

Household Analysis Review Group (HARG)

2010-Based Household Projections – Principal Projection Provisional Results

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Please Note – The results presented in this paper are provisional. They may differ from the final figures used in the published household projections.

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1. Purpose

This paper describes the draft 2010-based household projections, due to be published by the National Records of Scotland (NRS) in June. It discusses the methodology used and results obtained.

Note: HARG members are asked to note the findings and express whether they are satisfied with the approach taken.

2. Methodology

2.1 Data

The 2010-based household projections for Scotland are based on the sub-national population projections published by NRS in February 2012. The number of people living in communal establishments is collected from a range of administrative data sources ([Paper 2 HARG 2012\(2\)](#)) and subtracted from the population projection to estimate the number of people living in private households. Information on the types of households, in the form of headship rates, is taken from 1991 and 2001 censuses. The household projections are constrained to the 2010 and 2011 household estimates and in this paper provisional household estimates for 2011 have been used.

2.2 Method

The proportion of individuals of a particular age and gender within each local authority area who head households is called the headship rate. The non-headship rate is the proportion of people who are not head of households within each age group, gender and Local Authority (LA) area.

These headship and non-headship rates from the 1991 and 2001 censuses are fitted to a two point exponential curve and projected forward from 2010 to 2035. Applying these rates to the population projections gives the number of households by type of household, age of the head of household and local authority. Local authority figures are then constrained to the Scottish household projections, the 2010 and 2011 household estimates and adjusted to ensure that there are enough people in the population projection to fill all the households. The household types and age groups used are given in the annex.

2.3 Variant Projections

Household projections corresponding to the low and high migration variant population projections and a headship variant have also been calculated. This analysis is presented in [Paper 4 HARG 2012\(4\)](#). In addition, household projections that incorporate survey data have been investigated and are presented in [Paper 5 HARG 2012\(5\)](#).

3. Changes in methodology for the 2010-based projections

There have been revisions to the methodology for the collection of communal establishment data, particularly affecting children's care, and there are outstanding issues regarding the way that adult care homes estimates are derived. A full description of the communal establishment methodologies for 2010 are given in [Paper 2 HARG 2012\(2\)](#). Draft communal establishment estimates are used in this paper.

4. Results of the provisional household projections

4.1 Overall change

2010-based household projections for each local authority area are presented in [Table 1](#). It shows a total projected increase of 532,957 households (23%) by 2035 for Scotland, which is an average annual rise of 21,318 households. The household estimates show an increase in household number of between 12,100 and 22,900 a year since 2001, with an average increase of 18,000 households per year, though the figures have been lower in recent years, since the start of the economic downturn. However, the number of households in the household projections has increased regardless of the lowering of household estimates. This is due to the methodology used in calculation of household projections ([annex](#)) where headship rates are taken from 1991 and 2001 censuses and projected forward. This means that the headship rates on which the household projections are based on, do not take into account the current economic downturn.

[Figure 1](#) shows projected percentage change in the total number of households for each local authority area. Except for Inverclyde all local authority areas show a projected increase in households between 2010 and 2035.

4.2 Scotland – comparisons with previous projections

[Figure 2](#) shows the projected household numbers for the 2010-based projections and the previous four projections. The 2010-based projections estimate that there are more households in Scotland than the 2008-based projections did, from 2021 onwards. This is to be expected as there was a rise in the population projections compared to the previous figures as shown in [Figure 3](#). However, the increase in the projected number of households is not as large as in the previous years. The reason for this may be attributed to slowing down of rise in the household estimates. [Figure 4](#) shows the year-on-year increase in the household estimates from 2002 to 2010. It can be seen that there is a slowing in the amount by which household estimates increase from 2007, since the start of the economic downturn.

4.3 Local Authority (LA) Areas

A direct comparison of 2010-based household and population projections is made in [Figure 5](#). The figure shows the projected percentage change in population and household numbers for each local authority area, between 2010 and 2035. As can be seen from the figure, the projected change is greater for households than population. This is largely due to individuals choosing to live in smaller households, shown by the reduction in the average household size, which means that even if the number of people in the population didn't change, the number of households would still rise. The difference in household and population projections is higher in the projections for Eilean Siar and the Shetland Islands. An explanation for this can be found in [Figure 6](#) which shows a decrease in the average household size for all local authority areas. It can be seen from this figure that Eilean Siar and Shetland Islands have greater changes in the projected average household size than other local authority areas. In addition to the declining average household size, the population size of Eilean Siar and Shetland Islands are so small that the projected figures become less reliable for these local authority areas. [Figure 7](#) shows that there is a continuous projected decline in the average household size for Scotland.

A comparison between the 2008- and 2010-based household projections for local authority areas for a span of 25 years is shown in [Figure 8](#). There is a considerable rise

in the number of households projected for local authority areas such as Midlothian, Dundee City, Shetland, Glasgow, Edinburgh, Stirling and Aberdeen City, compared to 2008. In contrast, a number of local authority areas show dips in the projected number of households, with the largest being in Clackmannanshire. These differences can largely be explained by the changes in the projected population shown in [Figure 9](#).

The 2010-based sub-national population projections publication explains these changes: 'These changes have come about again because of the different starting point in the 2010 mid-year estimate and because of the changes to the fertility, mortality and migration assumptions.' In particular, they state that 'The projected population of Aberdeen City appears to have increased significantly from the 2008-based projection. This is due to a large increase in migration observed in this area.'

4.4 House hold projections by household type and age of head of household

[Figure 10](#) presents the proportion of households headed by different age groups in 2010-based household projection. It can be seen from this figure that there is an increase in the proportion of households headed by older age groups (60 and above) in Scotland as a whole, which is expected given Scotland's ageing population.

The 2010-based household projection, by type of households, is presented in [Figure 11](#). This figure shows that there is a projected increase in the number of households of small size (up to two adults) and a decrease in larger households (2+ adults with children and 3+ adults).

5. Conclusion

No major disparity could be found in the results produced by the 2010-based household projection. The biggest changes are in the figures for some specific local authority areas, and these changes can largely be explained by changes in the sub-national population projections. This suggests that there is no need for major revisions to the methodology used to produce these projections.

6. Next steps

NRS will produce final 2010-based household projections using the final communal establishment and 2011 household estimates. They will be published on 14th June 2012.

Note:

HARG members are asked to note the initial findings and state whether they are satisfied with the approach used so far, or whether alternative methods or additional analysis may be required.

NRS: Household Estimates and Projections Branch
March 2012

Table 1: Provisional 2010-based household projections for Scotland, 2010–2035

Local authority	2010	2015	2020	2025	2030	2035	Change		Average annual change		
							2010-2035		2010-2035	2010-2020	2020-2035
Scotland	2,357,424	2,472,994	2,588,537	2,691,938	2,791,749	2,890,381	532,957	23%	21,318	23,111	20,123
Aberdeen City	103,677	111,444	119,283	126,707	134,955	143,686	40,010	39%	1,600	1,561	1,627
Aberdeenshire	103,770	110,616	117,693	124,564	130,983	137,272	33,502	32%	1,340	1,392	1,305
Angus	50,568	52,226	53,794	55,182	56,406	57,500	6,932	14%	277	323	247
Argyll & Bute	41,609	42,146	42,514	42,602	42,347	41,940	332	1%	13	91	-38
Clackmannanshire	22,953	24,194	25,577	26,903	28,159	29,398	6,445	28%	258	262	255
Dumfries & Galloway	68,408	69,840	70,666	71,210	71,556	71,553	3,146	5%	126	226	59
Dundee City	70,401	72,771	74,908	76,993	79,305	81,669	11,268	16%	451	451	451
East Ayrshire	53,722	55,204	56,613	57,637	58,498	59,393	5,671	11%	227	289	185
East Dunbartonshire	43,010	43,873	44,541	44,976	45,195	44,975	1,965	5%	79	153	29
East Lothian	42,798	45,647	48,952	52,461	55,947	59,449	16,652	39%	666	615	700
East Renfrewshire	35,995	36,732	37,444	38,078	38,648	39,231	3,236	9%	129	145	119
Edinburgh, City of	220,195	239,431	258,465	276,773	295,860	314,767	94,573	43%	3,783	3,827	3,753
Eilean Siar	12,018	12,508	12,789	12,939	13,035	12,977	959	8%	38	77	13
Falkirk	68,655	71,738	75,187	78,253	81,160	84,315	15,660	23%	626	653	609
Fife	161,274	168,563	176,240	182,781	189,180	195,481	34,207	21%	1,368	1,497	1,283
Glasgow City	282,196	299,083	316,418	331,394	346,165	361,343	79,147	28%	3,166	3,422	2,995
Highland	101,833	107,662	113,340	118,448	123,270	128,255	26,422	26%	1,057	1,151	994
Inverclyde	36,502	36,541	36,461	35,982	35,209	34,317	-2,185	-6%	-87	-4	-143
Midlothian	35,270	37,067	38,900	40,608	42,164	43,645	8,374	24%	335	363	316
Moray	39,207	40,900	42,363	43,417	44,472	45,486	6,279	16%	251	316	208
North Ayrshire	62,006	63,245	64,371	65,125	65,523	65,709	3,703	6%	148	236	89
North Lanarkshire	144,865	150,150	155,337	159,607	163,394	167,131	22,267	15%	891	1,047	786
Orkney Islands	9,308	9,898	10,394	10,806	11,158	11,505	2,197	24%	88	109	74
Perth & Kinross	64,780	69,749	75,351	80,930	86,696	92,543	27,763	43%	1,111	1,057	1,146
Renfrewshire	79,054	80,949	82,942	84,454	85,662	86,840	7,786	10%	311	389	260
Scottish Borders	51,983	54,309	56,511	58,460	60,226	62,006	10,023	19%	401	453	366
Shetland Islands	9,829	10,405	10,930	11,351	11,668	11,937	2,108	21%	84	110	67
South Ayrshire	51,526	52,724	53,706	54,348	54,787	55,089	3,562	7%	142	218	92
South Lanarkshire	137,228	143,231	148,888	153,842	158,508	162,979	25,751	19%	1,030	1,166	939
Stirling	38,048	40,452	42,953	45,229	47,366	49,451	11,403	30%	456	490	433
West Dunbartonshire	41,578	42,217	42,810	43,159	43,297	43,242	1,664	4%	67	123	29
West Lothian	73,158	77,477	82,197	86,717	90,951	95,294	22,136	30%	885	904	873

Figure 1: Projected percentage change in the number of households by local authority area, 2010 to 2035

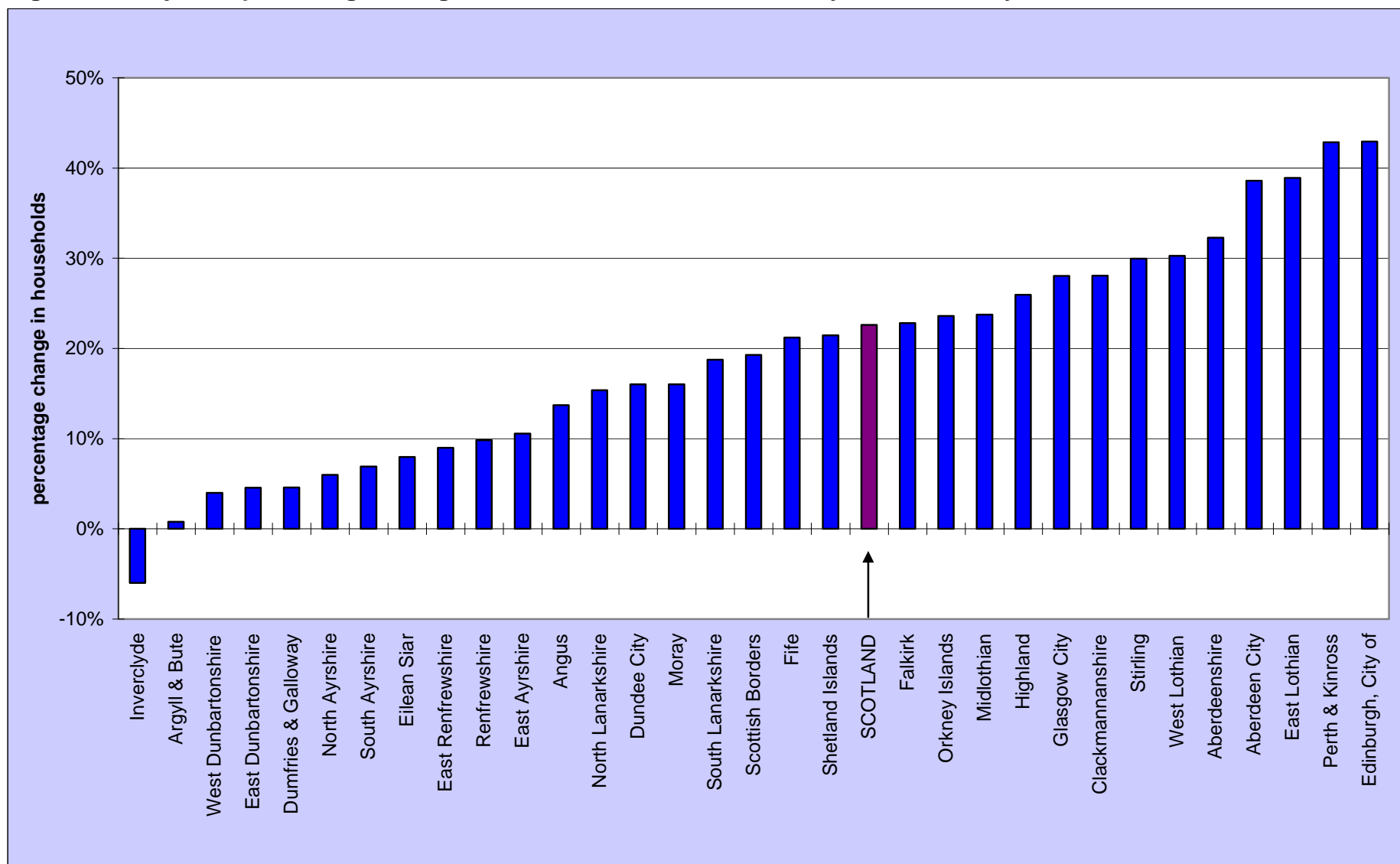


Figure 2: Comparison with previous household projections (2002, 2004, 2006, 2008 and 2010-based)

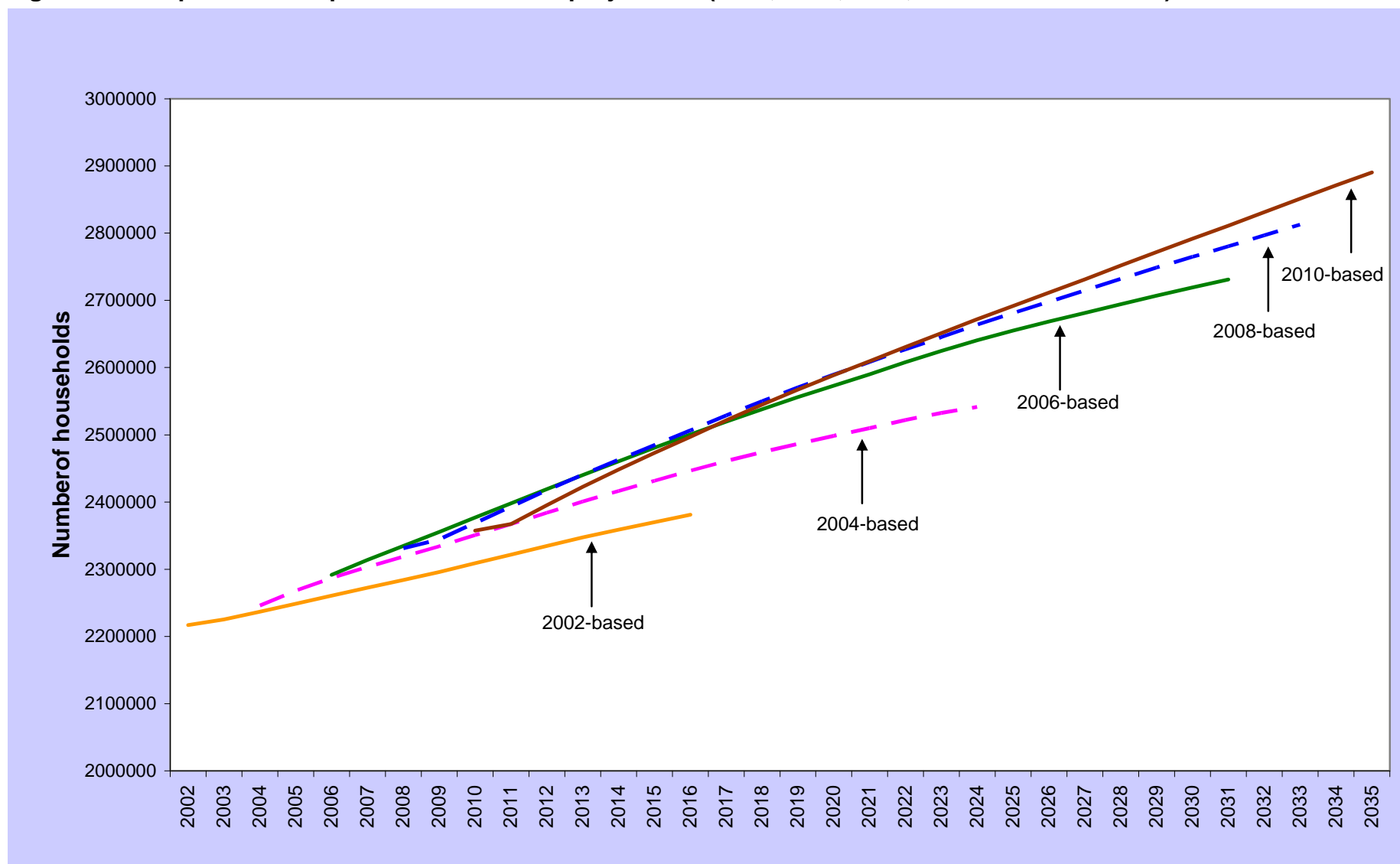


Figure 3: Comparison between 2008 and 2010-based population and household projections

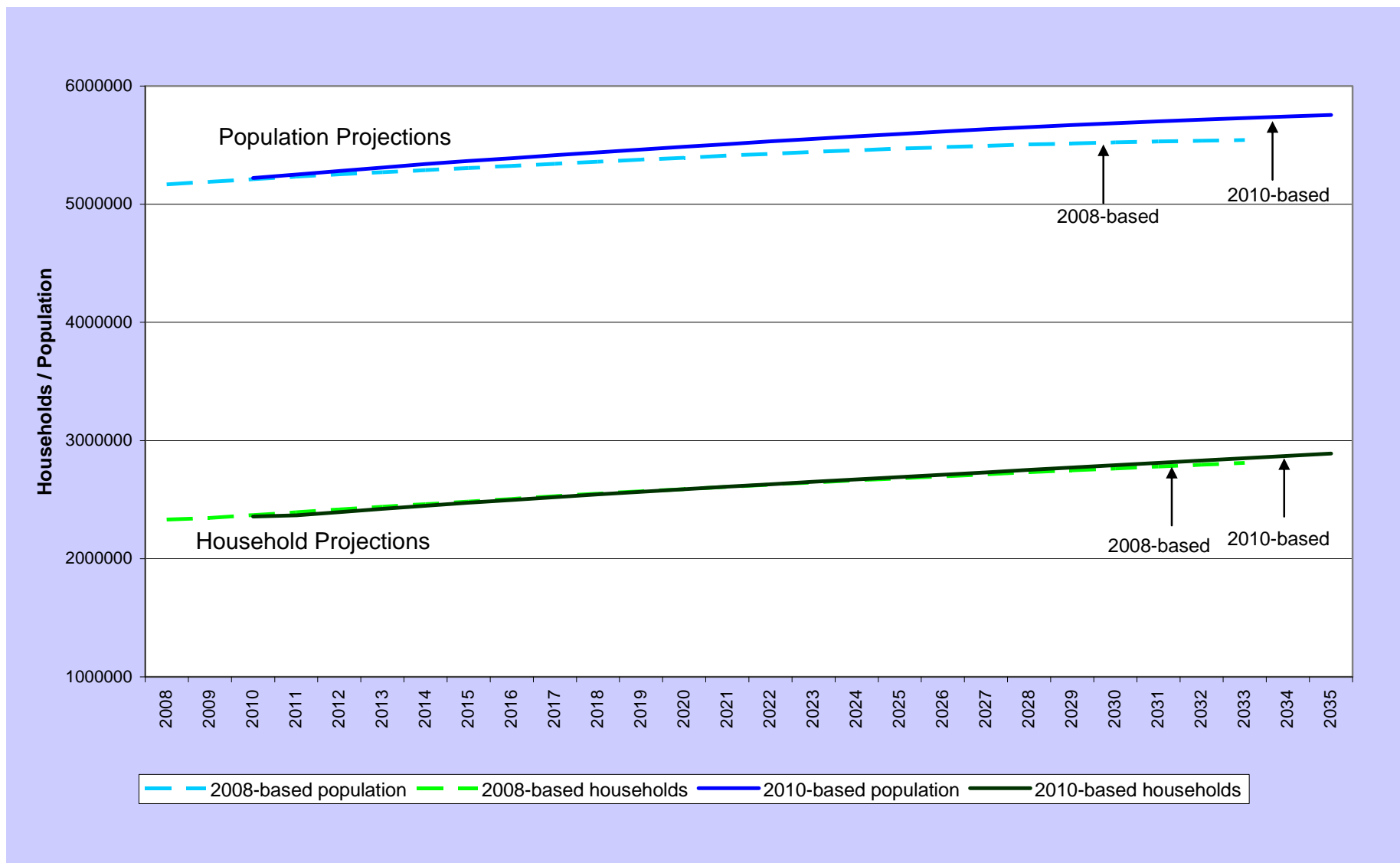


Figure 4: Year-on-year change in the Household Estimates

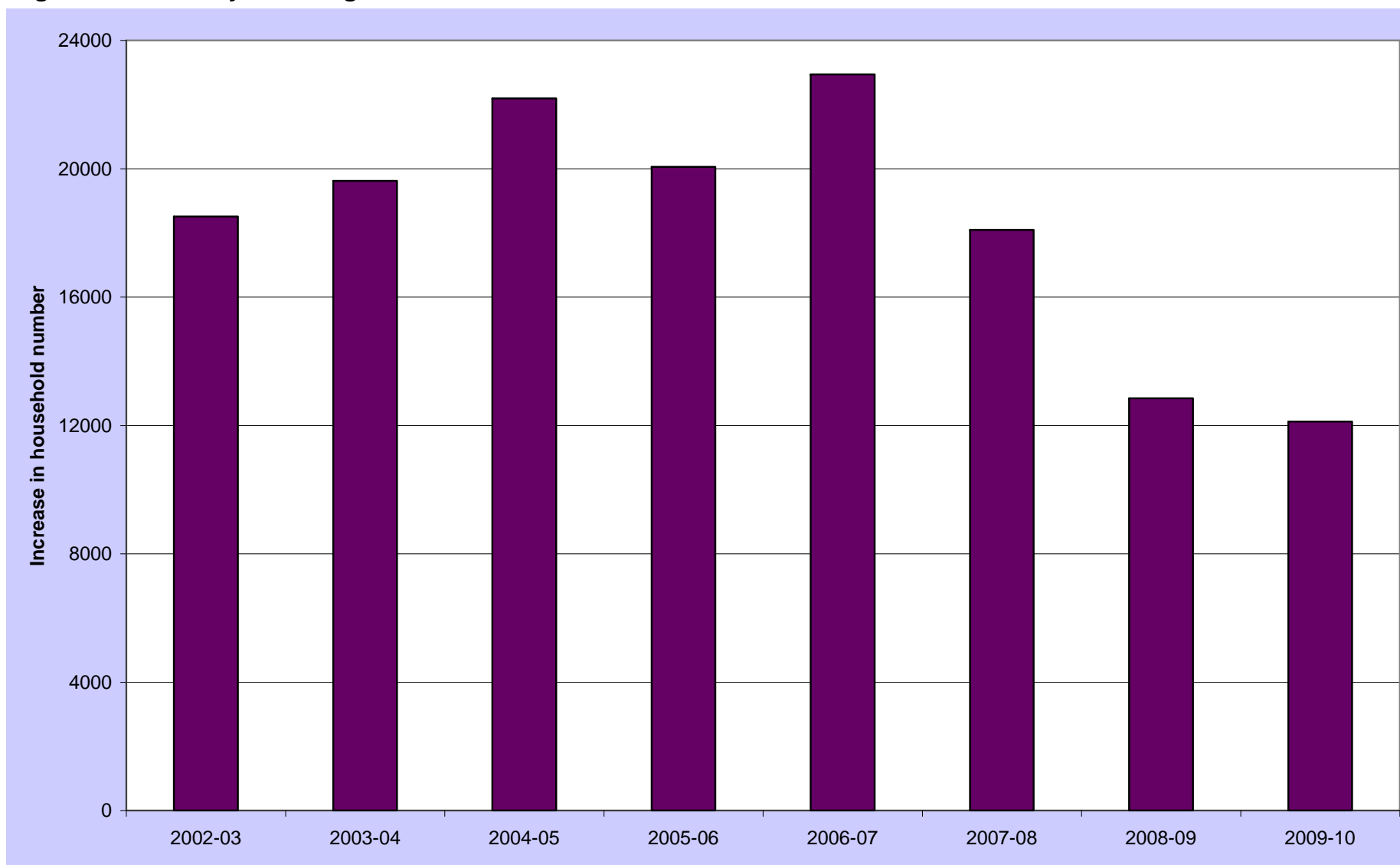


Figure 5: Percentage change in the projected number of households and population by local authority area, 2010-2035

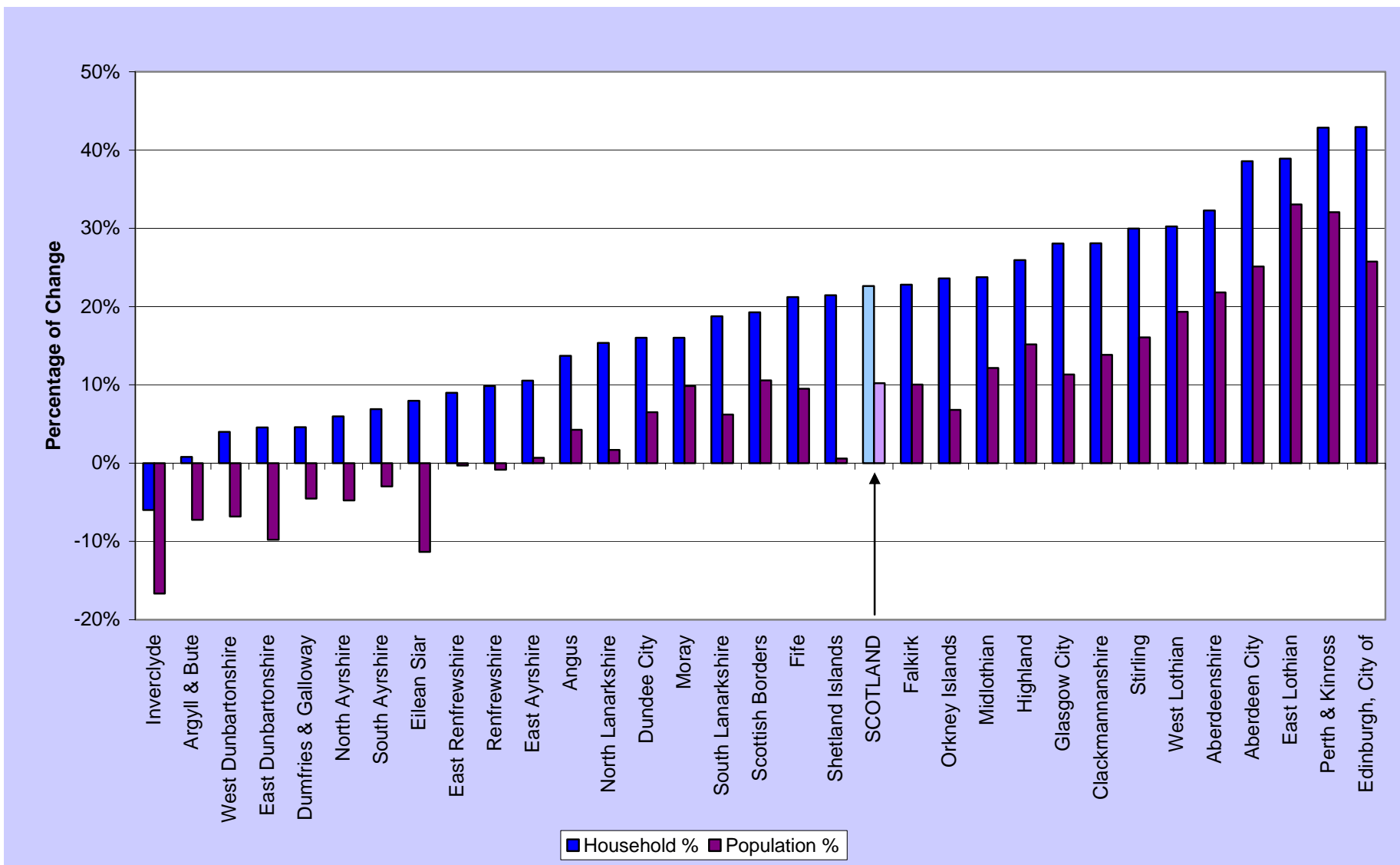


Figure 6: Change in projected average size of household by local authority area, 2010 – 2035

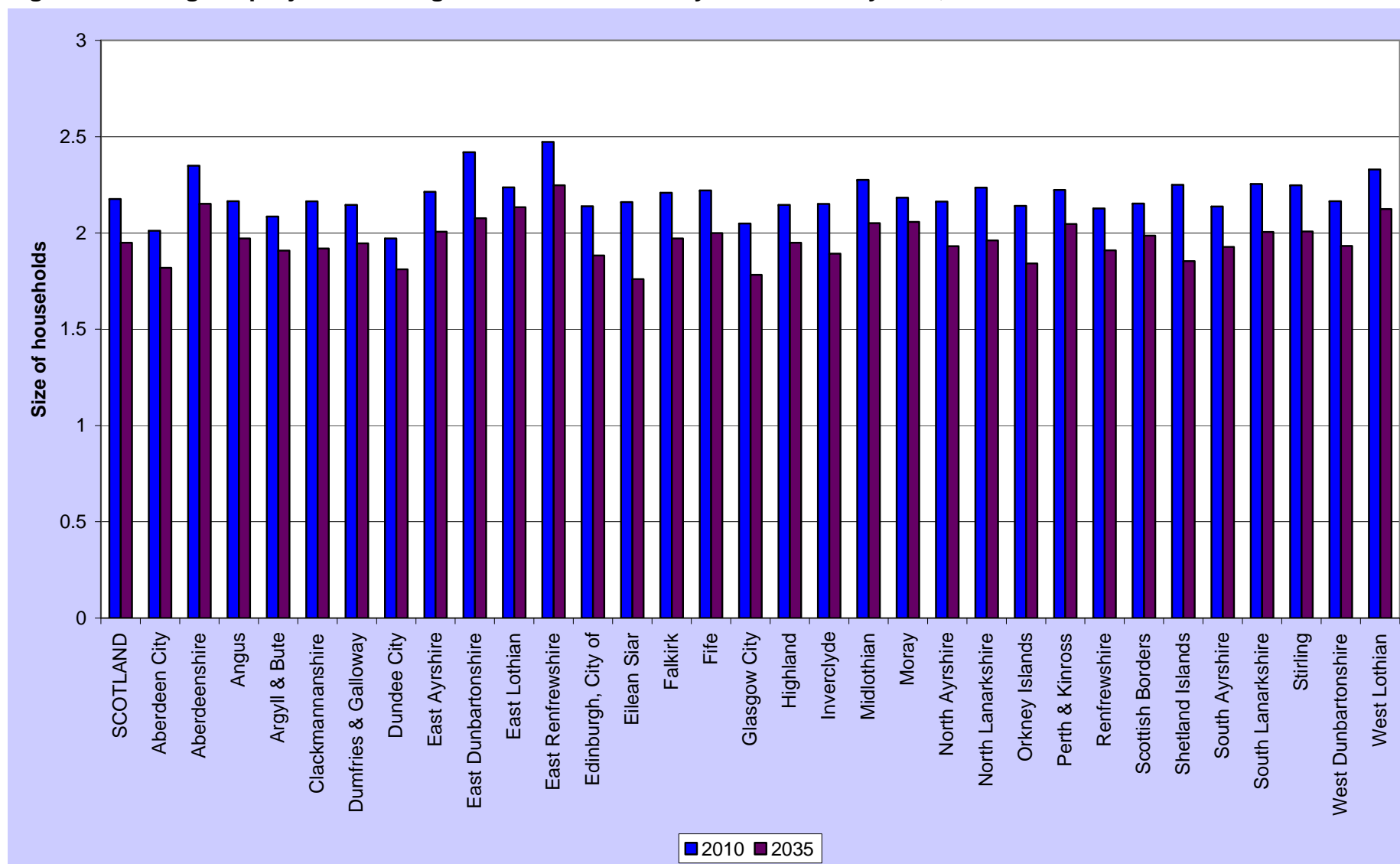


Figure 7: Projected average household size for Scotland, 2010 - 2035

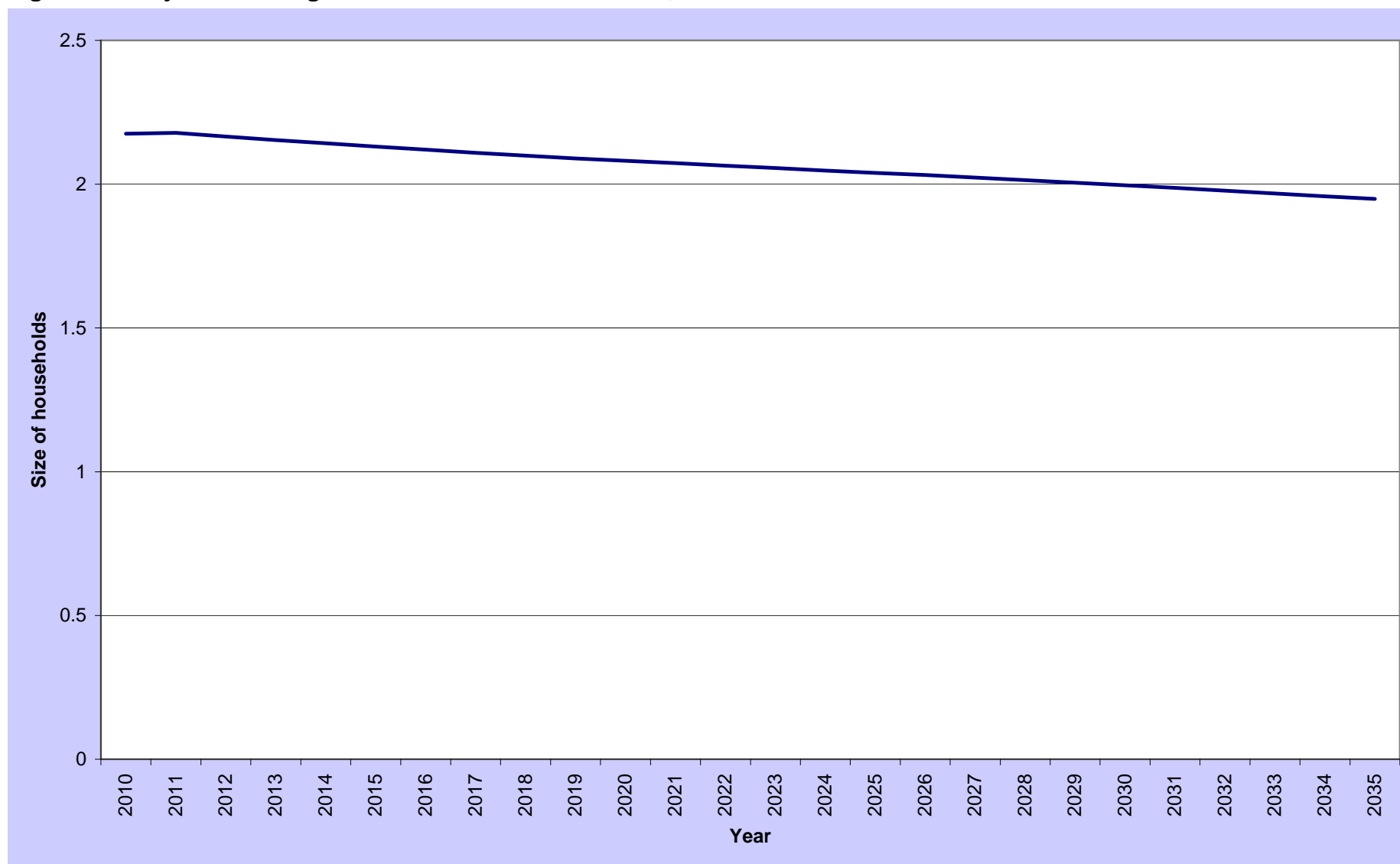
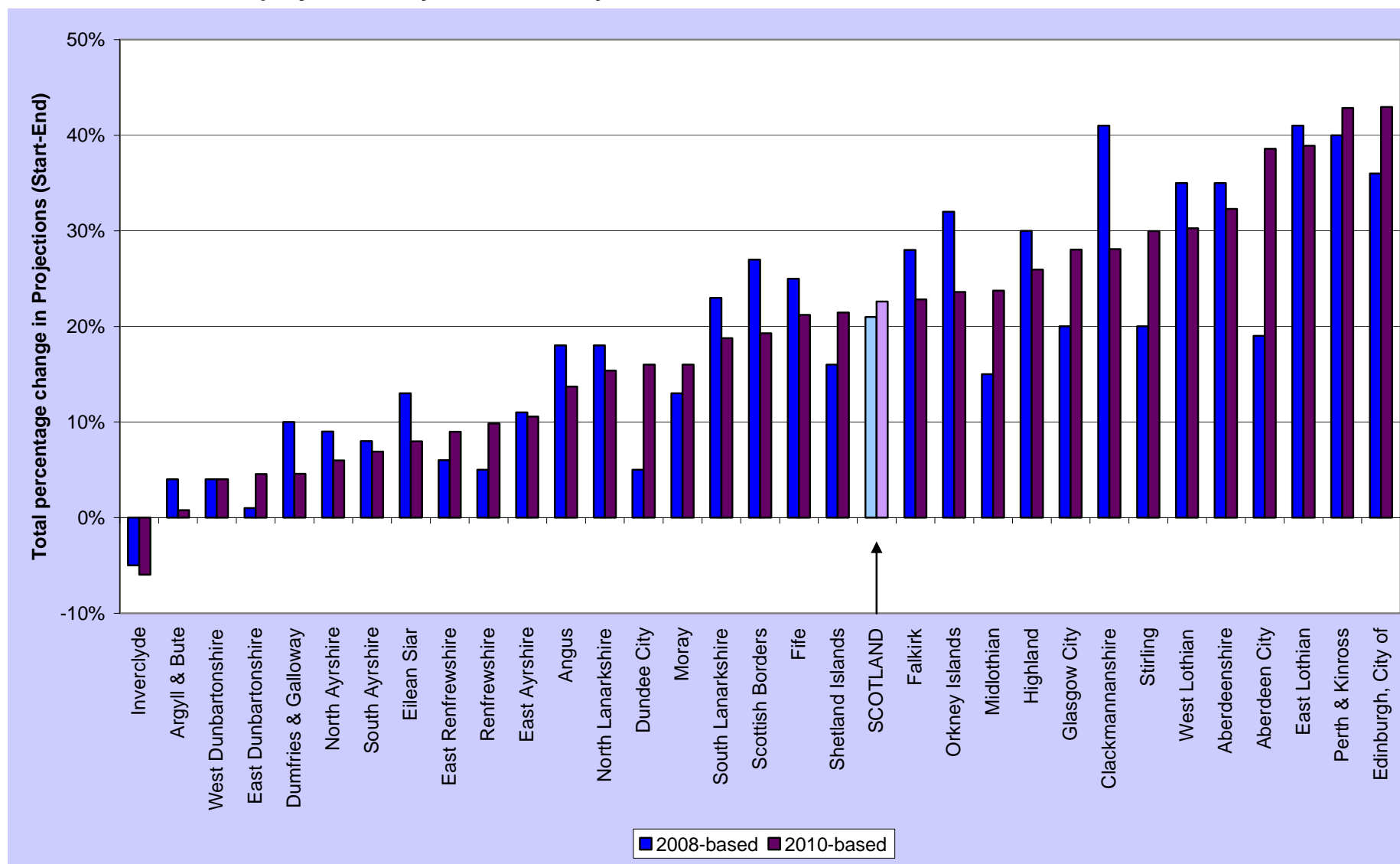


Figure 8: Projected percentage change in the number of households over 25 years, in the 2008 and 2010-based household projections, by local authority area¹



¹ This graph compares the change between 2008 to 2033 (2008-based projections) and the change between 2010 to 2035 (2010-based projections).

Figure 9: 2008 and 2010-based population projections for local authority areas in Scotland

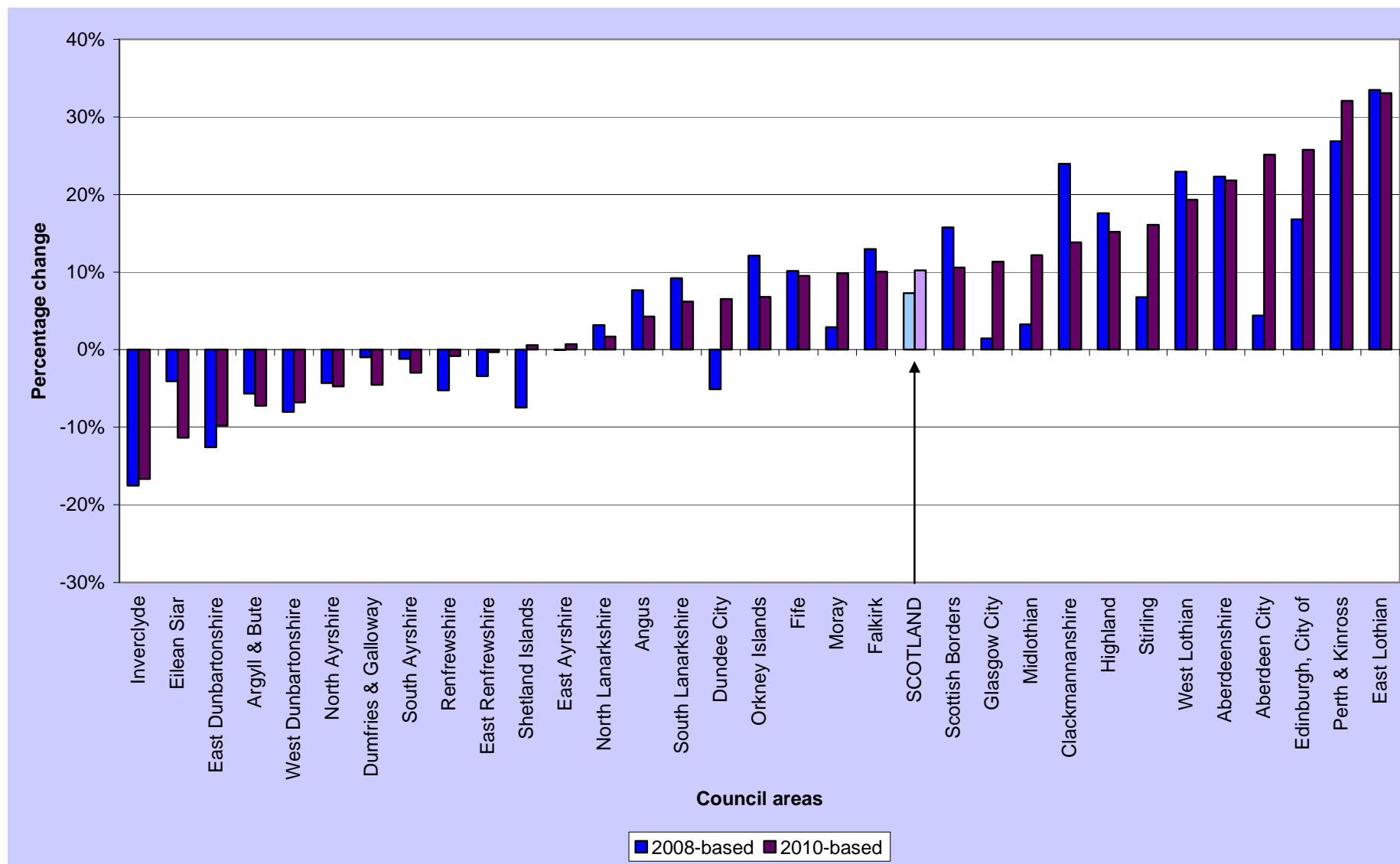


Figure 10: Change in the proportion of head of households – 2010-based projection

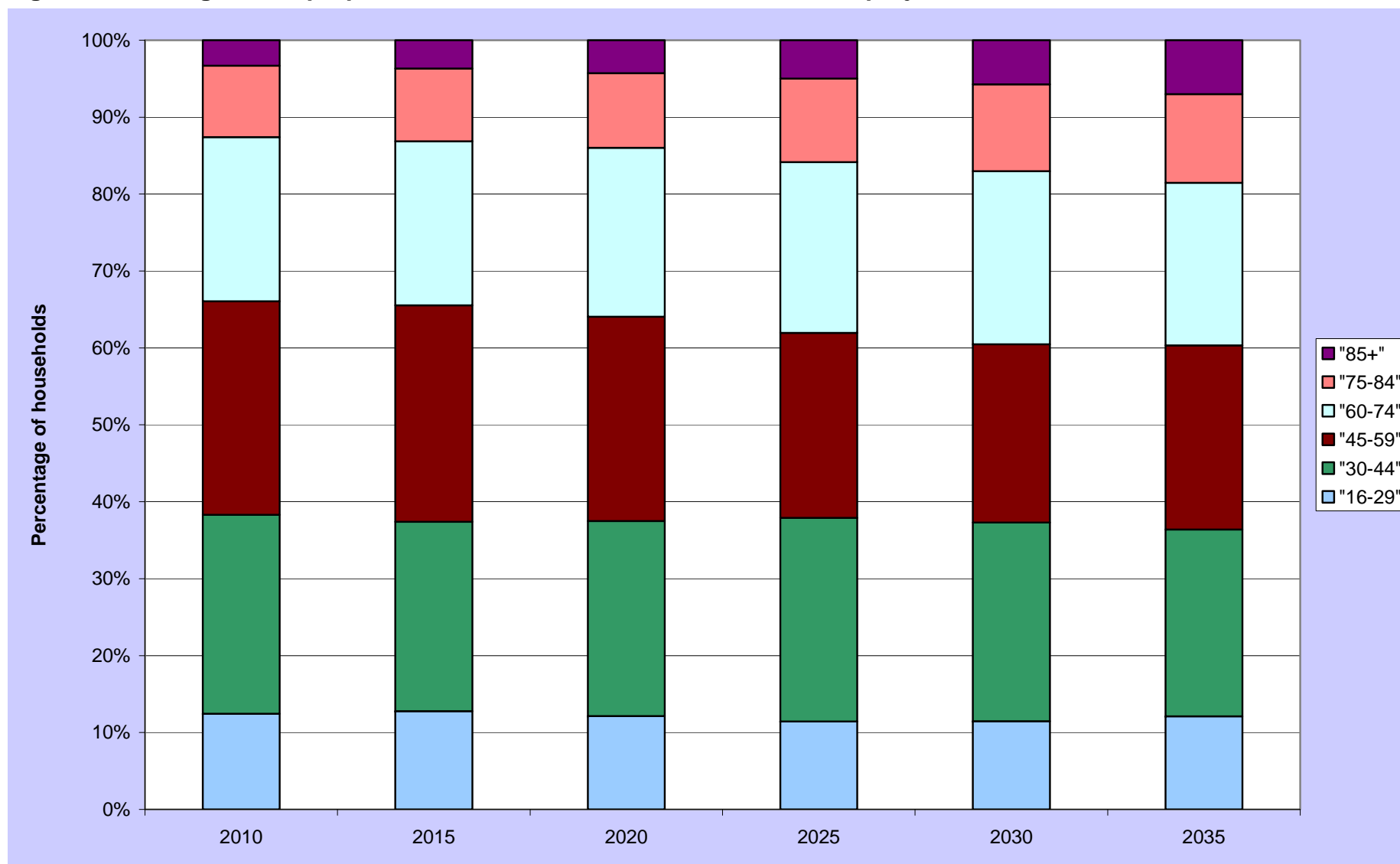
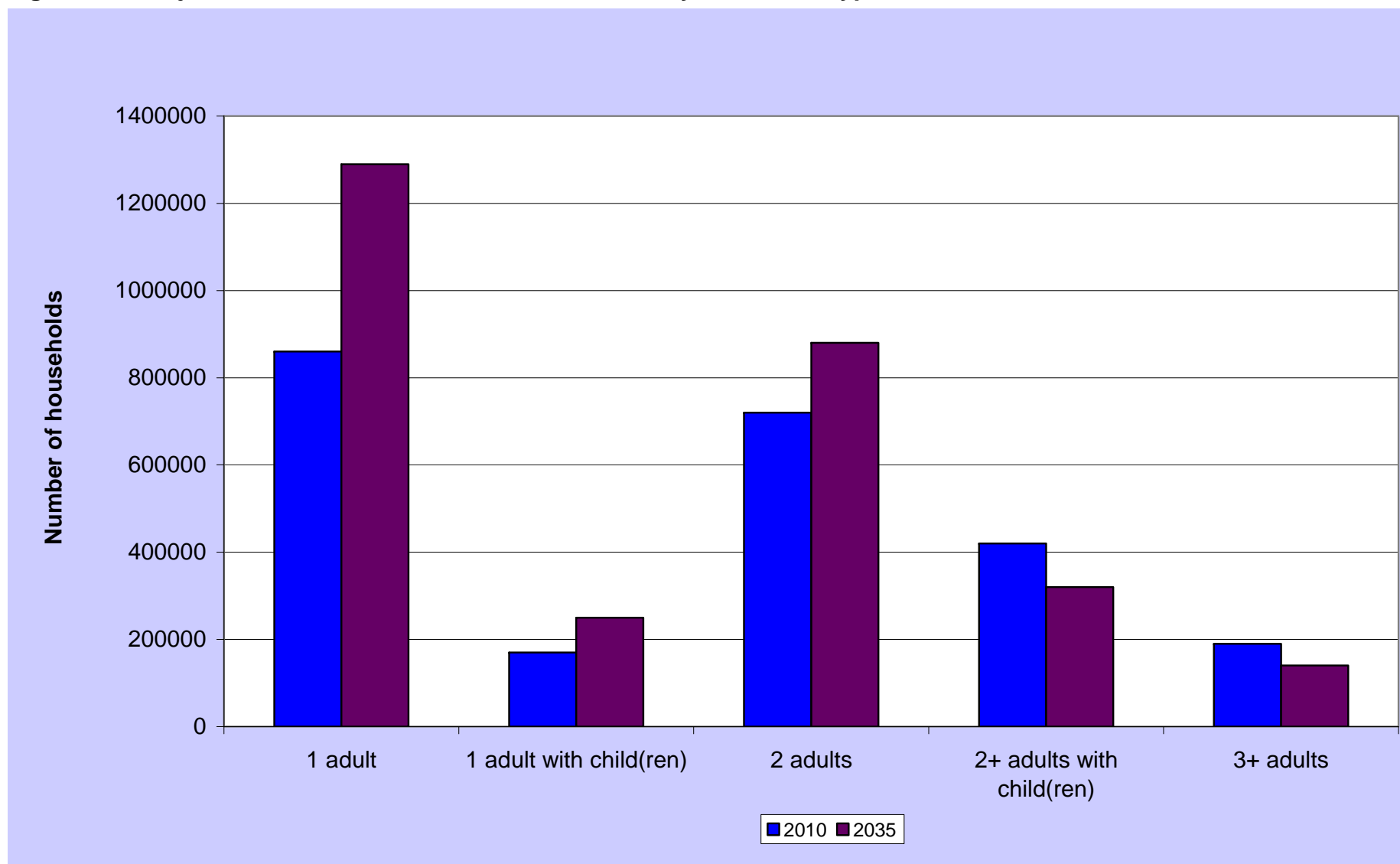


Figure 11: Projected number of households in Scotland by household type, 2010 -2035



Annex: Brief description of the household projections methodology

Calculate private household population

- Take 2010-based population projections
 - By gender and age group
- Subtract the proportion of people living in communal establishments
 - By gender and age group.

Produce headship rates

- Take 'headship rates' from 1991 and 2001 Censuses (proportion of households of each type)
 - By household type and age group of head of household.
- Fit a modified 2-point exponential curve to project forward the figures for 2010 to 2035.

Produce household projections

Projections are produced for Scotland and the 32 Council Areas

- Apply each year's headship rate to the private household population to produce raw household projections.
- Constrain the figures to the Scotland total.
- Constrain the figures to the 2010 and 2011 household estimates for each council area. (Figures are currently constrained to provisional estimates for 2011).
- If necessary, constrain the figures to the total number of adults, by adjusting the household types.

Age of head of household	Household types
16-19	
20-24	1 Adult – Male
25-29	1 Adult – Female
30-34	2 Adults
35-39	3+ Adults
40-44	1 Adult + 1 Child
45-49	1 Adult , 2+ Children
50-54	2+ Adults, 1+ Children
55-59	
60-64	
65-69	
70-74	
75-79	
80-84	
85-89	
90+	