MMP type electoral systems: handling methods compared

Overhang

Showing one set of results and three ways of handling an OVERHANG

Example: one Scottish region, 2021 Scottish parliament

Results with table for D'hondt system seat

Divisors	Parties snp	lab	con	grn	Total
1	148 399	77 623	59 896	19 512	305 430
2	74 200	38 812	29 948	9 756	
3	49 466	25 874	19 965	6 504	
4	37 100	19 406	14 974	4 878	
5	29 680	15 525	11 979	3 902	
6	24 733	12 937	9 983	3 252	
7	21 200	11 089	8 557	2 787	
8	18 550	9 703	7 487	2 439	
9	16 489	8 625	6 655	2 168	
10	14 840	7 762	5 990	1 951	

Figures with green background are the 16 highest divisors, lowest 18 550. They show how many proportional seats each party should get.

The black dashed line shows that SNP won all 9 district seats

The top line gives party votes for each party.

Lines below are quotients, voted divided buy divisors at left

That ninth SNP district with quotient 16489 is a OVERHANG. SNP do not have enough party votes to justify it.

Unrounded seats	7,77	4,07	3,14	1,02	16
			Lowest winning quotient		18 550

This row shows how many seats each party is due proportionally. But you cannot have a fraction of an MP

Gallagher index calculations:

AMS system as in Scotland and Wales					
No extra seats. Overhang granted at expense of list seats.					
seats	9	3	3	1	16
propseats	56%	19%	19%	6%	
propvotes	49%	25%	20%	6%	
pspv	8%	-7%	-1%	0%	
squared	0,285%	0,113%	0,001%	0,000%	0,40%
rms					**6%**
New Zealand system					
Overhang gets an extra seat in the house.					
seats	9	4	3	1	17
propseats	53%	24%	18%	6%	
propvotes	49%	25%	20%	6%	
pspv	4%	-2%	-2%	-1%	
squared	0,092%	0,009%	0,008%	0,000%	0,109%
rms					**3%**
Proposed German system					
Seats are strictly proportional, so overhang seat not granted.					
seats	8	4	3	1	16
propseats	50%	25%	19%	6%	
propvotes	49%	25%	20%	6%	
pspv	1%	0%	-1%	0%	
squared	0,010%	0,000%	0,001%	0,000%	0,012%
rms					**1%**

The Scottish solution was to allow SNP that unjustified seat by taking by denying Lab their 19406 quotient. SNP one seat more than justified, but Lab one seat less. No extra seat needed.

Note GI of 6%

The NZ appproach to this situation would be let SNP keep that unjustified seat and add one seat to the parliament. Still distorts proportionality but less.

Note GI of 3%

A proposal for the German system suggests that each party gets the proportional seats (green background). SNP is denied one of the district seat. They stuck with PR. and so..

Note GI of 1%

Note that GI is calculated here just for this region and just for the votes for these parties

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This page is intended to show how different MMP-like systems do or might handle overhangs.