

Population and Migration Statistics Committee

Projections Sub-Group

Sub-National Population Projections Review: Update

**Comparison of total population from published 2012-based
population projections for Scottish areas, with results from
the new method**

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Background

The National Records of Scotland (NRS) are currently reviewing the methods used to produce the sub-national population projections (SNPP) for council and NHS Board areas in Scotland. Our population projections are used for a wide range of resource allocation and service planning throughout Scotland.

Why are we doing this?

There are several reasons for reviewing the method of population projections at a local level.

The main one is that the Office for National Statistics (ONS), who produce the population projections for the UK and its constituent countries, have reviewed the national method and these changes mean that the method we are currently using for areas in Scotland will no longer work with these new national inputs.

Reviewing the method will also allow Scotland to move from using an outdated net migration method to incorporate the latest academic thinking on the best way to project populations in line with international best practice.

How are we doing this?

We commissioned academics from Leeds University to:

- review the changes being made to ONS's national method;
- review our current sub-national method;
- provide an overview of projection methods used across the UK and across the world; and
- make recommendations for population projections for council and NHS boards areas in Scotland.

We are taking this work forward as a statistical exercise through our Population and Migration Statistics Committee (PAMS) and its Projections Sub-Group.

What were the recommendations?

The primary recommendation made was that the Scottish SNPP should move from a single-region model to a multi-region model by changing from assuming a single net migration for each council area to a rates based approach for council area and rest of UK migration.

The report also advocates:

- using an adjustment developed by Statistics Canada when applying migration rates;
- keeping the mortality and fertility methods the same as the current method; and
- applying a method similar to the method used by the ONS in the NPP when projecting and allocating international migration.

What do Annex A and Annex B contain?

We have now implemented the changes and have produced the 2012-based population projections using the new method.

This paper was prepared to allow discussion (at the meeting of the Projections Sub-Group meeting on 17 August 2016) of the impact of the change in method on the results. It, and the accompanying annexes, contain information and charts comparing the 2012-based projections prepared using the new method with the published principal 2012-based projections.

In Annex A, the charts show time series of the published 2012-based projections which used the old method, the new method without the Statistics Canada adjustment and the new method with the Statistics Canada adjustment applied.

Annex B contains comparisons of the age distribution by 2037 under the different projections.

What is the Statistics Canada adjustment?

The adjustment was developed by Statistics Canada. It was developed to account for large discrepancies observed amongst projected populations for Canadian provinces/territories which were atypical to those observed during the reference period.

How does it work?

- Without the adjustment: migration rates are calculated using previous trends in migration and the population at risk of migrating.
- With the adjustment: the migration rates have the destination of the migrants applied as a constraint.

What are the main implications for the change in method?

- Within Scotland migration is more explicitly taken account of in the method and the populations at risk of moving between the countries of the UK and areas in Scotland are also taken into account.
- The main effect is to lower the projected populations of the large city council areas and increase the projected populations of some of the surrounding areas.

The Projections Sub-Group members are invited to comment and ask questions about the changes.

One point we would particularly like feedback on is: -

Should we apply the Statistics Canada adjustment?

If the adjustment is applied then we project populations closer in most areas to the published 2012-based projections. If the adjustment is not applied then we get a 'better' projected age distribution.

Table 1: Comparison of total population from published 2012-based population projections for council areas, with results from new method for the year 2037

Council area	Published 2012 Data	New Projections Method		Difference (New - Published)		Percentage Difference	
		Without Adjustment	With Adjustment	Without Adjustment	With Adjustment	Without Adjustment	With Adjustment
Aberdeen City	288,788	267,287	265,902	-21,501	-22,886	-7	-8
Aberdeenshire	299,813	312,222	319,953	12,409	20,140	4	7
Angus	115,327	118,031	111,475	2,704	-3,852	2	-3
Argyll and Bute	75,183	83,841	78,461	8,658	3,278	12	4
City of Edinburgh	618,978	613,370	653,531	-5,608	34,553	-1	6
Clackmannanshire	50,043	51,755	50,540	1,712	497	3	1
Dumfries and Galloway	141,619	143,283	138,311	1,664	-3,308	1	-2
Dundee City	170,811	162,717	164,337	-8,094	-6,474	-5	-4
East Ayrshire	121,928	123,925	121,889	1,997	-39	2	0
East Dunbartonshire	98,696	106,899	103,370	8,203	4,674	8	5
East Lothian	124,351	122,063	128,376	-2,288	4,025	-2	3
East Renfrewshire	94,387	97,760	96,254	3,373	1,867	4	2
Falkirk	173,130	176,001	174,374	2,871	1,244	2	1
Fife	397,989	404,431	401,022	6,442	3,033	2	1
Glasgow City	684,744	648,551	653,672	-36,193	-31,072	-5	-5
Highland	243,493	240,660	236,211	-2,833	-7,282	-1	-3
Inverclyde	65,014	68,227	66,599	3,213	1,585	5	2
Midlothian	99,090	101,940	103,528	2,850	4,438	3	4
Moray	90,889	95,121	92,131	4,232	1,242	5	1
Na h-Eileanan Siar	24,596	24,358	24,134	-238	-462	-1	-2
North Ayrshire	125,465	131,527	127,964	6,062	2,499	5	2
North Lanarkshire	338,195	339,239	331,908	1,044	-6,287	0	-2
Orkney Islands	22,724	22,917	22,805	193	81	1	0
Perth and Kinross	183,468	175,211	183,589	-8,257	121	-5	0
Renfrewshire	175,382	180,063	178,788	4,681	3,406	3	2
Scottish Borders	113,725	118,825	113,022	5,100	-703	4	-1
Shetland Islands	25,147	23,808	24,575	-1,339	-572	-5	-2
South Ayrshire	110,158	111,770	110,026	1,612	-132	1	0
South Lanarkshire	321,653	329,471	320,625	7,818	-1,028	2	0
Stirling	105,860	100,251	103,935	-5,609	-1,925	-5	-2
West Dunbartonshire	83,061	85,917	82,789	2,856	-272	3	0
West Lothian	196,664	198,930	196,275	2,266	-389	1	0

Table 2: Comparison of total net migration from published 2012-based population projections for council areas, with results from new method for the year 2037

Council area	Published 2012 Data	New Projections Method		Difference (New - Published)		Percentage Difference	
		Without Adjustment	With Adjustment	Without Adjustment	With Adjustment	Without Adjustment	With Adjustment
Aberdeen City	1,750	818	806	-932	-944	-53	-54
Aberdeenshire	1,250	1,747	2,151	497	901	40	72
Angus	200	370	65	170	-135	85	-68
Argyll and Bute	-100	250	-20	350	80	-350	-80
City of Edinburgh	3,900	2,711	4,730	-1,189	830	-30	21
Clackmannanshire	-50	-1	-35	49	15	-98	-30
Dumfries and Galloway	100	255	-109	155	-209	155	-209
Dundee City	550	231	381	-319	-169	-58	-31
East Ayrshire	100	119	29	19	-71	19	-71
East Dunbartonshire	-100	197	16	297	116	-297	-116
East Lothian	700	703	926	3	226	0	32
East Renfrewshire	100	280	190	180	90	180	90
Falkirk	500	599	523	99	23	20	5
Fife	1,050	1,373	1,142	323	92	31	9
Glasgow City	1,850	554	1,109	-1,296	-741	-70	-40
Highland	700	644	316	-56	-384	-8	-55
Inverclyde	-300	-206	-258	94	42	-31	-14
Midlothian	400	564	702	164	302	41	76
Moray	0	235	64	235	64	*	*
Na h-Eileanan Siar	50	41	10	-9	-40	-18	-80
North Ayrshire	-150	78	-52	228	98	-152	-65
North Lanarkshire	-150	-38	-393	112	-243	-75	162
Orkney Islands	100	98	64	-2	-36	-2	-36
Perth and Kinross	1,350	1,105	1,438	-245	88	-18	7
Renfrewshire	100	316	214	216	114	216	114
Scottish Borders	300	498	202	198	-98	66	-33
Shetland Islands	50	20	34	-30	-16	-60	-32
South Ayrshire	300	388	276	88	-24	29	-8
South Lanarkshire	450	790	357	340	-93	76	-21
Stirling	500	377	451	-123	-49	-25	-10
West Dunbartonshire	-200	-72	-201	128	-1	-64	1
West Lothian	200	456	372	256	172	128	86

Table 3: Comparison of total population from published 2012-based population projections for NHS Board areas, with results from new method for the year 2037

NHS Board area	Published 2012 Data	New Projections System		Difference (New - Published)		Percentage Difference	
		Without Adjustment	With Adjustment	Without Adjustment	With Adjustment	Without Adjustment	With Adjustment
Ayrshire and Arran	357,551	367,222	359,879	9,671	2,328	3	1
Borders	113,725	118,825	113,022	5,100	-703	4	-1
Dumfries and Galloway	141,619	143,283	138,311	1,664	-3,308	1	-2
Fife	397,989	404,431	401,022	6,442	3,033	2	1
Forth Valley	329,033	328,007	328,849	-1,026	-184	0	0
Grampian	679,490	674,630	677,986	-4,860	-1,504	-1	0
Greater Glasgow and Clyde	1,201,284	1,187,417	1,181,472	-13,867	-19,812	-1	-2
Highland	318,676	324,501	314,672	5,825	-4,004	2	-1
Lanarkshire	659,848	668,710	652,533	8,862	-7,315	1	-1
Lothian	1,039,083	1,036,303	1,081,710	-2,780	42,627	0	4
Orkney	22,724	22,917	22,805	193	81	1	0
Shetland	25,147	23,808	24,575	-1,339	-572	-5	-2
Tayside	469,606	455,959	459,401	-13,647	-10,205	-3	-2
Western Isles	24,596	24,358	24,134	-238	-462	-1	-2

Table 4: Comparison of total net migration from published 2012-based population projections for NHS Board areas, with results from new method for the year 2037

NHS Board area	Published 2012 Data	New Projections System		Difference (New - Published)		Percentage Difference	
		Without Adjustment	With Adjustment	Without Adjustment	With Adjustment	Without Adjustment	With Adjustment
Ayrshire and Arran	250	585	253	335	3	134	1
Borders	300	498	202	198	-98	66	-33
Dumfries and Galloway	100	255	-109	155	-209	155	-209
Fife	1,050	1,373	1,142	323	92	31	9
Forth Valley	950	975	939	25	-11	3	-1
Grampian	3,000	2,800	3,021	-200	21	-7	1
Greater Glasgow and Clyde	1,450	1,069	1,070	-381	-380	-26	-26
Highland	600	894	296	294	-304	49	-51
Lanarkshire	300	752	-36	452	-336	151	-112
Lothian	5,200	4,434	6,730	-766	1,530	-15	29
Orkney	100	98	64	-2	-36	-2	-36
Shetland	50	20	34	-30	-16	-60	-32
Tayside	2,100	1,706	1,884	-394	-216	-19	-10
Western Isles	50	41	10	-9	-40	-18	-80

Table 5: Comparison of total population from published 2012-based population projections for Strategic Development Plan areas, with results from new method for the year 2037

Strategic Development Plan area	Published 2012 Data	New Projections System		Difference (New - Published)		Percentage Difference	
		Without Adjustment	With Adjustment	Without Adjustment	With Adjustment	Without Adjustment	With Adjustment
Aberdeen City and Shire	585,580	575,818	582,023	-9,762	-3,557	-2	-1
Clydeplan	1,859,370	1,853,598	1,831,608	-5,772	-27,762	0	-1
SESplan	1,467,170	1,480,711	1,516,271	13,541	49,101	1	3
TAYplan	553,230	534,169	538,303	-19,061	-14,927	-3	-3

Table 6: Comparison of total net migration from published 2012-based population projections for Strategic Development Plan areas, with results from new method for the year 2037

Strategic Development Plan area	Published 2012 Data	New Projections System		Difference (New - Published)		Percentage Difference	
		Without Adjustment	With Adjustment	Without Adjustment	With Adjustment	Without Adjustment	With Adjustment
Aberdeen City and Shire	2,990	2,547	2,939	-443	-51	-15	-2
Clydeplan	1,750	1,826	1,035	76	-715	4	-41
SESplan	6,140	6,003	7,884	-137	1,744	-2	28
TAYplan	2,510	2,004	2,075	-506	-435	-20	-17

Table 7: Comparison of total population from published 2012-based population projections for National Park areas, with results from new method for the year 2037

National Park area	Published 2012 Data	New Projections System		Difference (New - Published)		Percentage Difference	
		Without Adjustment	With Adjustment	Without Adjustment	With Adjustment	Without Adjustment	With Adjustment
Cairngorms National Park	17,660	19,154	20,372	1,494	2,712	8	15
Loch Lomond and The Trossachs National Park	12,620	14,361	14,619	1,741	1,999	14	16

Table 8: Comparison of total net migration from published 2012-based population projections for National Park areas, with results from new method for the year 2037

National Park area	Published 2012 Data	New Projections System		Difference (New - Published)		Percentage Difference	
		Without Adjustment	With Adjustment	Without Adjustment	With Adjustment	Without Adjustment	With Adjustment
Cairngorms National Park	50	80	94	30	44	60	88
Loch Lomond and The Trossachs National Park	0	39	61	39	61	*	*

Enquiries and suggestions

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Related organisations

Organisation	Contact
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