Scotland was 5,098,400; projections for mid-2005, since the 1994-based set, ranged from a maximum of 5,113,870 in 1994 (0.4 per cent too high) to a minimum of 5,030,170 in 2002 (1.3 per cent too low);
- As would be expected the projection made most recently (2004-based) was the best in projecting the overall size of the population in 2005. The projection based on 2002 was the worst, as the trend based approach did not predict the historic rise in positive net-migration;
- Council areas where the trend has not changed tended to be projected better than those that have changed as the trend based approach does not pick up changes until they have taken place in the base data;
- The majority of the errors across Council areas for most of the projections for mid-2005 are between +/-6%;
- Errors in the migration assumptions contribute the most to the overall error, followed by errors in the base population for the majority of Council areas;
- Overall deaths tended to be better projected than births for mid-2005, possibly partly because of the greater interaction between migration and births;
- In some areas the errors in different components for some projections offset each other giving what overall would seem like a good prediction but is really only that because of chance;
- For all the time periods (i.e. projecting 2, 4, 6, and 8 years ahead) the age group which is predicted the worst across Council areas is 0-15 year olds, followed by 16-64 years olds. The 65 years and older age group is predicted the best probably because they are less affected by errors in the base population, migration and fertility assumptions;
- Errors across Council areas are more spread out the further ahead the projection, especially for the 0-15 age group.

1. Introduction

1.1 Past projections have been compared with the mid-year estimates as part of the review into the sub-national projections for administrative areas produced by the General Register Office for Scotland (GROS).

1.2 GROS has been producing sub-national projections every 2 years since the first 1970-based set for the then 8 planning regions. Over the years these projections have been used to help plan the provision of services and also to allocate funds. They show the effect on future populations in different parts of the country of assumptions on future fertility, mortality and migration. The assumptions, and thus the projections, are made on a consistent basis for different parts of the country, in that they are derived in a consistent way from data on the same basis for different areas. They are also consistent with the Government Actuary's Department national projections for Scotland as a whole. This 'top down' approach ensures that sub-national projections reflect the results of analysis of past national trends and prevents any bias towards over-estimation which can occur when sub-national projections are made locally. While of course no one can predict future populations with any accuracy, these projections show what will happen if recent past trends continue, making no allowance for the impact of policies and natural disasters.

1.3 The first available projection for the present 32 Council areas is the 1994-based set. This paper compares the 1994-based, 1996-based, 1998-based, 2000-based, 2002-based and the most recent 2004-based projections with the current mid-year estimates series published after the 2001 Census.

1.4 GROS has always been careful to refer to these figures as projections rather than forecasts. It is hoped that the assumptions on the projections are based are plausible but there can be no confidence that such assumptions, will continue throughout the projection period. Indeed, projections of what could be expected to happen if certain trends or policies were to continue may of themselves cause actions to be taken to change the trends or policies in order to avoid what are seen to be undesired outcomes. Nevertheless it is interesting, and perhaps constructive, to compare past projections with actual populations for the same year, as measured by the GROS mid-year population estimates.

1.5 There are two main sources or error in projecting populations based on past trends. The first are errors in the base population. Mid-year estimates are made using the demographic cohort component method. They start at the most recent Census (2001), the population is aged on (i.e. 0 year olds become 1 year olds and so on), births are added, deaths subtracted and adjustments for migration and special populations are made. If there are errors in the Census day count then the subsequent estimates the projections are based on will be wrong also errors in the components used to produce the annual estimates will also contribute to this error. The main source of errors in the annual estimates are the migration estimates as unlike births and deaths there is no comprehensive source for measuring migration, therefore, the best proxy information from the health service and survey data has to be used. The second type of error comes from the assumptions made about the components (fertility, mortality and migration). It must always be borne in mind, however, that the precise circumstances and events which led to errors in past projections are unlikely to be exactly repeated in the future.

1.6 Users of projections are reminded that projections are not intended to be reliable accurate forecasts. The predictive quality of the sub-national projections for Scotland depends partly on the national projections to which they were controlled. A separate paper will be produced looking into the effect of controlling the sub-national projections to the national totals and the Office for National Statistics (ONS) plan to publish a paper next year on the accuracy of national projections.

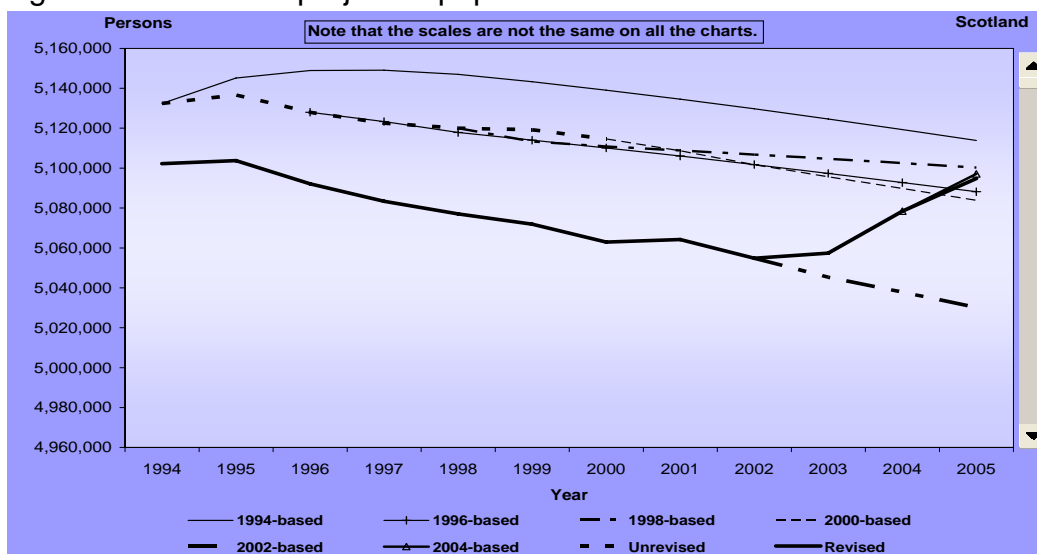
2. How Accuracy is Measured

2.1 In this paper the accuracy of the past projections has been assessed by comparing projected outcomes from past projections to the latest (mid-2005), or most appropriate mid-year estimate, based on the results of the 2001 Census. However, another way of measuring the accuracy of projections is to produce alternatives i.e. variant projections. A separate paper will be produced on variant projections later on in this review.

3. Population Size

3.1 The actual and projected total population of Scotland between 1994 and 2005, according to the projections made since the 1994-based set, is shown in **Figure 1**. The Excel workbook which goes with this paper called “**CouncilchartsFig1.xls**” contains the corresponding charts for each Council area. It is clear that the results of these projections have varied for Scotland and for Council areas. The starting point for the projection lines before the 2000-based set is in many cases above or below the solid line indicating the actual estimated population at the time. This illustrates one potential source of projection error mentioned above; that the population on which the projection is based is revised when new information becomes available, for example, the results of the 2001 Census. The solid black line in the charts shows the current mid-year estimate series which takes into account the results of the 2001 Census. The unrevised mid-year estimates prior to the 2001 Census are also shown by the solid single repeated dotted line (- - -) to give the starting points of projections prior to the 2000-based set.

Figure 1 Actual and projected population of Scotland 1994 to 2005



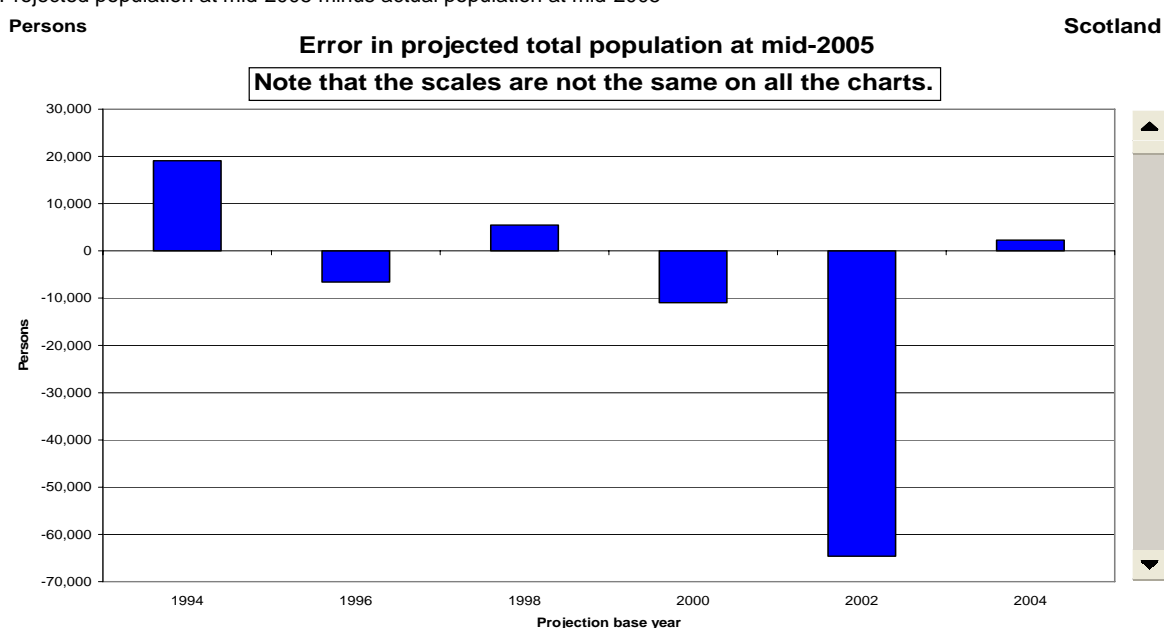
For the corresponding Council area chart please contact the Population Projections Working Group (PPWG) using the contact form available on this website.

3.2 A key point from these charts is the effect of the trend based approach in projecting recent trends in to the future i.e. areas where the trend has not changed tend to be projected better than those that have changed. Because, in this approach changes are not picked up by the projections until they have taken place in the base data.

3.3 An indication of the short and medium-term accuracy of recent projections is given by comparing the various projections of the population size in 2005 with the mid-year estimate for 2005 based on the results of the 2001 Census. This comparison, for the projections made every second year since the 1994-based set, is shown in **Figure 2** for Scotland. The equivalent charts for Councils can be found in the Excel worksheet called "**CouncilChartsFig1.xls**" which goes with this paper.

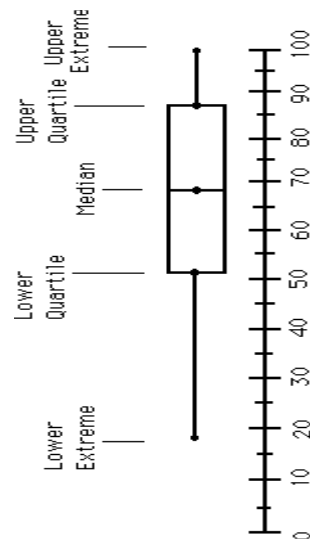
Figure 2 Error* in projected total population of Scotland at mid-2005

* Projected population at mid-2005 minus actual population at mid-2005



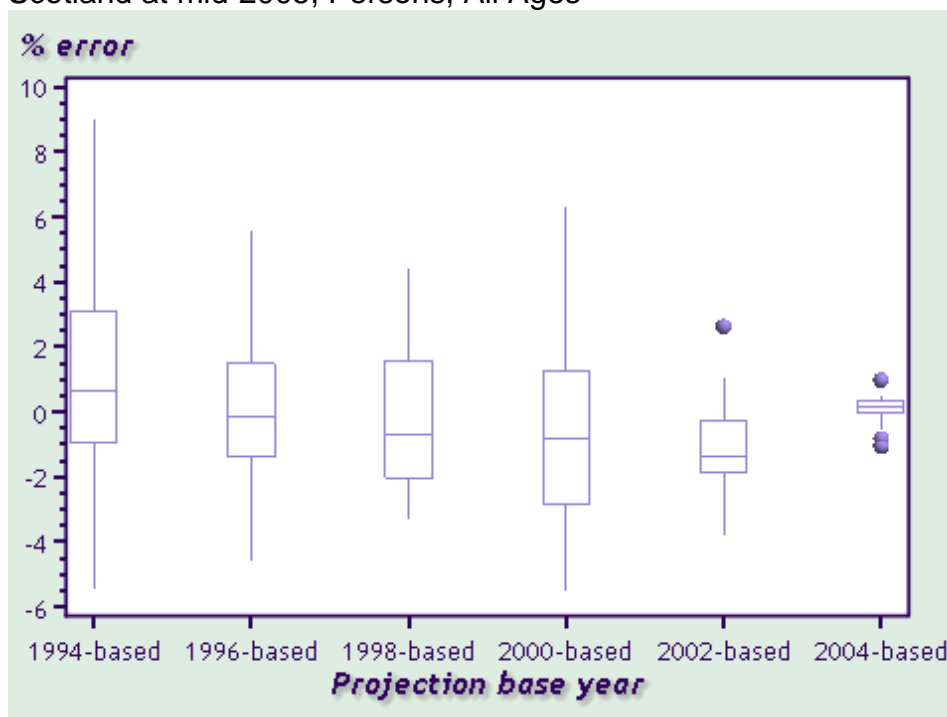
For the corresponding Council area chart please contact the Population Projections Working Group (PPWG) using the contact form available on this website.

3.3 The estimated population at mid-2005 for Scotland was 5,098,400; the projections since the 1994-based set ranged from a maximum of 5,113,870 in 1994 (0.4 per cent too high) to a minimum of 5,030,170 in 2002 (1.3 per cent too low). As would be expected the projection made most recently was the best in projecting the overall size of the population in 2005. The projection based on 2002 was the worst, unsurprisingly failing to predict the historic rise in positive net-migration to Scotland. For Council areas the percentage error (the projected population minus the mid-year estimate divided by the mid-year estimate times 100) across the Council areas is presented for each projection year using box plots in **Figure 3**. A box plot is sometimes used to visually represent data. It shows where the quartiles (quarters) of the data lie. It is useful for comparing data which has come from different sources. A box plot looks something like this –



3.4 The median is the middle value of the data arranged in increasing order; 50 per cent of the data are above and 50 per cent below this value. For the lower quartile 25 per cent of the data are below and 75 per cent above. And, for the upper quartile, 25 per cent of the data are above and 75 per cent are below the value.

Figure 3 Box plot of the % errors between the projected populations of Council areas in Scotland at mid-2005, Persons, All Ages



Note: the "dots" are outliers i.e. this term refers to one value in a group that appears to be very different from all the other values, but not extreme. Any extreme values would be indicated by an X.

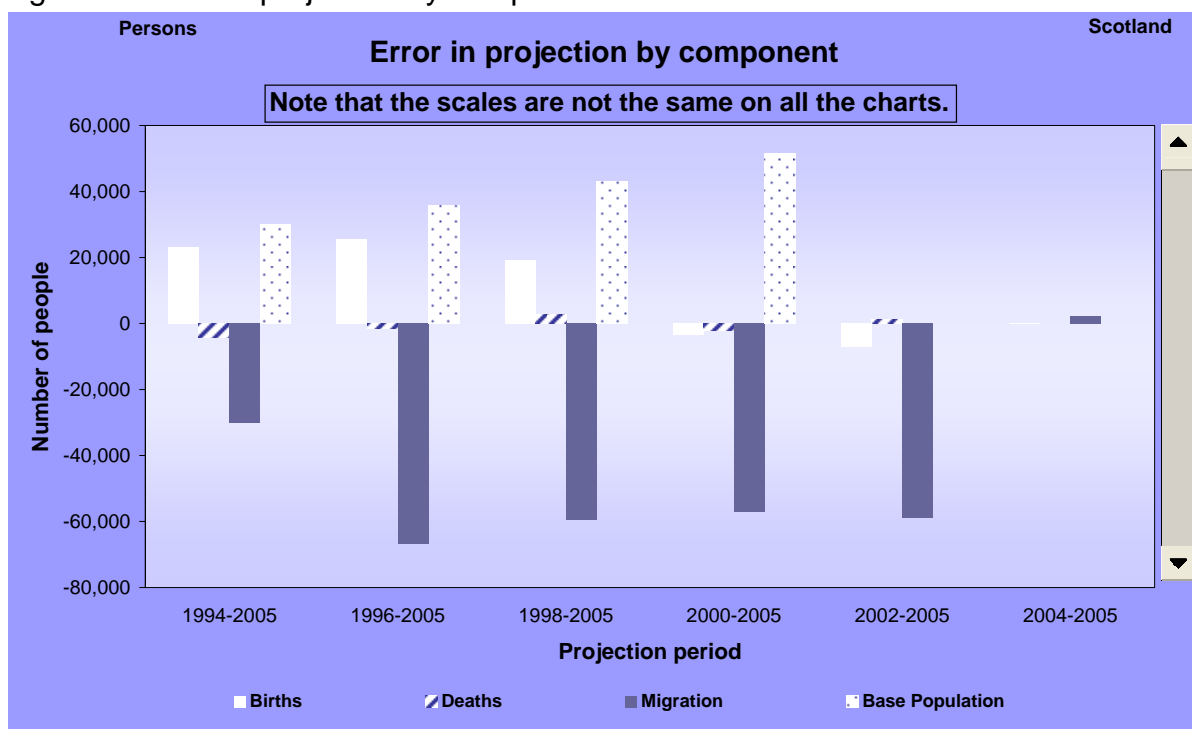
3.5 **Figure 3** shows that the spread of the errors across Council areas is less (i.e. the box is smaller) for the 2004-based projections and the 2002-based projections to a lesser extent, compared with the rest. Both these sets of projections are based on estimates after the 2001 Census, so it is unsurprising that their errors are less as they are not affected by base population errors. The 1994-based and the 2000-based projections have the largest spread of errors across the Council areas. The reason for the larger spread for the 2000-based projection is because it is at the end

of the 10 year intercensal period and is therefore affected the most by the base population errors for many Council areas. However, the majority of the errors across Council areas for most of the projections for mid-2005 are between +/-6%.

4. Births, Deaths, Migration and the Base Population

4.1 The size of a population changes because of births, deaths and net migration. Errors in population projections are therefore mainly a consequence of the errors in the projections of each of these three components. However, as noted above, errors in the population estimates upon which the projections are based also contribute to projection error. In **Figure 4**, the errors by component for Scotland's population at mid-2005 for the projections back to the 1994-based set are shown. Charts for Council areas are shown in the spreadsheet called "**CouncilChartsFig4.xls**".

Figure 4 Error in projection by component



For the corresponding Council area chart please contact the Population Projections Working Group (PPWG) using the contact form available on this website.

4.2 The errors for births, deaths and migration are calculated as the difference between the cumulative projected value at mid-2005 and the cumulative actual value at mid-2005. The base population error is calculated as the difference between the base population used in the projection and the current revised mid-year population for the base year e.g. for 1994 the unrevised base year population for mid-1994 minus the revised population after the 2001 Census results for 1994. The base year population errors for the 2002-based and 2004-based projections will not be available until the results of the 2011 Census are known.

4.3 Although the three component assumptions interact with each other, the assumptions made about fertility and mortality generally determine the number of births or deaths. At Scotland level, errors in the migration assumptions contribute the most to the overall error. The second largest error comes from the base population. This is also true for the majority of Council areas. For most areas the

error in the migration assumption was the biggest factor e.g. Aberdeen City, Aberdeenshire, Fife, West Lothian, Scottish Borders etc. However, for some areas errors in the base population were the largest factor e.g. Dundee City, Glasgow City etc. Overall deaths tended to be better projected than births for mid-2005, possibly partly because of the greater interaction between migration and births. In some areas for some projections the errors in different components offset each other giving what overall would seem like a good prediction but is really only that because of chance.

5. Age Groups

5.1 So far, this paper has concentrated on the accuracy of projections for total population and the assumptions made about fertility, mortality and migration – the three components of population change. However, most users of projections are more likely to be concerned with the combined effect these errors have on the projected size of particular age groups. **Tables 1 to 4** show how accurately the projections made over the past ten years or so have projected the population for broad age groups (0-15,16-64 and 65+) at 2, 4, 6, 8 and 10 years ahead by Council area. Positive errors represent overestimates of the future population and negative errors represent underestimates.

5.2 Again, the tables show that the errors by age get larger the further ahead you go. The errors are also larger for base years just before a Census. There is a lot of variation by Council area with some areas consistently showing errors for each time period. **Table 4** shows the error for 10 years ahead though it is worth noting that we only have one projection that will go this far ahead at Council area level. So what it is really showing is how well the 1994 projection predicted the population in 2004 rather than how accurately projections project for a 10 year period.

5.3 However it is hard to 'see' the errors by age group in the tables therefore the box plots in **Figures 5 to 8** show the errors by age group for 2, 4, 6 and 8 years ahead. For all the time periods the age group which is predicted the worst across Council areas is 0-15 year olds, followed by 16-64 years olds. The 65 years and older age group is predicted the best probably because they are less affected by errors in the base population, migration and fertility assumptions. What the box plots also show is that the errors across Council areas are more spread out the further ahead the projection e.g. with the boxes becoming wider especially for the 0-15 age group.

Figure 5 % error projecting for 2 years ahead

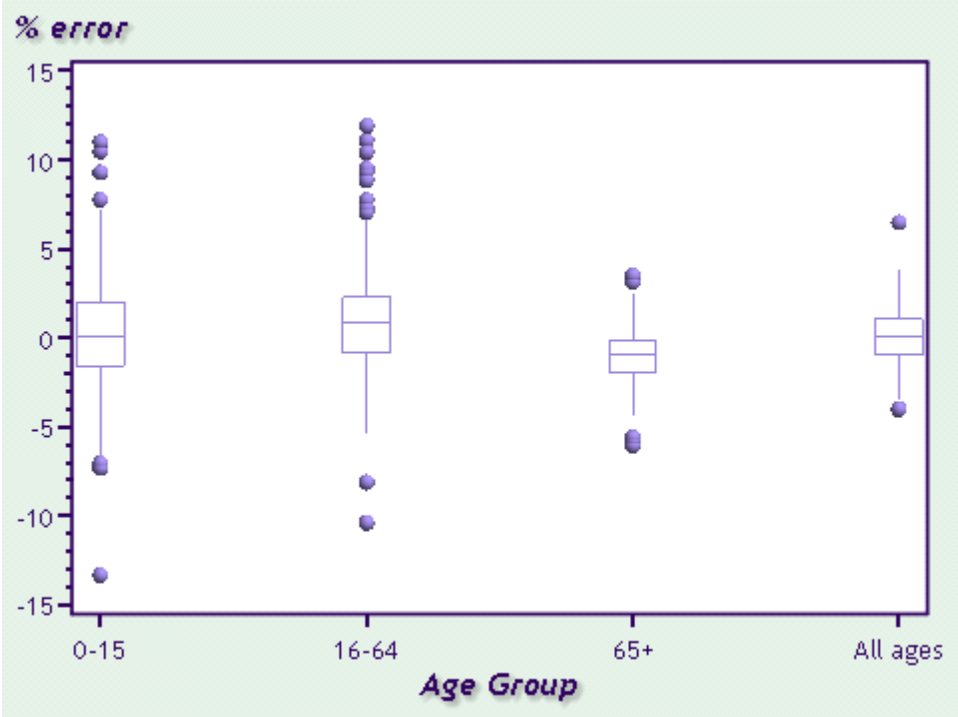


Figure 6 % error projecting for 4 years ahead

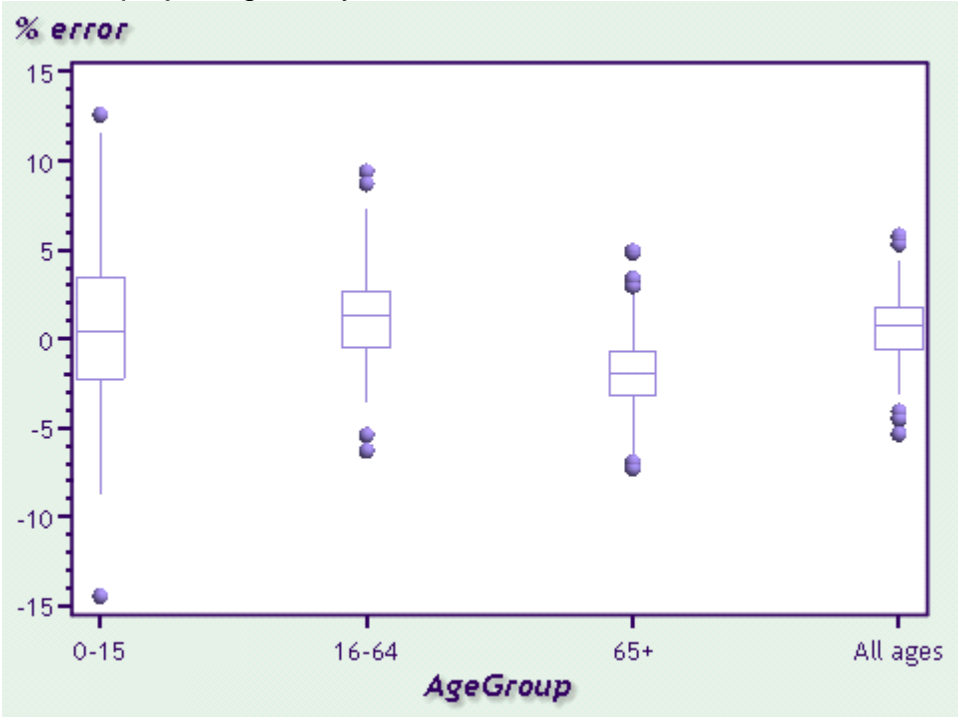


Figure 7 % error projecting for 6 years ahead

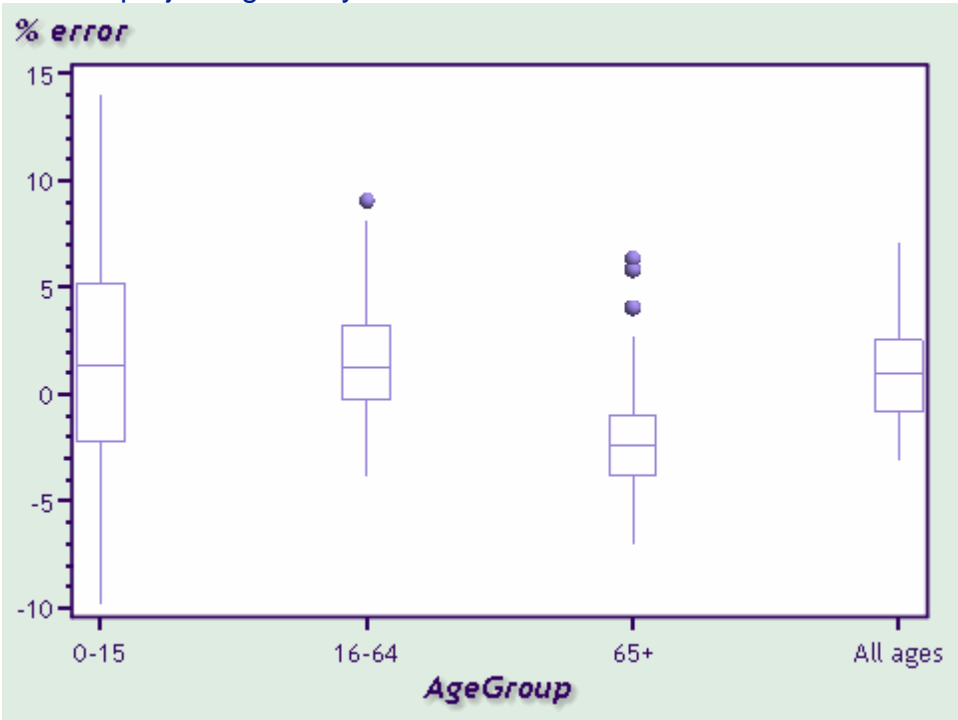
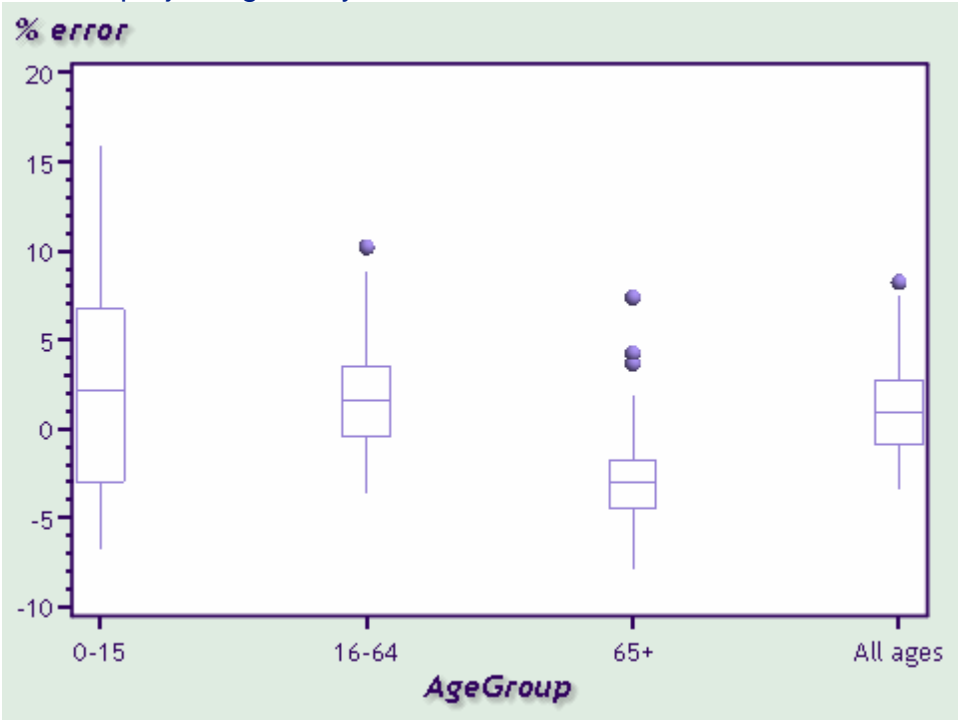


Figure 8 % error projecting for 8 years ahead



6. The Accuracy of Projections for Allocating Funds

6.1 This section contains specific analysis for the GAE allocation of funds. Separate work by the SE Health Department as been carried out for the distribution of health funds. Here the best predictor of a population for year X (for which in this analysis, we take the mid-year estimate for year 2004 as the actual value) is compared with the mid-year estimate for two years ago (X-2) the mid-2002 estimate and the projection for 2004 made by the 2002-based projection to see which one of them gives the smallest relative error. This analysis has been carried out for each Council area by broad age group (i.e. 0-15, 16-64, 65+). As well as looking to see how well the mid-year estimates and projections predict for 2004, the same analysis has been carried out for predicting values for 2002 using the 2000-based projections for 2002 and the unrevised 2000 mid-year estimate. Looking at predictors for 2002 and 2004 gives two different time points one after the results of a Census and one before at the end of the intercensal decade, potentially the time at which the errors in the base population are highest. The results are presented in **Tables, Charts and Box Plots** in **Annexes A and B**. This specific analysis is carried out because the current GAE allocation method uses the latest mid-year estimate for ages 16-64 and the latest projection for the year x+2 for ages 0-15 and 65+. More details about the method of fund allocation can be obtained from David Hurst in the Scottish Executive.

6.2 The overall recommendation from this work is that the current approach of using the mid-year estimates for 16-64 year olds and the projections for 0-15 years and 65+ years should be continued. This is because the 16-64 age group is affected more by errors in migration assumptions than those aged under 16 and 65+ and is therefore estimated better on average using the mid-year estimates than the projections. The projections, because they are aged on (i.e. 1 year olds become 2 year olds etc) pick up the cohort changes in the older age group and the effect of lower fertility rates being applied to smaller populations of childbearing age resulting in fewer children, and these two changes are, of course, not reflected in the mid-year estimates, making the projections the better predictors for these age-groups.

6.3 Amongst Council areas the accuracy of the mid-year estimates and the projections for 2 years ahead has varied. As pointed out in previous sections, generally those areas which have not changed much have been predicted fairly well both by the projections and the estimates for two years ahead. Those areas that have increased or decreased have not been predicted as well.

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Population & Migration Statistics Branch
The General Register Office for Scotland
20 September 2006

Table 1 Persons: Percentage error in projected population by age group, Council area
Projections for 2 years ahead

Base year Projection year	1994 1996				1996 1998				1998 2000				2000 2002				2002 2004				Average error				Mean absolute error			
	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+
SCOTLAND	1.1	1.3	1.4	-0.4	0.8	0.8	1.3	-1.2	0.9	1.5	1.4	-1.5	-0.1	1.9	3.9	-2.4	-0.8	-0.9	-0.9	-0.3	0.4	0.9	1.4	-1.2	3.2	5.6	8.2	5.6
Aberdeen City	0.6	4.0	0.0	-0.6	0.1	6.1	-1.2	-1.2	-1.4	7.0	-3.3	-1.8	-0.7	11.0	-5.4	-0.3	1.2	0.8	1.5	0.4	0.0	5.8	-1.7	-0.7	3.0	28.2	10.2	3.9
Aberdeenshire	0.5	0.0	0.8	-0.4	1.4	-0.5	2.5	-1.0	0.0	-1.8	1.0	-1.5	-1.1	-2.9	-1.2	-4.1	-2.3	-2.1	-2.6	-1.4	-0.3	-1.5	0.1	-1.7	3.5	5.7	6.0	7.3
Angus	1.4	2.4	1.7	-0.8	0.0	1.4	0.3	-2.4	0.9	3.7	1.3	-3.3	-1.3	2.4	1.3	-6.0	-1.4	-2.2	-1.5	-0.3	-0.1	1.5	0.6	-2.6	3.9	10.4	4.8	12.7
Argyll & Bute	0.3	-1.0	0.6	0.4	-1.5	-4.3	-0.9	-0.9	-1.9	-7.1	-0.4	-1.9	-3.5	-13.3	-8.1	-1.2	-0.7	-2.8	0.2	-1.6	-1.5	-5.7	-1.7	-1.0	7.4	26.2	10.0	4.7
Clackmannanshire	1.2	-0.4	1.3	3.1	1.0	-0.8	1.1	3.5	0.6	-0.8	0.6	2.5	-0.1	0.0	2.0	1.6	-1.3	0.7	-2.1	-0.3	0.3	-0.3	0.6	2.1	3.2	2.2	5.4	10.8
Dumfries & Galloway	-0.2	-0.2	-0.2	-0.2	-1.0	-1.6	-1.0	-0.2	-0.4	0.5	-0.6	-0.6	-2.6	-1.3	0.4	-2.3	-1.2	-1.9	-1.4	0.1	-1.1	-0.9	-0.6	-0.6	4.4	3.9	2.5	3.3
Dundee City	-1.0	-0.2	-1.2	-1.3	-0.6	2.2	-1.3	-1.4	-1.9	3.4	-3.4	-1.9	-4.0	3.5	-0.8	-1.4	-0.5	-1.2	-0.4	-0.3	-1.6	1.5	-1.4	-1.3	7.7	9.5	6.7	6.0
East Ayrshire	0.9	1.0	0.9	0.5	0.0	-0.4	-0.2	1.1	0.0	0.5	-0.3	0.7	-1.0	0.8	2.5	-1.2	-0.9	-1.6	-1.1	0.5	-0.2	0.0	0.4	0.3	2.1	2.9	4.2	3.6
East Dunbartonshire	2.1	-3.0	4.0	0.9	1.1	-6.2	3.3	1.3	1.0	-7.2	3.5	1.6	1.4	-7.3	11.9	-0.9	-0.1	-1.2	0.2	0.0	1.1	-5.0	4.6	0.6	5.6	24.0	22.7	4.7
East Lothian	1.6	-0.4	2.7	-0.1	0.8	-2.9	2.6	-1.5	0.8	-3.8	3.3	-2.6	0.1	-4.1	8.9	-3.9	0.4	0.2	0.6	-0.2	0.7	-2.2	3.6	-1.6	3.3	11.3	17.5	8.1
East Renfrewshire	1.7	-1.4	3.2	-0.1	0.0	-5.7	2.4	-1.6	-0.1	-6.6	2.7	-2.3	-0.8	-6.6	9.5	-3.9	0.7	0.0	1.0	0.2	0.3	-4.1	3.7	-1.5	2.8	20.3	17.9	8.0
Edinburgh, City of	1.3	1.7	1.6	-0.5	0.9	3.4	0.9	-1.5	0.7	4.5	0.3	-1.6	0.3	7.8	3.3	-1.9	-1.0	-0.6	-1.2	-0.3	0.4	3.4	1.0	-1.2	3.4	17.5	6.3	5.6
Eilean Siar	1.3	3.7	1.2	-0.9	3.9	6.9	4.5	-1.1	2.5	5.2	3.1	-1.9	0.7	4.5	-4.9	-2.7	-2.4	-4.2	-2.7	0.3	1.2	3.2	0.2	-1.2	9.0	21.2	14.3	6.7
Falkirk	0.0	-0.4	0.3	-1.0	-0.5	-1.2	0.1	-2.1	0.0	-0.8	0.7	-2.3	-1.7	-1.0	2.8	-4.0	-0.9	-1.7	-1.0	0.3	-0.6	-1.0	0.6	-1.8	2.4	3.7	4.1	9.4
Fife	1.1	1.4	1.3	-0.1	0.4	0.1	0.8	-0.8	0.3	-0.5	0.9	-1.1	-1.1	-0.3	3.6	-2.7	-0.9	-1.3	-1.1	0.3	0.0	-0.1	1.1	-0.9	3.1	2.5	6.8	4.8
Glasgow City	2.8	4.2	3.5	-1.4	3.9	5.2	5.1	-2.5	6.5	9.3	7.7	-2.0	3.7	10.5	10.4	-4.0	-0.9	0.0	-1.2	-0.4	3.2	5.8	5.1	-2.1	17.1	29.2	27.0	10.0
Highland	0.5	1.2	0.6	-0.7	0.4	2.1	0.4	-1.5	-0.3	1.5	-0.5	-1.9	-0.5	2.3	-0.2	-1.9	-1.8	-1.9	-2.0	-0.8	-0.3	1.1	-0.4	-1.4	2.1	7.5	2.0	6.1
Inverclyde	1.2	1.7	1.3	-0.1	-1.0	0.7	-1.1	-2.9	-1.2	0.9	-1.0	-4.4	-1.0	3.3	4.2	-5.6	-0.1	0.3	-0.3	-0.1	-0.4	1.4	0.6	-2.6	4.5	6.6	7.7	13.0
Midlothian	1.2	-0.3	2.3	-1.4	0.1	-3.9	2.2	-3.3	0.0	-6.3	2.9	-3.9	0.6	-3.0	11.1	-3.9	1.7	2.9	1.5	0.6	0.7	-2.1	4.0	-2.4	2.3	14.1	18.8	12.7
Moray	0.2	1.8	-0.1	-0.4	-1.0	0.1	-1.1	-1.9	-1.0	2.0	-1.8	-1.5	-2.0	1.6	-10.4	-2.2	-2.0	-2.5	-2.0	-1.5	-1.1	0.6	-3.1	-1.5	4.5	5.9	13.8	6.3
North Ayrshire	1.8	2.7	1.9	-0.4	1.6	1.8	2.0	-0.4	2.4	1.8	3.3	-0.4	-0.2	0.3	9.3	-1.9	-1.1	-1.9	-0.9	-0.6	0.9	0.9	3.1	-0.7	6.1	7.0	16.7	3.2
North Lanarkshire	1.4	0.7	1.7	1.6	0.7	-0.4	1.0	1.2	1.7	0.9	1.9	1.5	0.4	1.5	5.7	2.0	-0.7	-0.8	-0.8	0.0	0.7	0.4	1.9	1.3	4.4	3.7	10.5	6.3
Orkney Islands	1.3	1.8	1.6	-0.6	0.8	1.6	0.7	0.2	1.3	2.0	1.2	0.7	0.2	0.0	-2.4	1.4	-2.7	-1.9	-3.1	-2.0	0.2	0.7	-0.4	-0.1	4.1	5.8	6.5	3.3
Perth & Kinross	0.4	0.6	0.5	0.1	-1.1	-2.0	-0.8	-1.0	-1.0	-1.5	-0.9	-0.7	-1.6	-2.7	1.5	-2.5	-1.4	-1.5	-1.5	-1.1	-0.9	-1.4	-0.3	-1.0	4.4	7.1	4.0	4.5
Renfrewshire	1.5	2.6	1.6	-0.3	1.9	2.9	2.3	-1.0	2.2	5.2	2.0	-0.8	1.4	7.3	6.8	-1.3	-0.2	0.7	-0.6	0.4	1.3	3.7	2.4	-0.6	7.0	18.1	12.7	3.5
Scottish Borders	0.8	-0.2	0.8	1.8	0.1	-0.3	0.0	0.9	0.2	-0.5	0.1	1.1	-0.6	-1.7	2.2	0.7	-1.4	-1.9	-1.5	-0.4	-0.2	-0.9	0.3	0.8	1.9	3.0	3.4	4.5
Shetland Islands	1.7	2.6	1.9	-0.7	0.9	1.6	1.1	-0.8	3.0	4.9	3.7	-3.4	0.3	1.9	-8.1	-1.7	-0.3	-1.5	-0.1	0.0	1.1	1.9	-0.3	-1.3	6.0	11.2	14.9	6.6
South Ayrshire	1.2	3.0	1.1	-0.2	1.1	1.6	1.5	-0.8	1.7	2.5	2.3	-1.1	0.9	3.0	6.5	-1.7	-1.0	-0.4	-1.4	-0.1	0.8	1.9	2.0	-0.8	5.2	10.2	11.7	3.8
South Lanarkshire	1.0	1.0	1.7	-1.9	1.4	1.1	2.4	-2.7	1.3	0.9	2.5	-3.9	0.2	1.7	7.3	-3.9	-1.3	-1.5	-1.4	-0.7	0.5	0.6	2.5	-2.6	4.2	5.0	14.3	12.5
Stirling	-0.4	-0.9	-0.1	-0.7	-1.4	-3.4	-0.9	-1.2	-3.3	-3.8	-3.4	-2.4	-1.1	-1.9	6.6	-2.8	0.6	-2.8	1.5	1.1	-1.1	-2.6	0.7	-1.2	6.4	10.6	11.4	7.3
West Dunbartonshire	0.6	2.9	0.4	-1.9	-0.1	2.3	-0.3	-2.2	0.1	3.5	-0.1	-3.9	-0.2	5.8	7.0	-5.8	-0.3	0.5	-0.5	-0.7	0.0	3.0	1.3	-2.9	1.0	14.5	7.9	14.0
West Lothian	0.6	-1.0	1.4	-0.9	-0.1	-2.8	1.1	-2.1	-1.2	-4.5	0.2	-3.1	-2.3	-6.1	5.6	-5.7	0.0	-0.1	0.2	-0.7	-0.6	-2.9	1.7	-2.5	4.2	14.5	8.3	11.9

Across Council areas:
Average error All Ages 0.1
Average error 0-15 0.2
Average error 16-64 1.0
Average error 65+ -1.1

Table 2 Persons: Percentage error in projected population by age group, Council area
Projections for 4 years ahead

Base year Projection year	1994 1998				1996 2000				1998 2002				2000 2004				Average error				Mean absolute error			
	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+
SCOTLAND	1.4	1.5	1.9	-0.9	0.9	1.4	1.4	-1.7	1.0	2.6	1.4	-2.2	0.2	0.9	0.8	-2.7	0.9	1.6	1.4	-1.9	3.4	5.6	4.9	7.5
Aberdeen City	2.0	8.2	1.0	-0.9	0.9	9.0	-0.5	-1.5	-0.3	9.8	-2.4	-1.5	1.2	11.6	-0.8	-0.7	1.0	9.7	-0.7	-1.2	3.4	29.9	4.1	4.7
Aberdeenshire	1.6	0.0	2.7	-1.1	2.0	0.3	3.4	-2.0	0.4	-2.2	1.9	-2.4	-2.4	-5.8	-0.8	-4.7	0.4	-1.9	1.8	-2.6	4.6	3.9	8.1	10.3
Angus	2.1	3.9	2.4	-0.9	1.0	3.5	1.3	-3.1	1.5	4.7	2.2	-4.1	-1.1	-0.8	0.6	-7.3	0.9	2.8	1.6	-3.9	4.8	12.3	6.0	15.4
Argyll & Bute	0.3	-2.8	1.2	0.3	-1.2	-5.3	0.3	-1.9	-2.4	-8.7	-0.1	-4.3	-5.3	-14.5	-2.8	-5.0	-2.2	-7.8	-0.3	-2.7	5.3	20.4	2.3	11.5
Clackmannanshire	2.1	0.4	2.0	4.9	1.8	0.0	1.7	4.9	1.0	0.3	0.7	3.4	-0.2	0.0	-0.9	2.5	1.2	0.1	0.9	3.9	4.9	0.7	4.7	15.7
Dumfries & Galloway	-0.3	-1.1	0.0	-0.3	-0.2	-0.3	-0.1	-0.6	-0.5	2.0	-0.8	-2.0	-3.2	-2.3	-3.6	-2.5	-1.0	-0.4	-1.1	-1.3	1.8	4.0	1.8	5.4
Dundee City	-0.3	3.3	-0.8	-2.1	0.3	4.9	-0.5	-1.4	-2.0	4.7	-3.6	-2.7	-4.1	2.4	-6.3	-2.3	-1.5	3.8	-2.8	-2.1	3.6	13.4	6.5	8.5
East Ayrshire	1.1	1.0	1.0	1.3	-0.3	-0.1	-0.8	1.6	-0.7	0.5	-1.3	0.7	-1.1	-1.3	-1.6	0.9	-0.2	0.0	-0.7	1.1	2.3	1.8	3.6	4.5
East Dunbartonshire	2.4	-5.0	4.8	2.1	1.4	-6.3	3.6	2.2	2.1	-6.3	5.0	1.2	4.4	-7.9	8.7	2.3	2.6	-6.4	5.5	1.9	7.0	19.6	15.6	7.8
East Lothian	0.9	-3.2	2.7	-0.5	-0.3	-4.5	1.9	-2.7	0.9	-3.8	3.8	-3.9	2.3	-4.0	6.0	-3.4	1.0	-3.9	3.6	-2.6	2.7	12.6	9.9	10.5
East Renfrewshire	1.7	-3.5	4.0	-0.5	-0.1	-6.7	2.6	-1.9	0.1	-7.5	3.5	-3.2	2.5	-7.3	7.1	-2.4	1.1	-6.3	4.3	-2.0	2.5	19.6	11.9	8.1
Edinburgh, City of	1.5	4.7	1.4	-1.5	0.7	5.6	0.2	-2.2	1.2	7.9	0.4	-2.0	0.8	6.9	0.1	-2.3	1.1	6.3	0.5	-2.0	3.6	19.9	2.0	7.9
Eilean Siar	4.2	8.0	4.7	-1.2	5.8	9.2	7.3	-2.4	3.4	7.8	4.0	-2.6	-1.0	-0.4	-0.8	-2.0	3.1	6.2	3.8	-2.1	13.7	25.2	16.3	8.2
Falkirk	-0.8	-1.3	-0.4	-1.7	-1.2	-2.1	-0.5	-3.0	-0.4	0.2	-0.1	-2.5	-1.9	-2.0	-1.7	-2.6	-1.1	-1.3	-0.7	-2.4	2.8	4.0	1.4	9.7
Fife	1.5	1.6	1.9	-0.4	0.0	-0.8	0.6	-1.3	-0.4	-0.9	0.1	-1.6	-1.1	-1.7	-0.7	-1.9	0.0	-0.5	0.5	-1.3	2.1	3.8	2.8	5.3
Glasgow City	3.5	5.5	4.5	-2.8	4.2	7.8	5.1	-3.6	5.7	12.6	5.8	-3.1	4.0	9.9	4.3	-4.3	4.4	8.9	4.9	-3.4	14.4	28.3	16.5	13.7
Highland	1.1	1.7	1.5	-1.1	0.9	3.0	0.9	-1.7	0.4	2.9	0.3	-2.1	-1.6	0.6	-1.7	-3.3	0.2	2.1	0.2	-2.0	2.8	7.8	3.2	8.1
Inverclyde	0.7	1.7	0.8	-1.2	-1.7	0.8	-1.6	-5.3	-1.9	1.7	-2.0	-5.6	-0.4	3.5	-0.5	-4.6	-0.9	1.9	-0.8	-4.2	4.4	5.1	4.5	16.7
Midlothian	-0.4	-3.9	1.3	-2.7	-1.1	-6.8	1.5	-4.6	1.2	-5.4	4.6	-4.1	5.3	-1.1	9.4	-3.2	1.3	-4.3	4.2	-3.6	4.0	16.4	9.7	14.6
Moray	1.6	2.4	2.0	-1.1	-0.5	1.9	-0.8	-2.6	-0.9	3.7	-2.1	-2.1	-4.5	-1.5	-5.4	-4.4	-1.1	1.6	-1.6	-2.5	4.2	8.3	6.2	10.2
North Ayrshire	2.1	2.9	2.5	-0.6	2.5	2.1	3.4	-0.7	3.0	2.4	4.2	-1.4	1.1	-0.5	2.5	-2.6	2.2	1.7	3.2	-1.3	7.8	7.5	10.8	5.3
North Lanarkshire	1.1	-0.4	1.5	1.6	0.5	-0.9	0.9	1.1	1.7	1.6	1.7	1.7	1.4	0.5	1.4	2.7	1.2	0.2	1.4	1.8	3.7	3.1	4.4	7.2
Orkney Islands	2.9	3.4	3.7	-1.3	2.8	4.4	3.0	0.4	1.5	2.1	1.3	1.2	-2.1	-3.1	-1.9	-2.0	1.3	1.7	1.5	-0.4	7.7	10.7	8.5	4.8
Perth & Kinross	0.2	-0.4	0.5	-0.6	-0.6	-1.9	0.1	-1.6	-0.4	-0.8	0.0	-1.6	-3.2	-4.1	-2.8	-3.5	-1.0	-1.8	-0.5	-1.8	2.0	4.2	1.3	7.3
Renfrewshire	2.0	3.2	2.2	-0.4	2.5	4.2	2.8	-0.7	3.1	7.7	2.7	-1.0	2.9	8.4	2.2	-0.8	2.6	5.9	2.5	-0.7	8.3	17.2	8.2	3.0
Scottish Borders	1.2	-1.0	1.3	3.0	0.3	-0.6	0.3	1.2	-0.7	-1.5	-0.8	0.4	-2.0	-4.1	-2.0	0.2	-0.3	-1.8	-0.3	1.2	2.7	4.2	3.0	4.8
Shetland Islands	3.4	3.6	4.2	-0.7	2.8	4.1	3.8	-3.8	4.3	8.4	5.3	-6.1	0.3	2.4	0.6	-4.4	2.7	4.6	3.5	-3.8	10.6	16.7	13.3	15.0
South Ayrshire	1.4	2.1	1.8	-0.8	1.8	1.8	2.7	-1.3	2.4	4.5	3.2	-2.2	1.0	3.5	1.4	-2.8	1.6	3.0	2.3	-1.8	5.8	9.3	8.1	7.1
South Lanarkshire	1.3	0.4	2.3	-2.0	1.5	0.7	2.8	-3.4	1.1	1.5	2.4	-5.0	0.3	0.6	1.8	-6.1	1.0	0.8	2.3	-4.1	4.0	2.8	8.0	16.6
Stirling	-1.7	-4.0	-1.1	-1.1	-2.4	-4.6	-2.0	-1.6	-2.4	-4.3	-1.5	-3.9	1.3	-3.8	3.9	-3.2	-1.3	-4.2	-0.2	-2.5	6.8	13.8	5.6	9.8
West Dunbartonshire	-0.3	2.0	-0.4	-3.2	-0.1	2.9	-0.4	-2.9	0.4	6.3	0.0	-5.1	1.2	7.9	1.3	-6.9	0.3	4.8	0.1	-4.5	1.1	13.1	1.1	18.1
West Lothian	-0.1	-3.0	1.0	-1.3	-1.3	-5.0	0.0	-2.1	-1.5	-5.6	0.2	-3.9	-0.8	-5.6	1.8	-6.7	-1.0	-4.8	0.7	-3.5	3.2	14.9	1.7	13.9

Average error All Ages 0.6
 Average error 0-15 0.6
 Average error 16-64 1.2
 Average error 65+ -1.8

Table 3 Persons: Percentage error in projected population by age group, Council area
Projections for 6 years ahead

Base year Projection year	1994 2000				1996 2002				1998 2004				Average error				Mean absolute error			
	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+
SCOTLAND	1.5	2.2	2.0	-1.3	0.9	2.6	1.3	-2.7	0.5	2.4	0.7	-2.6	1.0	2.4	1.4	-2.2	2.6	5.6	3.6	4.9
Aberdeen City	3.0	11.6	1.8	-1.5	2.6	12.9	1.1	-1.5	1.7	11.4	0.0	-1.1	2.4	12.0	1.0	-1.4	6.1	28.3	2.9	3.4
Aberdeenshire	2.1	1.0	3.5	-2.3	2.8	1.0	4.8	-3.6	-1.5	-4.2	0.0	-4.6	1.1	-0.7	2.8	-3.5	5.5	3.4	8.3	7.5
Angus	3.3	6.7	3.5	-1.3	1.7	5.1	2.5	-4.6	1.0	3.2	2.1	-5.0	2.0	5.0	2.7	-3.7	5.3	12.8	6.8	7.6
Argyll & Bute	0.9	-3.5	2.5	0.1	-1.4	-6.0	0.8	-4.1	-3.1	-9.9	-0.3	-6.0	-1.2	-6.5	1.0	-3.3	3.3	12.8	3.3	6.2
Clackmannanshire	3.1	1.7	2.9	6.3	2.6	1.8	2.1	5.8	0.1	1.2	-0.7	2.2	1.9	1.5	1.4	4.8	5.7	3.8	5.2	12.9
Dumfries & Galloway	0.6	0.3	1.1	-0.9	-0.2	1.4	0.1	-2.5	-1.3	2.7	-1.9	-3.0	-0.3	1.4	-0.2	-2.1	1.2	2.6	1.8	4.4
Dundee City	0.7	6.5	-0.1	-2.4	0.8	6.7	0.0	-2.0	-2.2	4.4	-3.9	-2.6	-0.2	5.9	-1.3	-2.3	2.3	14.7	1.4	5.2
East Ayrshire	1.0	1.6	0.6	1.6	-1.0	-0.1	-2.0	1.5	-1.7	-0.9	-2.7	1.3	-0.6	0.2	-1.3	1.5	2.6	2.0	3.5	3.5
East Dunbartonshire	2.5	-5.3	4.9	2.7	2.5	-4.9	5.1	1.6	2.7	-5.4	5.5	1.5	2.6	-5.2	5.2	1.9	5.9	12.0	11.9	4.8
East Lothian	-0.2	-5.1	1.8	-1.4	-0.5	-4.5	1.9	-4.2	1.1	-2.9	4.0	-4.6	0.2	-4.1	2.6	-3.4	1.0	10.5	5.1	7.2
East Renfrewshire	1.7	-4.2	4.3	-1.0	-0.1	-7.6	3.2	-2.9	1.0	-6.7	4.7	-3.6	0.9	-6.2	4.1	-2.5	2.1	14.0	9.1	5.1
Edinburgh, City of	1.3	7.0	0.7	-2.2	1.1	9.3	0.0	-2.9	0.5	9.1	-0.9	-2.2	0.9	8.5	-0.1	-2.4	2.5	19.3	1.0	5.8
Eilean Siar	6.1	10.9	7.3	-2.4	7.2	12.7	9.1	-3.8	1.7	4.1	2.1	-2.0	5.0	9.2	6.2	-2.7	13.8	25.0	17.1	6.8
Falkirk	-1.6	-2.2	-1.1	-2.6	-1.9	-1.4	-1.6	-4.0	-1.6	-1.5	-1.5	-2.1	-1.7	-1.7	-1.4	-2.9	4.0	4.1	3.2	7.4
Fife	1.0	1.1	1.5	-1.0	-0.6	-0.9	-0.1	-2.2	-1.4	-2.2	-1.1	-1.8	-0.3	-0.7	0.1	-1.7	2.1	2.7	2.0	3.8
Glasgow City	3.9	8.2	4.5	-3.5	2.8	10.7	2.5	-5.1	5.0	14.0	4.4	-3.0	3.9	10.9	3.8	-3.9	8.4	23.5	8.5	9.6
Highland	1.6	2.4	2.2	-1.4	1.9	5.1	2.1	-2.2	-1.0	1.5	-1.3	-2.7	0.9	3.0	1.0	-2.1	3.9	8.0	4.7	4.5
Inverclyde	-0.2	1.6	0.1	-3.1	-2.6	1.8	-2.8	-6.7	-2.5	1.1	-2.5	-6.4	-1.8	1.5	-1.8	-5.4	3.6	3.7	3.7	11.9
Midlothian	-1.6	-6.9	0.6	-3.7	-0.4	-6.0	2.6	-5.3	2.8	-3.7	6.4	-3.3	0.3	-5.5	3.2	-4.1	3.0	14.1	5.2	10.1
Moray	2.2	4.4	2.5	-1.9	-0.2	4.3	-0.6	-3.8	-2.1	3.3	-3.2	-3.8	0.0	4.0	-0.4	-3.2	3.1	9.8	4.2	7.0
North Ayrshire	3.0	3.4	3.9	-0.9	3.0	3.1	4.3	-2.0	2.7	2.0	4.1	-1.7	2.9	2.8	4.1	-1.6	7.0	7.2	9.5	3.5
North Lanarkshire	0.8	-1.0	1.2	1.6	0.1	-0.9	0.1	1.1	1.2	1.2	1.1	1.8	0.7	-0.2	0.8	1.5	1.2	2.4	1.7	3.3
Orkney Islands	5.3	7.4	6.3	-0.8	3.6	6.3	3.8	-0.2	-0.4	0.5	-0.6	-0.6	2.8	4.7	3.2	-0.6	9.1	13.8	10.3	1.3
Perth & Kinross	0.6	0.1	1.3	-1.1	-0.1	-1.0	1.2	-3.2	-1.5	-1.5	-0.8	-3.5	-0.3	-0.8	0.5	-2.6	1.2	1.7	2.7	5.4
Renfrewshire	2.4	4.7	2.3	-0.1	3.1	6.1	3.3	-1.3	3.7	9.2	3.0	0.1	3.1	6.7	2.9	-0.4	6.8	13.9	6.7	1.4
Scottish Borders	1.4	-1.6	1.6	4.1	-0.4	-1.6	-0.3	0.2	-2.3	-3.8	-2.2	-0.8	-0.4	-2.3	-0.3	1.1	2.6	4.5	2.6	4.5
Shetland Islands	6.4	7.7	8.2	-4.2	3.4	7.1	4.4	-6.8	4.5	9.2	5.6	-7.0	4.7	8.0	6.0	-6.0	11.2	17.9	14.4	13.3
South Ayrshire	2.1	2.6	3.0	-1.4	2.1	3.4	3.3	-2.8	2.4	5.6	3.1	-3.0	2.2	3.9	3.1	-2.4	5.0	7.8	7.3	5.2
South Lanarkshire	1.3	0.0	2.6	-2.6	1.2	1.4	2.5	-4.6	-0.2	0.2	1.2	-6.3	0.8	0.5	2.1	-4.5	2.6	1.5	5.5	9.3
Stirling	-2.8	-5.3	-2.5	-1.4	-1.6	-5.0	-0.3	-3.3	-1.7	-5.3	-0.1	-3.7	-2.0	-5.2	-0.9	-2.8	5.0	12.0	2.7	5.9
West Dunbartonshire	-0.6	2.3	-0.7	-4.1	-0.1	5.3	-0.7	-4.0	0.5	7.5	0.0	-5.9	-0.1	5.0	-0.5	-4.7	0.8	10.0	1.4	10.1
West Lothian	-1.4	-5.0	-0.2	-1.5	-1.9	-5.9	-0.5	-3.1	-1.8	-5.8	0.0	-5.0	-1.7	-5.5	-0.2	-3.2	3.9	12.8	0.6	6.2

Average error All Ages 0.9
 Average error 0-15 1.6
 Average error 16-64 1.5
 Average error 65+ -2.1

Table 4 Persons: Percentage error in projected population by age group, Council area
Projections for 8 years ahead

Base year Projection year	Projections for 8 years ahead												Projection for 10 years ahead							
	1994 2002				1996 2004				Average error				Mean absolute error				1994 2004			
	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+
SCOTLAND	1.5	3.5	1.8	-2.3	0.3	2.6	0.6	-3.5	0.9	3.0	1.2	-2.9	1.6	4.8	2.1	4.1	0.8	3.4	1.0	-3.1
Aberdeen City	4.8	15.9	3.6	-1.6	5.2	16.0	4.2	-1.3	5.0	15.9	3.9	-1.5	7.4	23.9	5.7	2.3	7.5	19.1	6.9	-1.5
Aberdeenshire	2.9	1.9	4.8	-4.0	1.3	0.2	3.4	-6.3	2.1	1.1	4.1	-5.2	3.6	2.0	6.5	7.2	1.4	1.3	3.3	-6.8
Angus	4.3	8.8	4.9	-2.5	1.4	4.2	2.8	-6.3	2.8	6.5	3.9	-4.4	5.0	10.9	6.3	5.7	4.2	8.5	5.3	-4.0
Argyll & Bute	0.9	-4.0	3.0	-1.7	-1.8	-5.9	0.7	-5.8	-0.5	-5.0	1.9	-3.7	1.7	7.0	3.4	4.6	0.7	-3.8	3.1	-3.0
Clackmannanshire	4.1	4.0	3.4	7.4	2.0	3.6	1.0	4.3	3.1	3.8	2.2	5.8	5.1	5.8	3.9	9.5	3.8	6.3	2.5	6.1
Dumfries & Galloway	0.7	2.3	1.3	-2.9	-0.8	2.3	-0.6	-4.0	-0.1	2.3	0.3	-3.4	1.0	3.5	1.6	4.9	0.1	3.5	0.6	-4.4
Dundee City	1.2	8.7	0.4	-3.2	1.3	7.1	0.6	-1.8	1.2	7.9	0.5	-2.5	1.8	12.3	0.7	4.1	1.6	9.3	0.9	-3.2
East Ayrshire	0.4	1.9	-0.3	1.5	-2.2	-1.4	-3.5	1.9	-0.9	0.2	-1.9	1.7	1.5	2.6	2.1	2.4	-0.6	0.7	-1.6	1.8
East Dunbartonshire	3.5	-4.2	6.3	1.7	3.1	-3.5	5.6	1.7	3.3	-3.9	5.9	1.7	5.0	6.0	9.1	2.5	3.9	-3.2	6.7	1.6
East Lothian	-0.5	-5.3	1.8	-2.8	-0.7	-3.6	1.6	-5.4	-0.6	-4.4	1.7	-4.1	0.8	7.1	2.6	5.5	-0.7	-4.8	1.5	-3.9
East Renfrewshire	1.8	-4.6	5.0	-2.1	0.7	-6.8	4.2	-3.5	1.2	-5.7	4.6	-2.8	2.2	8.0	7.2	3.8	2.7	-3.3	6.1	-2.7
Edinburgh, City of	1.6	10.7	0.5	-2.9	0.1	10.6	-1.4	-3.5	0.9	10.7	-0.5	-3.2	1.7	16.0	1.2	4.6	0.7	12.0	-1.0	-3.4
Eilean Siar	7.5	14.6	8.9	-3.4	5.9	9.4	8.1	-4.0	6.7	12.0	8.5	-3.7	10.5	19.4	13.0	5.4	6.3	11.7	7.8	-3.4
Falkirk	-2.5	-1.6	-2.5	-3.7	-3.4	-3.2	-3.2	-4.4	-3.0	-2.4	-2.8	-4.1	4.2	3.2	4.1	5.9	-4.2	-3.7	-4.3	-4.1
Fife	0.4	1.3	0.7	-1.9	-1.6	-1.7	-1.3	-2.8	-0.6	-0.2	-0.3	-2.4	1.2	2.2	1.4	3.3	-0.7	0.6	-0.5	-2.6
Glasgow City	2.5	10.9	1.9	-4.7	1.4	11.5	0.4	-5.5	1.9	11.2	1.1	-5.1	3.2	16.6	2.1	7.4	1.0	11.3	-0.3	-5.0
Highland	2.7	4.3	3.4	-1.9	0.9	4.4	0.9	-3.1	1.8	4.3	2.2	-2.5	3.1	6.4	3.9	3.5	1.7	3.5	2.4	-2.8
Inverclyde	-1.3	2.1	-1.5	-4.2	-3.4	1.3	-3.7	-7.5	-2.3	1.7	-2.6	-5.9	3.0	2.8	3.3	8.0	-2.3	1.0	-2.6	-5.0
Midlothian	-1.0	-6.2	1.5	-4.3	0.7	-4.5	3.7	-4.9	-0.1	-5.3	2.6	-4.6	1.3	8.4	3.4	6.8	0.1	-5.0	2.6	-3.8
Moray	2.6	7.0	2.7	-2.8	-0.9	4.9	-1.4	-6.0	0.8	5.9	0.7	-4.4	3.1	9.4	3.4	5.8	1.9	7.4	2.1	-4.9
North Ayrshire	3.6	4.7	4.8	-2.2	2.7	3.0	4.1	-2.6	3.2	3.9	4.4	-2.4	5.0	6.3	6.8	3.5	3.4	4.9	4.6	-2.7
North Lanarkshire	0.1	-1.2	0.2	1.6	-0.9	-2.1	-0.9	0.8	-0.4	-1.7	-0.4	1.2	0.6	2.3	0.7	2.0	-1.1	-2.7	-1.1	1.3
Orkney Islands	6.7	10.8	7.5	-1.1	2.4	5.9	2.7	-2.3	4.6	8.3	5.1	-1.7	7.9	13.7	8.9	2.3	6.0	12.5	6.8	-3.7
Perth & Kinross	1.3	1.4	2.4	-2.6	-1.1	-1.5	0.5	-5.8	0.1	0.0	1.5	-4.2	1.8	2.2	2.6	5.6	0.3	1.1	1.7	-5.2
Renfrewshire	2.8	6.6	2.6	-0.7	3.5	7.1	3.4	-0.5	3.2	6.9	3.0	-0.6	4.6	10.2	4.3	0.9	2.9	7.5	2.3	0.1
Scottish Borders	0.7	-2.7	0.9	3.7	-1.9	-3.7	-1.5	-1.4	-0.6	-3.2	-0.3	1.1	1.7	4.5	1.6	4.4	-0.7	-4.7	-0.5	2.7
Shetland Islands	8.2	12.9	10.2	-7.5	2.7	6.8	3.8	-7.9	5.5	9.8	7.0	-7.7	9.6	16.3	12.1	11.4	8.9	15.6	10.9	-9.0
South Ayrshire	2.4	4.4	3.5	-3.0	1.7	4.1	2.8	-3.8	2.1	4.2	3.2	-3.4	3.2	6.4	4.9	4.9	2.0	5.3	2.9	-4.0
South Lanarkshire	1.0	0.7	2.2	-3.8	-0.3	0.2	1.0	-6.0	0.4	0.4	1.6	-4.9	1.1	0.8	2.7	6.8	-0.5	-0.4	0.6	-5.1
Stirling	-2.3	-5.9	-1.0	-3.0	-1.1	-6.1	0.9	-3.2	-1.7	-6.0	0.0	-3.1	2.8	8.9	1.5	4.6	-1.9	-7.4	0.0	-2.9
West Dunbartonshire	-0.9	4.1	-1.3	-5.5	-0.3	6.1	-1.0	-5.0	-0.6	5.1	-1.2	-5.2	1.1	7.2	1.8	8.0	-1.5	4.2	-1.9	-6.7
West Lothian	-2.0	-5.8	-0.7	-2.5	-2.5	-6.0	-1.1	-4.4	-2.3	-5.9	-0.9	-3.5	3.3	8.8	1.2	4.7	-2.6	-5.9	-1.3	-3.9

For 8 years ahead:
 Average error All Ages 1.1
 Average error 0-15 2.5
 Average error 16-64 1.8
 Average error 65+ -2.8

Females

Figure I Comparison of the 2002 mid-year estimate and the 2002-based projection for 2004 as a predictor for the 2004 mid-year estimate, Females, All Ages

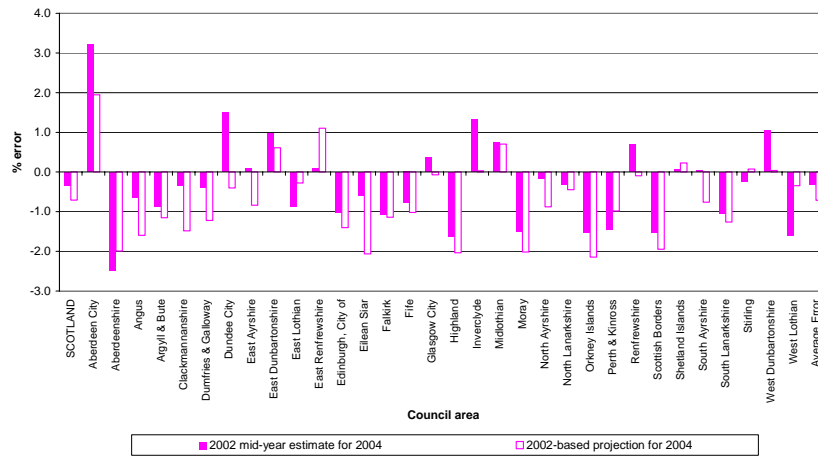


Figure J Comparison of the 2002 mid-year estimate and the 2002-based projection for 2004 as a predictor for the 2004 mid-year estimate, Females, 0-15 years

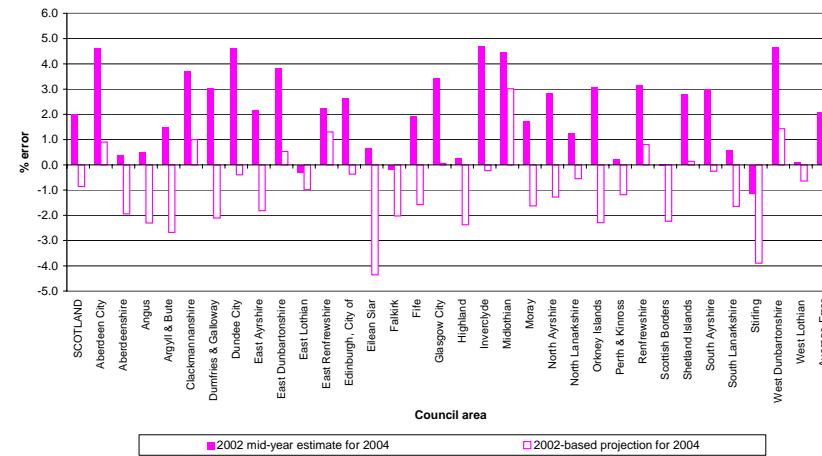


Figure K Comparison of the 2002 mid-year estimate and the 2002-based projection for 2004 as a predictor for the 2004 mid-year estimate, Females, 16-64 years

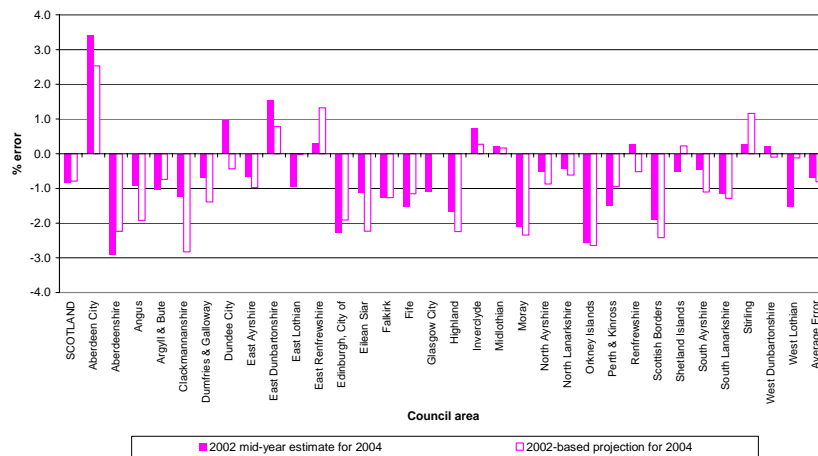
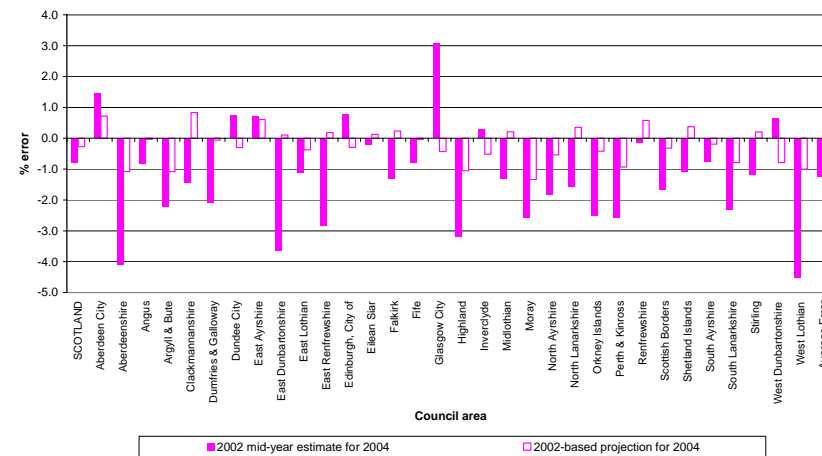


Figure L Comparison of the 2002 mid-year estimate and the 2002-based projection for 2004 as a predictor for the 2004 mid-year estimate, Females, 65+



* Note that the scales in the graphs are not all the same.

Table A % error between the 2004 MYE and the 2002 MYE

	Persons				Males				Females			
	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+
SCOTLAND	-0.5	2.1	-0.9	-1.7	-0.6	2.2	-0.9	-2.9	-0.3	2.0	-0.8	-0.8
Aberdeen City	2.9	4.7	3.0	0.3	2.5	4.8	2.7	-1.3	3.2	4.6	3.4	1.5
Aberdeenshire	-2.4	0.7	-2.6	-5.5	-2.3	1.0	-2.4	-7.2	-2.5	0.4	-2.9	-4.1
Angus	-0.4	0.5	-0.1	-2.2	-0.1	0.5	0.7	-4.1	-0.6	0.5	-0.9	-0.8
Argyll & Bute	-0.2	2.1	0.2	-3.4	0.5	2.7	1.3	-5.1	-0.9	1.5	-1.0	-2.2
Clackmannanshire	-0.6	3.8	-1.3	-3.3	-1.0	3.9	-1.5	-5.9	-0.3	3.7	-1.2	-1.4
Dumfries & Galloway	-0.4	3.4	-0.7	-2.9	-0.5	3.8	-0.7	-4.0	-0.4	3.0	-0.7	-2.1
Dundee City	1.6	4.2	1.4	0.2	1.8	3.8	1.8	-0.7	1.5	4.6	1.0	0.7
East Ayrshire	0.0	2.4	-0.5	-0.9	-0.1	2.7	-0.3	-3.0	0.1	2.1	-0.7	0.7
East Dunbartonshire	0.7	3.2	1.2	-3.9	0.4	2.7	0.7	-4.2	1.0	3.8	1.6	-3.6
East Lothian	-0.9	1.3	-1.2	-2.3	-1.0	2.9	-1.5	-4.0	-0.9	-0.3	-1.0	-1.1
East Renfrewshire	0.0	1.9	0.3	-3.4	0.0	1.6	0.3	-4.1	0.1	2.2	0.3	-2.8
Edinburgh, City of	-1.2	2.0	-2.3	0.2	-1.5	1.4	-2.3	-0.6	-1.0	2.6	-2.3	0.8
Eilean Siar	-0.2	1.1	-0.5	-0.6	0.1	1.6	0.1	-1.2	-0.6	0.6	-1.1	-0.2
Falkirk	-1.3	-0.5	-1.3	-2.3	-1.5	-0.7	-1.3	-3.6	-1.1	-0.2	-1.3	-1.3
Fife	-1.1	1.6	-1.7	-1.7	-1.4	1.4	-2.0	-2.9	-0.8	1.9	-1.5	-0.8
Glasgow City	-0.1	4.0	-1.8	2.9	-0.5	4.6	-2.4	2.5	0.4	3.4	-1.1	3.1
Highland	-1.5	1.1	-1.7	-3.7	-1.4	1.8	-1.7	-4.4	-1.6	0.3	-1.7	-3.2
Inverclyde	1.4	4.3	1.0	-0.1	1.5	3.9	1.3	-0.8	1.3	4.7	0.7	0.3
Midlothian	1.1	4.1	0.9	-1.6	1.5	3.7	1.6	-2.0	0.7	4.4	0.2	-1.3
Moray	-1.1	1.3	-1.2	-3.6	-0.7	0.9	-0.3	-5.0	-1.5	1.7	-2.1	-2.6
North Ayrshire	-0.3	2.5	-0.3	-3.2	-0.4	2.3	-0.1	-5.2	-0.2	2.8	-0.5	-1.8
North Lanarkshire	-0.4	1.2	-0.5	-2.4	-0.6	1.1	-0.6	-3.5	-0.3	1.2	-0.4	-1.6
Orkney Islands	-1.5	2.8	-1.9	-4.4	-1.4	2.5	-1.3	-6.9	-1.5	3.1	-2.6	-2.5
Perth & Kinross	-1.7	0.1	-1.7	-3.5	-2.0	0.0	-1.9	-4.7	-1.4	0.2	-1.5	-2.6
Renfrewshire	0.8	3.8	0.3	-0.9	0.9	4.5	0.4	-2.0	0.7	3.2	0.3	-0.1
Scottish Borders	-1.7	-0.5	-1.7	-3.0	-1.9	-1.0	-1.4	-4.7	-1.5	-0.1	-1.9	-1.7
Shetland Islands	0.0	2.9	-0.3	-2.9	-0.1	3.0	-0.1	-5.4	0.1	2.8	-0.5	-1.1
South Ayrshire	-0.2	2.9	-0.5	-1.6	-0.4	2.9	-0.6	-2.9	0.0	3.0	-0.5	-0.8
South Lanarkshire	-1.1	1.3	-1.3	-3.1	-1.1	2.0	-1.4	-4.3	-1.1	0.6	-1.2	-2.3
Stirling	-0.3	-0.8	0.3	-1.8	-0.3	-0.4	0.3	-2.7	-0.2	-1.1	0.3	-1.2
West Dunbartonshire	0.9	4.8	0.0	0.1	0.8	4.9	-0.2	-0.8	1.1	4.6	0.2	0.6
West Lothian	-1.8	0.5	-1.8	-5.3	-1.9	0.8	-2.2	-6.3	-1.6	0.1	-1.5	-4.5
Average Error	-0.3	2.2	-0.6	-2.2	-0.4	2.2	-0.5	-3.5	-0.3	2.1	-0.7	-1.3
Min Error	-2.4	-0.8	-2.6	-5.5	-2.3	-1.0	-2.4	-7.2	-2.5	-1.1	-2.9	-4.5
Max Error	2.9	4.8	3.0	2.9	2.5	4.9	2.7	2.5	3.2	4.7	3.4	3.1
Error Range	5.3	5.5	5.7	8.3	4.8	5.9	5.1	9.7	5.7	5.8	6.3	7.6

Table B 2002-based projections: % error between the projected population for 2004 and the 2004 mid-year estimate

	Persons				Males				Females			
	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+
SCOTLAND	-0.8	-0.9	-0.9	-0.3	-0.9	-1.0	-1.0	-0.3	-0.7	-0.9	-0.8	-0.3
Aberdeen City	1.2	0.8	1.5	0.4	0.5	0.8	0.5	0.0	1.9	0.9	2.5	0.7
Aberdeenshire	-2.3	-2.1	-2.6	-1.4	-2.7	-2.2	-3.0	-1.7	-2.0	-1.9	-2.2	-1.1
Angus	-1.4	-2.2	-1.5	-0.3	-1.2	-2.2	-1.0	-0.6	-1.6	-2.3	-1.9	0.0
Argyll & Bute	-0.7	-2.8	0.2	-1.6	-0.2	-3.0	1.2	-2.2	-1.2	-2.7	-0.7	-1.1
Clackmannanshire	-1.3	0.7	-2.1	-0.3	-1.1	0.3	-1.4	-1.9	-1.5	1.0	-2.8	0.8
Dumfries & Galloway	-1.2	-1.9	-1.4	0.1	-1.1	-1.7	-1.4	0.3	-1.2	-2.1	-1.4	-0.1
Dundee City	-0.5	-1.2	-0.4	-0.3	-0.6	-2.0	-0.3	-0.4	-0.4	-0.4	-0.4	-0.3
East Ayrshire	-0.9	-1.6	-1.1	0.5	-1.0	-1.3	-1.2	0.3	-0.8	-1.8	-1.0	0.6
East Dunbartonshire	-0.1	-1.2	0.2	0.0	-0.9	-2.7	-0.4	-0.2	0.6	0.5	0.8	0.1
East Lothian	0.4	0.2	0.6	-0.2	1.1	1.4	1.2	0.0	-0.3	-1.0	0.0	-0.4
East Renfrewshire	0.7	0.0	1.0	0.2	0.2	-1.2	0.7	0.4	1.1	1.3	1.3	0.2
Edinburgh, City of	-1.0	-0.6	-1.2	-0.3	-0.6	-0.8	-0.5	-0.3	-1.4	-0.4	-1.9	-0.3
Eilean Siar	-2.4	-4.2	-2.7	0.3	-2.7	-4.1	-3.2	0.6	-2.1	-4.4	-2.2	0.1
Falkirk	-0.9	-1.7	-1.0	0.3	-0.6	-1.3	-0.7	0.5	-1.1	-2.0	-1.3	0.2
Fife	-0.9	-1.3	-1.1	0.3	-0.8	-1.1	-1.0	0.7	-1.0	-1.6	-1.2	0.0
Glasgow City	-0.9	0.0	-1.2	-0.4	-1.8	-0.1	-2.5	-0.5	-0.1	0.1	0.0	-0.4
Highland	-1.8	-1.9	-2.0	-0.8	-1.5	-1.4	-1.8	-0.5	-2.0	-2.4	-2.2	-1.1
Inverclyde	-0.1	0.3	-0.3	-0.1	-0.3	0.9	-0.9	0.6	0.0	-0.2	0.3	-0.5
Midlothian	1.7	2.9	1.5	0.6	2.7	2.8	3.0	1.2	0.7	3.0	0.2	0.2
Moray	-2.0	-2.5	-2.0	-1.5	-2.0	-3.2	-1.7	-1.8	-2.0	-1.6	-2.3	-1.3
North Ayrshire	-1.1	-1.9	-0.9	-0.6	-1.3	-2.4	-1.0	-0.7	-0.9	-1.3	-0.9	-0.5
North Lanarkshire	-0.7	-0.8	-0.8	0.0	-0.9	-0.9	-1.0	-0.4	-0.4	-0.5	-0.6	0.4
Orkney Islands	-2.7	-1.9	-3.1	-2.0	-3.3	-1.6	-3.6	-4.1	-2.1	-2.3	-2.6	-0.4
Perth & Kinross	-1.4	-1.5	-1.5	-1.1	-1.9	-1.8	-2.1	-1.2	-1.0	-1.2	-0.9	-0.9
Renfrewshire	-0.2	0.7	-0.6	0.4	-0.4	0.7	-0.7	0.1	-0.1	0.8	-0.5	0.6
Scottish Borders	-1.4	-1.9	-1.5	-0.4	-0.7	-1.6	-0.5	-0.4	-1.9	-2.2	-2.4	-0.3
Shetland Islands	-0.3	-1.5	-0.1	0.0	-0.9	-3.0	-0.3	-0.4	0.2	0.1	0.2	0.4
South Ayrshire	-1.0	-0.4	-1.4	-0.1	-1.2	-0.5	-1.7	0.1	-0.8	-0.3	-1.1	-0.2
South Lanarkshire	-1.3	-1.5	-1.4	-0.7	-1.4	-1.3	-1.6	-0.6	-1.3	-1.6	-1.3	-0.8
Stirling	0.6	-2.8	1.5	1.1	1.3	-1.7	2.0	2.3	0.1	-3.9	1.2	0.2
West Dunbartonshire	-0.3	0.5	-0.5	-0.7	-0.7	-0.5	-0.8	-0.6	0.0	1.4	-0.1	-0.8
West Lothian	0.0	-0.1	0.2	-0.7	0.4	0.5	0.4	-0.3	-0.3	-0.6	-0.1	-1.0
Average Error	-0.8	-1.0	-0.8	-0.3	-0.8	-1.1	-0.8	-0.4	-0.7	-0.9	-0.8	-0.2
Min Error	-2.7	-4.2	-3.1	-2.0	-3.3	-4.1	-3.6	-4.1	-2.1	-4.4	-2.8	-1.3
Max Error	1.7	2.9	1.5	1.1	2.7	2.8	3.0	2.3	1.9	3.0	2.5	0.8
Error Range	4.4	7.1	4.7	3.1	6.0	6.9	6.6	6.4	4.1	7.4	5.4	2.2

Predictors for 2002 Persons

Figure M Comparison of the 2000 mid-year estimate and the 2000-based projection for 2002 as a predictor for the 2002 mid-year estimate, Persons, All Ages

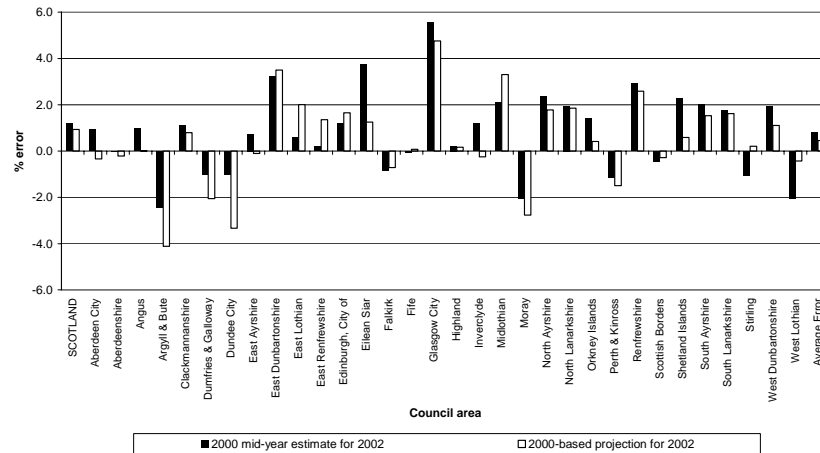


Figure O Comparison of the 2000 mid-year estimate and the 2000-based projection for 2002 as a predictor for the 2002 mid-year estimate, Persons, 16-64 years

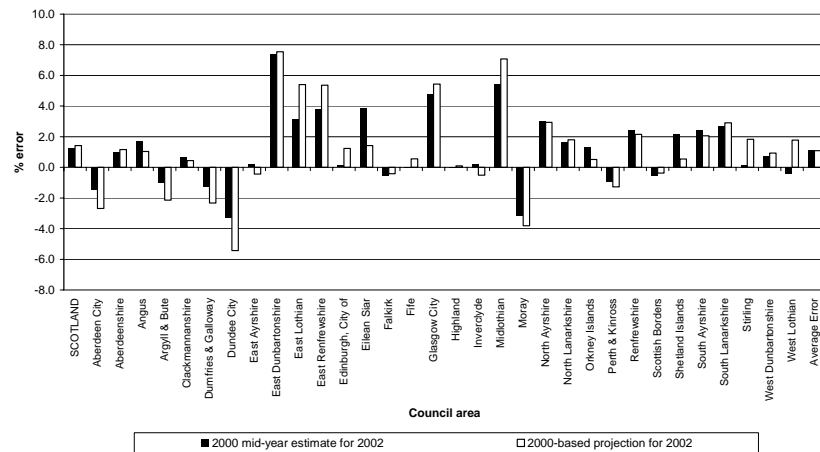


Figure N Comparison of the 2000 mid-year estimate and the 2000-based projection for 2002 as a predictor for the 2002 mid-year estimate, Persons, 0-15 years

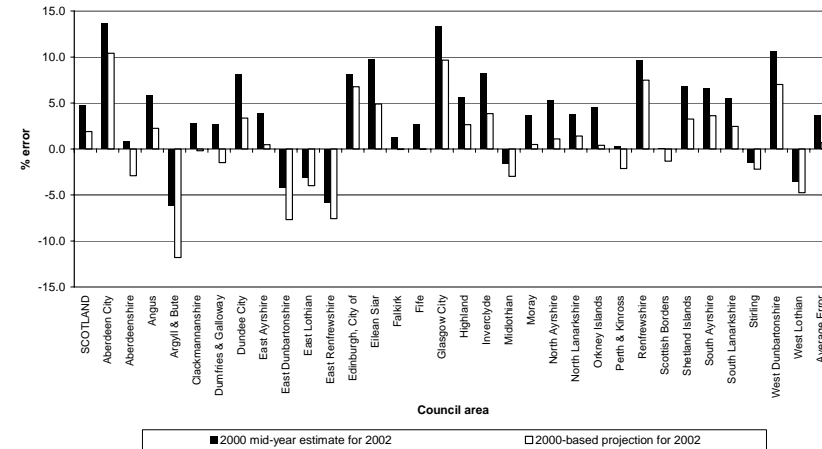
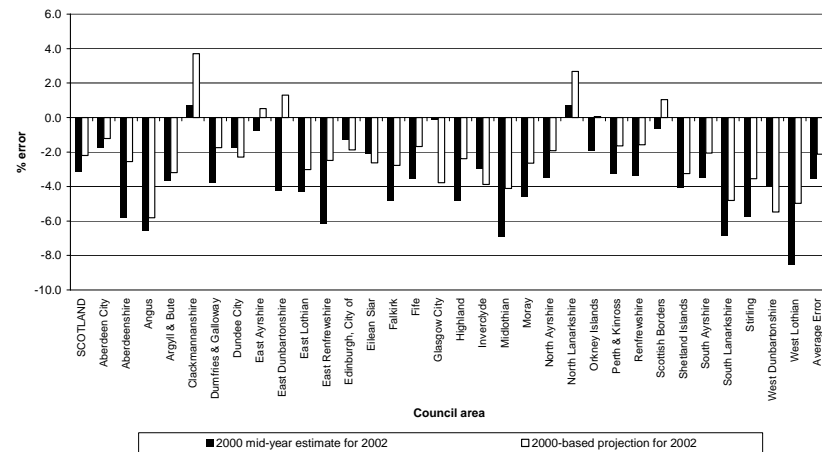


Figure P Comparison of the 2000 mid-year estimate and the 2000-based projection for 2002 as a predictor for the 2002 mid-year estimate, Persons, 65+



* Note that the scales in the graphs are not all the same.

Table C % error between the unrevised 2000 mid-year estimate and the 2002 mid-year estimate

	Persons				Males				Females			
	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+
SCOTLAND	1.2	4.7	1.2	-3.2	2.2	4.7	2.7	-3.9	0.3	4.8	-0.1	-2.7
Aberdeen City	0.9	13.7	-1.5	-1.8	1.1	13.0	-0.8	-4.0	0.8	14.3	-2.1	-0.2
Aberdeenshire	0.0	0.8	1.0	-5.8	0.8	0.8	2.0	-5.4	-0.8	0.8	0.0	-6.2
Angus	1.0	5.9	1.7	-6.6	2.0	5.8	3.4	-8.3	0.0	5.9	0.0	-5.4
Argyll & Bute	-2.5	-6.1	-1.0	-3.7	-3.3	-4.5	-1.9	-7.6	-1.6	-7.9	0.0	-0.9
Clackmannanshire	1.1	2.7	0.7	0.7	2.0	2.3	1.6	3.3	0.3	3.2	-0.2	-1.1
Dumfries & Galloway	-1.0	2.7	-1.3	-3.8	-0.6	2.6	-0.5	-4.2	-1.5	2.8	-2.0	-3.5
Dundee City	-1.0	8.1	-3.3	-1.8	-0.4	7.7	-2.0	-3.4	-1.6	8.6	-4.5	-0.7
East Ayrshire	0.7	3.8	0.2	-0.7	1.5	3.5	1.1	0.8	0.0	4.2	-0.7	-1.8
East Dunbartonshire	3.2	-4.2	7.4	-4.3	5.4	-4.7	10.5	-2.7	1.2	-3.6	4.5	-5.4
East Lothian	0.6	-3.0	3.2	-4.3	2.5	-2.8	6.0	-4.4	-1.2	-3.3	0.5	-4.2
East Renfrewshire	0.2	-5.8	3.8	-6.2	2.3	-7.1	7.3	-5.5	-1.7	-4.4	0.5	-6.6
Edinburgh, City of	1.2	8.2	0.1	-1.3	2.4	7.3	2.1	-2.8	0.1	9.1	-1.7	-0.4
Eilean Siar	3.7	9.7	3.8	-2.1	4.4	9.9	4.3	-1.7	3.1	9.5	3.4	-2.4
Falkirk	-0.9	1.3	-0.5	-4.8	0.0	1.9	0.3	-4.1	-1.7	0.6	-1.3	-5.3
Fife	-0.1	2.7	0.0	-3.6	1.0	2.9	1.3	-3.1	-1.1	2.4	-1.3	-3.9
Glasgow City	5.5	13.3	4.8	-0.2	6.6	12.4	6.2	0.0	4.6	14.3	3.5	-0.3
Highland	0.2	5.6	-0.1	-4.8	0.8	5.8	0.9	-6.5	-0.3	5.3	-1.0	-3.6
Inverclyde	1.2	8.2	0.2	-3.0	2.0	9.0	0.4	-0.8	0.5	7.4	0.0	-4.4
Midlothian	2.1	-1.6	5.4	-6.9	5.0	-1.1	9.7	-7.6	-0.5	-2.0	1.5	-6.4
Moray	-2.1	3.7	-3.2	-4.6	-3.0	2.4	-4.0	-6.2	-1.1	5.0	-2.3	-3.4
North Ayrshire	2.4	5.2	3.0	-3.5	4.3	5.5	5.9	-5.0	0.6	4.9	0.3	-2.5
North Lanarkshire	2.0	3.7	1.7	0.7	3.4	3.4	3.9	1.1	0.6	4.1	-0.4	0.4
Orkney Islands	1.4	4.6	1.3	-2.0	1.7	5.4	1.5	-2.9	1.1	3.6	1.1	-1.3
Perth & Kinross	-1.1	0.3	-0.9	-3.3	-1.2	0.0	-1.1	-3.3	-1.1	0.6	-0.8	-3.3
Renfrewshire	2.9	9.7	2.5	-3.4	4.1	9.7	4.1	-4.4	1.8	9.6	0.9	-2.7
Scottish Borders	-0.5	0.0	-0.5	-0.7	-0.4	0.4	-0.3	-2.0	-0.5	-0.3	-0.8	0.3
Shetland Islands	2.3	6.8	2.2	-4.1	2.6	8.5	2.5	-8.1	2.0	5.0	1.8	-1.3
South Ayrshire	2.0	6.6	2.4	-3.5	2.5	6.9	3.1	-5.0	1.6	6.2	1.8	-2.5
South Lanarkshire	1.8	5.5	2.7	-6.9	3.2	6.2	4.7	-9.4	0.5	4.8	0.8	-5.2
Stirling	-1.1	-1.4	0.2	-5.7	0.1	-1.9	2.3	-8.0	-2.1	-1.0	-1.9	-4.1
West Dunbartonshire	1.9	10.5	0.8	-4.0	3.2	11.5	2.0	-4.4	0.7	9.6	-0.4	-3.8
West Lothian	-2.0	-3.6	-0.4	-8.6	-0.2	-2.2	1.9	-9.6	-3.8	-4.9	-2.6	-7.8
Average Error	0.8	3.7	1.1	-3.6	1.7	3.8	2.5	-4.2	0.0	3.6	-0.1	-3.1
Min Error	-2.5	-6.1	-3.3	-8.6	-3.3	-7.1	-4.0	-9.6	-3.8	-7.9	-4.5	-7.8
Max Error	5.5	13.7	7.4	0.7	6.6	13.0	10.5	3.3	4.6	14.3	4.5	0.4
Error Range	8.0	19.8	10.7	9.3	9.9	20.2	14.5	12.9	8.3	22.2	9.0	8.3

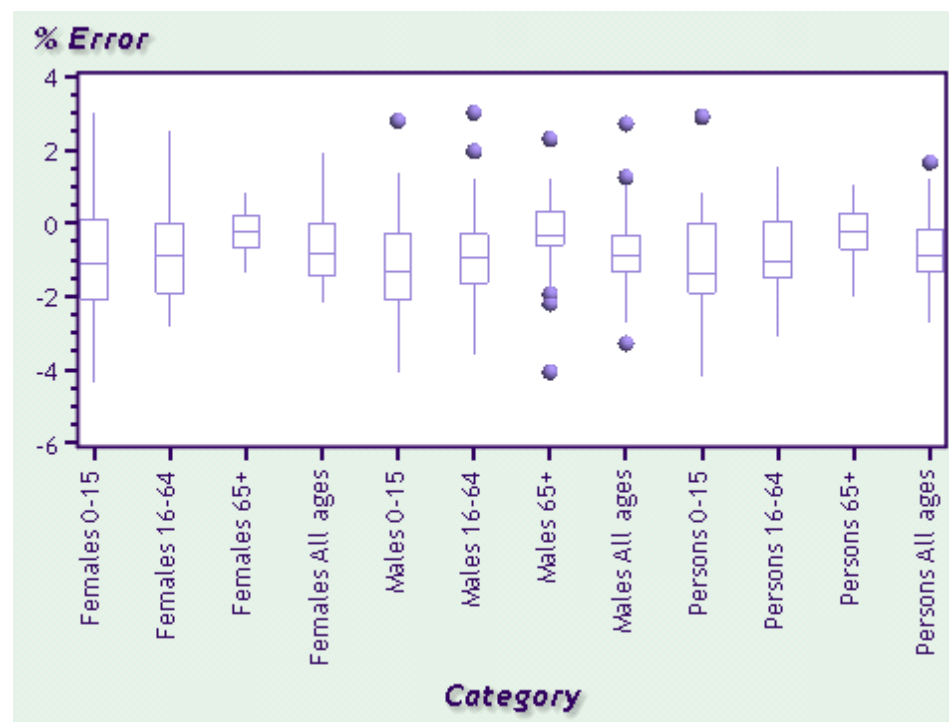
Table D - 2000-based projections: % error between the projected results for 2002 and the revised 2002 mid-year estimate
2000-based

	Persons				Males				Females			
	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+	All ages	0-15	16-64	65+
SCOTLAND	0.9	1.9	1.4	-2.2	2.1	1.9	2.9	-1.8	-0.1	1.9	3.9	-2.4
Aberdeen City	-0.3	10.4	-2.7	-1.2	0.0	9.9	-1.9	-2.6	-0.7	11.0	-5.4	-0.3
Aberdeenshire	-0.2	-2.9	1.2	-2.6	0.7	-2.9	2.1	-0.5	-1.1	-2.9	-1.2	-4.1
Angus	0.0	2.2	1.0	-5.8	1.4	2.0	2.8	-5.5	-1.3	2.4	1.3	-6.0
Argyll & Bute	-4.1	-11.8	-2.1	-3.2	-4.7	-10.3	-2.8	-6.0	-3.5	-13.3	-8.1	-1.2
Clackmannanshire	0.8	-0.2	0.4	3.7	1.8	-0.4	1.6	6.7	-0.1	0.0	2.0	1.6
Dumfries & Galloway	-2.1	-1.5	-2.3	-1.7	-1.5	-1.7	-1.5	-1.0	-2.6	-1.3	0.4	-2.3
Dundee City	-3.3	3.4	-5.4	-2.3	-2.6	3.2	-4.0	-3.7	-4.0	3.5	-0.8	-1.4
East Ayrshire	-0.1	0.5	-0.4	0.5	0.9	0.2	0.7	3.0	-1.0	0.8	2.5	-1.2
East Dunbartonshire	3.5	-7.7	7.5	1.3	5.8	-8.0	10.7	4.3	1.4	-7.3	11.9	-0.9
East Lothian	2.0	-4.0	5.4	-3.0	4.1	-3.9	8.4	-1.8	0.1	-4.1	8.9	-3.9
East Renfrewshire	1.4	-7.6	5.4	-2.5	3.7	-8.5	9.0	-0.4	-0.8	-6.6	9.5	-3.9
Edinburgh, City of	1.7	6.8	1.2	-1.9	3.1	5.8	3.3	-1.9	0.3	7.8	3.3	-1.9
Eilean Siar	1.3	4.9	1.4	-2.6	1.8	5.3	1.9	-2.5	0.7	4.5	-4.9	-2.7
Falkirk	-0.7	-0.1	-0.4	-2.8	0.3	0.8	0.4	-1.1	-1.7	-1.0	2.8	-4.0
Fife	0.1	0.0	0.6	-1.7	1.4	0.2	2.1	-0.2	-1.1	-0.3	3.6	-2.7
Glasgow City	4.8	9.7	5.4	-3.8	6.0	8.9	6.8	-3.5	3.7	10.5	10.4	-4.0
Highland	0.2	2.6	0.1	-2.4	0.8	2.9	1.0	-3.1	-0.5	2.3	-0.2	-1.9
Inverclyde	-0.2	3.8	-0.5	-3.9	0.6	4.3	-0.2	-1.2	-1.0	3.3	4.2	-5.6
Midlothian	3.3	-3.0	7.1	-4.1	6.3	-3.0	11.6	-4.3	0.6	-3.0	11.1	-3.9
Moray	-2.8	0.5	-3.8	-2.6	-3.6	-0.5	-4.6	-3.2	-2.0	1.6	-10.4	-2.2
North Ayrshire	1.8	1.1	2.9	-1.9	3.9	1.9	5.9	-2.0	-0.2	0.3	9.3	-1.9
North Lanarkshire	1.8	1.4	1.8	2.7	3.5	1.4	4.1	3.7	0.4	1.5	5.7	2.0
Orkney Islands	0.4	0.4	0.5	0.1	0.6	0.8	1.1	-1.8	0.2	0.0	-2.4	1.4
Perth & Kinross	-1.5	-2.1	-1.3	-1.6	-1.4	-1.6	-1.6	-0.4	-1.6	-2.7	1.5	-2.5
Renfrewshire	2.6	7.5	2.1	-1.6	3.9	7.7	4.0	-2.0	1.4	7.3	6.8	-1.3
Scottish Borders	-0.3	-1.3	-0.4	1.0	0.0	-1.0	-0.1	1.5	-0.6	-1.7	2.2	0.7
Shetland Islands	0.6	3.2	0.5	-3.2	0.9	4.5	0.8	-5.5	0.3	1.9	-8.1	-1.7
South Ayrshire	1.5	3.6	2.1	-2.1	2.2	4.2	2.8	-2.6	0.9	3.0	6.5	-1.7
South Lanarkshire	1.6	2.4	2.9	-4.8	3.2	3.2	5.0	-6.2	0.2	1.7	7.3	-3.9
Stirling	0.2	-2.2	1.8	-3.6	1.6	-2.5	4.2	-4.6	-1.1	-1.9	6.6	-2.8
West Dunbartonshire	1.1	7.0	0.9	-5.5	2.6	8.2	2.2	-5.0	-0.2	5.8	7.0	-5.8
West Lothian	-0.4	-4.8	1.8	-5.0	1.5	-3.4	4.1	-3.9	-2.3	-6.1	5.6	-5.7
Average Error	0.5	0.7	1.1	-2.1	1.5	0.9	2.5	-1.8	-0.5	0.5	2.8	-2.4
Min Error	-4.1	-11.8	-5.4	-5.8	-4.7	-10.3	-4.6	-6.2	-4.0	-13.3	-10.4	-6.0
Max Error	4.8	10.4	7.5	3.7	6.3	9.9	11.6	6.7	3.7	11.0	11.9	2.0
Error Range	8.9	22.2	13.0	9.5	11.0	20.2	16.2	12.9	7.7	24.3	22.3	8.1

Annex B Predictors for 2004

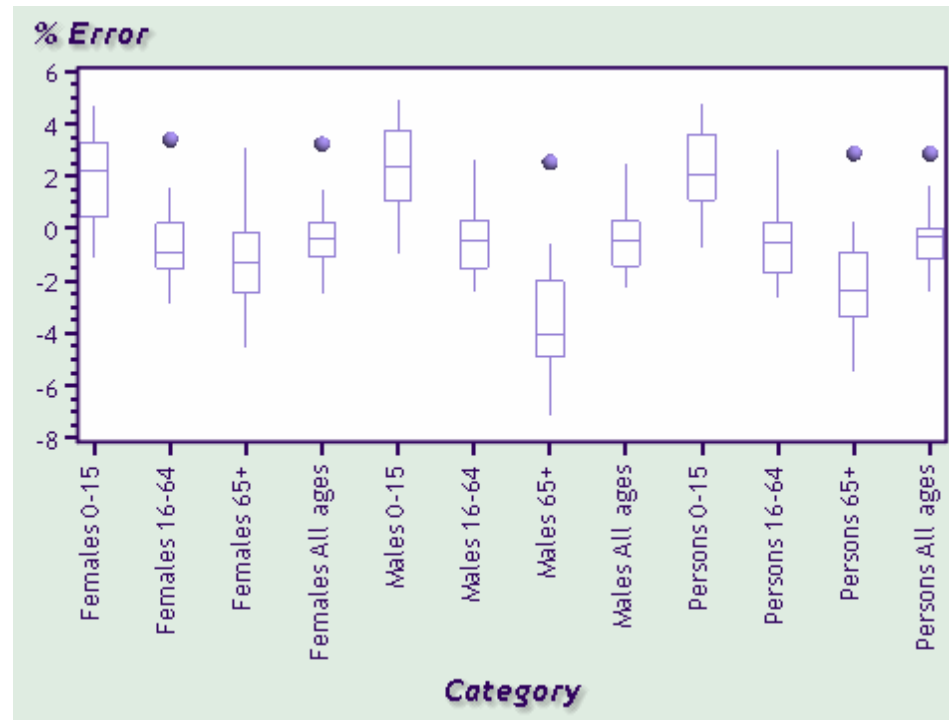
2002 based projections for 2004 compared with the 2004 mid-year estimate % error: summary statistics and box plot

Category	Maximum	Mean	Minimum	N	Range	Std Dev	Lower Quartile	Median	Upper Quartile
Females 0-15	3.0148186	-0.9234875	-4.3551089	32	7.3699275	1.5999308	-2.0680035	-1.0814003	0.0931253
Females 16-64	2.5305550	-0.8078087	-2.8266332	32	5.3571882	1.2671975	-1.9132752	-0.9052132	-0.0107502
Females 65+	0.8293839	-0.2189764	-1.3369298	32	2.1663136	0.5830120	-0.6610107	-0.2403967	0.2086200
Females All ages	1.9484984	-0.7122516	-2.1464007	32	4.0948992	1.0081694	-1.4419834	-0.8560173	-0.0190047
Males 0-15	2.7877143	-1.1364021	-4.0824742	32	6.8701885	1.4827958	-2.0623697	-1.3302385	-0.2982560
Males 16-64	3.0093634	-0.7956799	-3.6075036	32	6.6168670	1.4390857	-1.6351817	-0.9335762	-0.3031020
Males 65+	2.2974607	-0.3715316	-4.0639574	32	6.3614181	1.1376134	-0.5885685	-0.3445670	0.3091146
Males All ages	2.7109866	-0.8023000	-3.2837992	32	5.9947859	1.1920556	-1.3291210	-0.8835739	-0.3324947
Persons 0-15	2.8992783	-1.0347830	-4.2177436	32	7.1170219	1.3958281	-1.8994479	-1.3921436	-0.0109068
Persons 16-64	1.5496646	-0.8033493	-3.1272669	32	4.6769315	1.2187810	-1.4783272	-1.0291444	0.0419540
Persons 65+	1.0742677	-0.2870536	-2.0187244	32	3.0929921	0.6960014	-0.6999986	-0.2330066	0.2663235
Persons All ages	1.6593393	-0.7569621	-2.7076923	32	4.3670316	1.0019177	-1.3374521	-0.9104965	-0.1745716



2002 mid-year estimate compared with the 2004 mid-year estimate % error: summary statistics and box plot

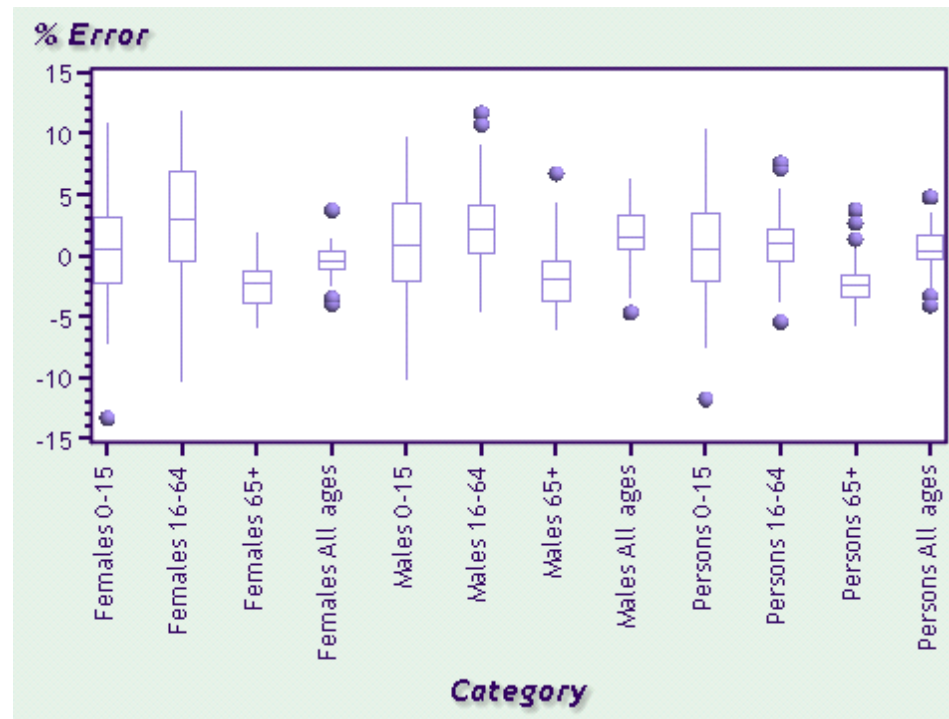
Category	Maximum	Mean	Minimum	N	Range	Std Dev	Std Error	Lower Quartile	Median	Upper Quartile
Females 0-15	4.7035040	2.0644800	-1.1398456	32	5.8433496	1.7223835	0.3044773	0.4411620	2.1866857	3.2945249
Females 16-64	3.4037644	-0.6915001	-2.9123763	32	6.3161407	1.2712985	0.2247359	-1.5145377	-0.9362347	0.2164168
Females 65+	3.0784913	-1.2505529	-4.5125397	32	7.5910311	1.6667663	0.2946454	-2.4086555	-1.3111990	-0.1683633
Females All ages	3.2258689	-0.3067294	-2.4755042	32	5.7013731	1.1578998	0.2046897	-1.0631911	-0.3594685	0.2359180
Males 0-15	4.9005283	2.2394214	-0.9775455	32	5.8780738	1.6264390	0.2875165	1.0628252	2.3744476	3.7355601
Males 16-64	2.6627598	-0.4721350	-2.4375059	32	5.1002657	1.3410174	0.2370606	-1.4904566	-0.4477907	0.3312483
Males 65+	2.5346666	-3.4665883	-7.1904389	32	9.7251055	2.1212357	0.3749850	-4.8744766	-4.0078377	-1.9969101
Males All ages	2.4842551	-0.3771584	-2.3068842	32	4.7911393	1.1854323	0.2095568	-1.4200557	-0.4230045	0.2842749
Persons 0-15	4.7701748	2.1516509	-0.7686303	32	5.5388051	1.6005559	0.2829410	1.0989944	2.0447285	3.5872070
Persons 16-64	3.0284034	-0.5799509	-2.6353738	32	5.6637772	1.2358248	0.2184650	-1.6777766	-0.5314598	0.2292384
Persons 65+	2.8717148	-2.1810639	-5.4562101	32	8.3279249	1.8090817	0.3198035	-3.3856814	-2.3462541	-0.8862584
Persons All ages	2.8606537	-0.3397427	-2.3920979	32	5.2527516	1.1422353	0.2019206	-1.1746821	-0.3340566	0.0195123



Predictors for 2002

2000 based projections for 2002 compared with the 2002 mid-year estimate % error: summary statistics and box plot

Category	Maximum	Mean	Minimum	N	Range	Std Dev	Std Error	Lower Quartile	Median	Upper Quartile
Females 0-15	10.9831170	0.5264206	-13.3317144	32	24.3148314	5.0976313	0.9011424	-2.2889164	0.5096299	3.1588600
Females 16-64	11.9052647	2.7808578	-10.3882988	32	22.2935635	5.8138277	1.0277492	-0.5001921	3.0353023	6.9212564
Females 65+	2.0113441	-2.3578695	-6.0398019	32	8.0511460	2.1007511	0.3713638	-3.9121174	-2.2523991	-1.2371487
Females All ages	3.6915945	-0.5348727	-4.0100780	32	7.7016724	1.4927170	0.2638776	-1.1934251	-0.5161432	0.2886327
Males 0-15	9.8622936	0.8683617	-10.3294118	32	20.1917053	4.8792050	0.8625297	-2.0922941	0.7903810	4.2754333
Males 16-64	11.6389549	2.5013298	-4.5829706	32	16.2219254	3.9219037	0.6933012	0.1946714	2.0726621	4.1309709
Males 65+	6.7033345	-1.7920147	-6.2071166	32	12.9104511	3.0555163	0.5401441	-3.8086600	-2.0220717	-0.4433235
Males All ages	6.2851343	1.5249565	-4.7063245	32	10.9914588	2.5592731	0.4524198	0.4513922	1.4527989	3.3195179
Persons 0-15	10.4046243	0.6993159	-11.8068834	32	22.2115076	4.9419995	0.8736303	-2.1586722	0.4708073	3.4868204
Persons 16-64	7.5441717	1.0880780	-5.4292916	32	12.9734632	2.9162086	0.5155177	-0.4240227	0.9846700	2.1008930
Persons 65+	3.7063234	-2.1263085	-5.8136005	32	9.5199239	2.1927613	0.3876291	-3.3982113	-2.4402448	-1.6092918
Persons All ages	4.7633151	0.4512415	-4.1129298	32	8.8762450	1.9125572	0.3380955	-0.3118688	0.3086312	1.6359385



2000 mid-year estimate compared with the 2002 mid-year estimate % error: summary statistics and box plot

Category	Maximum	Mean	Minimum	N	Range	Std Dev	Std Error	Lower Quartile	Median	Upper Quartile
Females 0-15	14.3203546	3.5790421	-7.8678970	32	22.1882516	5.3690318	0.9491197	0.1213870	4.1149592	6.8252853
Females 16-64	4.4991679	-0.1096500	-4.5120759	32	9.0112438	1.8782133	0.3320243	-1.3038022	-0.1439411	0.8389930
Females 65+	0.4254049	-3.1198267	-7.8331638	32	8.2585687	2.2201174	0.3924650	-4.7636605	-3.3563716	-1.1709007
Females All ages	4.5792629	-0.0371319	-3.7581798	32	8.3374427	1.6443385	0.2906807	-1.1449280	-0.0195355	0.7507255
Males 0-15	13.0392549	3.7660411	-7.1275837	32	20.1668386	5.1965642	0.9186314	0.1818545	3.4703251	7.4810441
Males 16-64	10.5113893	2.4534222	-3.9561205	32	14.4675098	3.2639039	0.5769821	0.3488918	1.9865569	4.1870490
Males 65+	3.3344792	-4.2159844	-9.5867977	32	12.9212769	3.1008451	0.5481571	-6.3471228	-4.2980729	-2.7493319
Males All ages	6.6190847	1.7435051	-3.3048169	32	9.9239015	2.2693545	0.4011690	0.0377480	1.9814323	3.1774366
Persons 0-15	13.6575439	3.6722025	-6.1484226	32	19.8059665	5.2268538	0.9239859	0.1503732	3.7848195	7.4719391
Persons 16-64	7.4042218	1.1341996	-3.2949000	32	10.6991218	2.3765550	0.4201195	-0.4582768	0.7092419	2.5589424
Persons 65+	0.7497524	-3.5748609	-8.5755426	32	9.3252951	2.2749526	0.4021586	-4.8344099	-3.6145675	-1.8678118
Persons All ages	5.5460293	0.8146446	-2.4607272	32	8.0067565	1.8056578	0.3191982	-0.6587159	0.9585997	1.9830044

