Distribution Sub-Group (2020) Paper 14 – Population data: Historical analysis of datasets

Population data: Historical analysis of datasets

Summary

1. This paper investigates which population dataset provides the closest estimate of relative population for the actual settlement year, to ensure the most appropriate data source and method are used in the settlement.

Views sought

2. DSG are asked to consider the population datasets in this paper and discuss which option provides the better predictor of relative population for use in future settlements.

Related papers

Distribution Sub-Group (2020) – paper 11: Population Projections and Mid-year estimates

Distribution Sub-Group (2020) – paper 8: Population Projections

Distribution Sub-Group (2017) – paper 5: Prison Populations

Distribution Sub-Group (2016) – paper 19: Population Projections and Mid-year estimates comparison

Background

3. The population projections are usually used within the settlement to distribute funding according to population. These projections get re-based around every 3 years by Welsh Government Knowledge and Analytical Services to ensure the projections remain as accurate as possible.

4. For the 2020-21 settlement year, DSG recommended that the 2018 mid-year estimates offered the most robust and relevant population estimate because of the delay in the latest population projections.

5. In considering the different population data for the 2021-22 settlement year, DSG requested further insight into which dataset provided the better estimate of the population within the actual settlement year.

6. The population datasets options are:

   - mid-year estimates;
   - population projections;
   - or the rescaled approach, where the projections are artificially re-based using the mid-year estimates.

2019 Analysis

7. This paper investigates which population dataset, available at the time of previous settlements, is the better predictor of the population of the actual settlement year.

8. Currently the most up-to date population estimate published is the 2019 mid-year estimate (MYE). This is an estimate of the population as at 30 June 2019 and therefore would represent the population of the 2019-20 settlement year.

9. When producing the 2019-20 settlement, the following population data were available:

    - 2017 MYE;

    - 2014-based population projections 2019;

    - Rescaled approach (this is the 2017 MYE + the difference between the 2019 population projection and the 2017 population projection)

10. Due to the additional complexity this adds, this paper omits any adjustment for Wrexham's population figures, although this would be included in the actual settlement calculation.

11. Table 1 in Annex A compares the 2019 MYE to the three options stated.

2014-based projections

12. When comparing the projections to the MYE for 2019, we see the MYE are higher at a Wales level, with a difference of 19,543 people.

13. At a local authority level, Cardiff see the largest decrease in figures of 3,396, which is a relative decrease of 0.18 percentage points. Newport sees the largest increase of 5,433, which is a relative increase of 0.14 percentage points.

14. The absolute percentage change at a Wales level is 1.18%

Rescaled approach

15. Comparing the rescaled approach to the 2019 MYE, we see the MYE are higher at a Wales level, with a difference of 10,749 people.

16. At a local authority level, once again Cardiff sees the highest decrease, 2,459, a relative decrease of 0.12 percentage points. The Vale of Glamorgan sees the highest increase of 2,607, an increase of 0.07 percentage points.

17. The absolute percentage change at a Wales level is 0.59%

2017 MYE

18. When comparing the 2017 MYE to the 2019 MYE, we see, once again, the MYE are higher at a Wales level, with a difference of 27,714 people.

19. At a local authority level, Ceredigion see the largest decrease in population (381), which is a relative decrease of 0.03 percentage points. Cardiff see the largest increase of 4,147, which is a relative increase of 0.03 percentage points

20. The absolute percentage change at a Wales level is 0.49%

Summary

21. The analysis suggests that the better predictor for the relative population as of June 2019 is the 2017 MYE.

2018 Analysis

22. When producing the 2018-19 settlement, the following population data were available:

    - 2016 MYE;

    - 2014-based population projections 2018;

    - Rescaled approach (this is the 2016 MYE + the difference between the 2018 population projection and the 2016 population projection)

23. Table 2 in Annex A compares the 2018 MYE to the three options stated above.

<u>2014-based projections</u>

24. When comparing the 2014-based projections for 2018 with the 2018 MYE, we see the MYE are higher at a Wales level, with a difference of 13,847 people.

25. At a local authority level, Ceredigion sees the largest decrease of 3,332 a relative decrease of 0.14 percentage points. Newport sees the largest increase of 4,573, a relative increase of 0.12 percentage points.

26. The absolute percentage change at a Wales level is 0.89%

<u>Rescaled approach</u>

27. When comparing the rescaled approach with the 2018 MYE, we see the MYE are higher at a Wales level, with a difference of 8,751 people.

28. At a local authority level, The Vale of Glamorgan sees the highest increase of 2,979, a relative increase of 0.08 percentage points. Cardiff see the highest decrease of 3,388, a relative decrease of 0.14 percentage points.

29. The absolute percentage change at a Wales level is 0.54%

<u>2016 MYE</u>

30. When comparing the 2016 MYE to the 2018 MYE, we see, once again, the MYE are higher at a Wales level, with a difference of 25,481 people.

31. At a local authority level, Ceredigion sees the largest decrease, 673, a relative decrease of 0.04 percentage points. Newport see the largest increase of 3,824, a relative increase of 0.08 percentage points.

32. The absolute percentage change at a Wales level is 0.38%

<u>Summary</u>

33. The 2018 analysis suggests that the 2016 MYE are the better predictor of the population as of June 2018.

Population age indicators

34. The population age breakdowns 18-64, over 16 and over 85 were considered additionally to total population for the 2019 analysis.

35. The analysis of each age breakdown suggested that the 2017 MYE were the best predictor for the population, other than for the age group over 85, which suggested the rescaled approach proved a better predictor. This analysis has been omitted from the paper for simplicity, but can be provided if required.

Conclusion

36. The analysis outlined in this paper provides members an opportunity to consider the most appropriate population datasets to use in the future settlements.

37. The analysis here shows that the MYE provide a better estimate of relative population in the settlement year. However, this paper only considers one set of population projections (the 2014-base). It may be the case that some projections may provide a better estimate of relative population; however, it will not be known how good these estimates are until retrospective analysis is carried out.

38. This will continue to be reviewed as part of the yearly population updates.

Local Government Finance and Workforce Partnerships Division
Welsh Government

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Annex A

Table 1: Comparison of 2019 Mid-year estimates and datasets available for 2019-20 settlement

LA Name	Population data sets								Difference					
	2019 MYE (1)	% share	2014-based projections 2019 (2)	% share	Rescaled approach (3)	% share	2017 MYE (4)	% share	(1) - (2)	% share	(1) - (3)	% share	(1) - (4)	% share
Isle of Anglesey	70,043	2.2%	70,174	2.2%	69,792	2.2%	69,794	2.2%	- 131	-0.02%	251	0.00%	249	-0.01%
Gwynedd	124,560	4.0%	124,034	4.0%	124,477	4.0%	123,742	4.0%	526	-0.01%	83	-0.01%	818	-0.01%
Conwy	117,203	3.7%	117,048	3.7%	117,194	3.7%	116,863	3.7%	155	-0.02%	9	-0.01%	340	-0.02%
Denbighshire	95,696	3.0%	95,729	3.1%	95,552	3.0%	95,159	3.0%	- 33	-0.02%	144	-0.01%	537	-0.01%
Flintshire	156,100	5.0%	155,186	5.0%	155,690	5.0%	155,155	5.0%	914	0.00%	410	0.00%	945	-0.01%
Wrexham	135,957	4.3%	139,751	4.5%	136,786	4.4%	135,571	4.3%	- 3,794	-0.15%	- 829	-0.04%	386	-0.03%
Powys	132,435	4.2%	131,721	4.2%	132,120	4.2%	132,515	4.2%	714	0.00%	315	0.00%	- 80	-0.04%
Ceredigion	72,695	2.3%	76,563	2.4%	73,547	2.3%	73,076	2.3%	- 3,868	-0.14%	- 852	-0.04%	- 381	-0.03%
Pembrokeshire	125,818	4.0%	124,149	4.0%	124,903	4.0%	124,711	4.0%	1,669	0.03%	915	0.02%	1,107	0.00%
Carmarthenshire	188,771	6.0%	186,428	5.9%	187,084	6.0%	186,452	6.0%	2,343	0.04%	1,687	0.03%	2,319	0.02%
Swansea	246,993	7.8%	245,801	7.8%	247,331	7.9%	245,480	7.9%	1,192	-0.01%	- 338	-0.04%	1,513	-0.02%
Neath Port Talbot	143,315	4.5%	141,486	4.5%	142,493	4.5%	142,090	4.5%	1,829	0.03%	822	0.01%	1,225	0.00%
Bridgend	147,049	4.7%	143,272	4.6%	145,110	4.6%	144,288	4.6%	3,777	0.09%	1,939	0.05%	2,761	0.05%
The Vale of Glamorgan	133,587	4.2%	128,424	4.1%	130,980	4.2%	130,690	4.2%	5,163	0.14%	2,607	0.07%	2,897	0.06%
Rhondda Cynon Taf	241,264	7.7%	238,945	7.6%	240,030	7.6%	239,127	7.7%	2,319	0.03%	1,234	0.01%	2,137	0.00%
Merthyr Tydfil	60,326	1.9%	59,254	1.9%	60,027	1.9%	59,953	1.9%	1,072	0.02%	299	0.00%	373	-0.01%
Caerphilly	181,075	5.7%	181,296	5.8%	181,337	5.8%	180,795	5.8%	- 221	-0.04%	- 262	-0.03%	280	-0.04%
Blaenau Gwent	69,862	2.2%	69,374	2.2%	69,492	2.2%	69,609	2.2%	488	0.00%	370	0.00%	253	-0.01%
Torfaen	93,961	3.0%	92,087	2.9%	92,455	2.9%	92,264	3.0%	1,874	0.04%	1,506	0.04%	1,697	0.03%
Monmouthshire	94,590	3.0%	93,070	3.0%	93,873	3.0%	93,590	3.0%	1,520	0.03%	717	0.01%	1,000	0.01%
Newport	154,676	4.9%	149,243	4.8%	152,494	4.9%	151,485	4.8%	5,433	0.14%	2,182	0.05%	3,191	0.06%
Cardiff	366,903	11.6%	370,299	11.8%	369,362	11.8%	362,756	11.6%	- 3,396	-0.18%	- 2,459	-0.12%	4,147	0.03%
Wales	**3,152,879**		**3,133,336**		**3,142,130**		**3,125,165**		**19,543**		**10,749**		**27,714**	

Table 2: Comparison of 2018 Mid-year estimates and datasets available for 2018-19 settlement

LA Name	Population data sets								Difference					
	2018 MYE (1)	% share	2014-based projections 2018 (2)	% share	Rescaled approach (3)	% share	2016 MYE (4)	%share	(1) - (2)	% share	(1) - (3)	% share	(1) - (4)	% share
Isle of Anglesey	69,961	2.2%	70,175	2.2%	69,670	2.2%	69,665	2.2%	- 214	-0.02%	291	0.00%	296	-0.01%
Gwynedd	124,178	4.0%	123,660	4.0%	124,035	4.0%	123,323	4.0%	518	0.00%	143	-0.01%	855	0.00%
Conwy	117,181	3.7%	116,879	3.7%	117,138	3.7%	116,820	3.8%	302	-0.01%	43	-0.01%	361	-0.02%
Denbighshire	95,330	3.0%	95,530	3.1%	95,371	3.0%	94,984	3.1%	- 200	-0.02%	- 41	-0.01%	346	-0.01%
Flintshire	155,593	5.0%	154,923	5.0%	155,177	5.0%	154,626	5.0%	670	0.00%	416	0.00%	967	-0.01%
Wrexham	136,126	4.3%	139,143	4.5%	136,624	4.4%	135,408	4.3%	- 3,017	-0.12%	- 498	-0.03%	718	-0.01%
Powys	132,447	4.2%	131,922	4.2%	131,956	4.2%	132,337	4.3%	525	0.00%	491	0.00%	110	-0.03%
Ceredigion	72,992	2.3%	76,324	2.4%	74,125	2.4%	73,665	2.4%	- 3,332	-0.12%	- 1,133	-0.04%	- 673	-0.04%
Pembrokeshire	125,055	4.0%	124,054	4.0%	124,432	4.0%	124,237	4.0%	1,001	0.01%	623	0.01%	818	-0.01%
Carmarthenshire	187,568	6.0%	186,110	6.0%	186,379	6.0%	185,754	6.0%	1,458	0.02%	1,189	0.02%	1,814	0.01%
Swansea	246,466	7.9%	244,867	7.8%	246,283	7.9%	244,462	7.9%	1,599	0.02%	183	-0.02%	2,004	0.00%
Neath Port Talbot	142,906	4.6%	141,284	4.5%	142,083	4.5%	141,678	4.6%	1,622	0.03%	823	0.01%	1,228	0.00%
Bridgend	144,876	4.6%	142,862	4.6%	144,232	4.6%	143,408	4.6%	2,014	0.04%	644	0.01%	1,468	0.01%
The Vale of Glamorgan	132,165	4.2%	128,280	4.1%	129,186	4.1%	128,891	4.1%	3,885	0.11%	2,979	0.08%	3,274	0.07%
Rhondda Cynon Taf	240,131	7.7%	238,482	7.6%	239,035	7.6%	238,179	7.7%	1,649	0.02%	1,096	0.01%	1,952	0.00%
Merthyr Tydfil	60,183	1.9%	59,219	1.9%	59,794	1.9%	59,714	1.9%	964	0.02%	389	0.01%	469	0.00%
Caerphilly	181,019	5.8%	181,027	5.8%	180,999	5.8%	180,453	5.8%	- 8	-0.03%	20	-0.02%	566	-0.03%
Blaenau Gwent	69,713	2.2%	69,433	2.2%	69,515	2.2%	69,630	2.2%	280	0.00%	198	0.00%	83	-0.02%
Torfaen	93,049	3.0%	91,991	2.9%	92,186	2.9%	91,994	3.0%	1,058	0.02%	863	0.02%	1,055	0.01%
Monmouthshire	94,142	3.0%	92,931	3.0%	93,568	3.0%	93,276	3.0%	1,211	0.03%	574	0.01%	866	0.00%
Newport	153,302	4.9%	148,729	4.8%	150,458	4.8%	149,478	4.8%	4,573	0.12%	2,844	0.08%	3,824	0.08%
Cardiff	364,248	11.6%	366,959	11.7%	367,636	11.7%	361,168	11.6%	- 2,711	-0.14%	- 3,388	-0.14%	3,080	0.00%
Wales	**3,138,631**		**3,124,784**		**3,129,880**		**3,113,150**		**13,847**		**8,751**		**25,481**	