

**Submission
No 14**

PREFERENCE COUNTING IN LOCAL GOVERNMENT ELECTIONS IN NSW

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Random Sampling in New South Wales Local Government Elections

Ben Raue, 28 September 2017

Thank you for the opportunity to present a submission on the issue of preference counting in New South Wales local government elections. This issue is in need of a solution, and the solution is easy to see and well within the ability of the NSW Parliament to implement.

In this submission I will run through the origins of the system of random sampling used for Legislative Council and local government elections, why it is problematic, and the alternatives which can be used in place of the current system.

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Recommendations

Recommendation 1: That the method of random sampling be abandoned for local government elections, and be replaced by fractional transfers of votes using the Weighted Inclusive Gregory method.

Recommendation 2: That the NSW Electoral Commission be instructed to publish interim distributions of preferences based on those votes data-entered so far, on a daily basis, and consider publishing the full preference data that distribution is based on.

Definition

For the purposes of clarity, when I refer to “random sampling” I am referring to the process whereby surplus preferences are distributed by selecting a random sample of those preferences to be passed on at full value, as used in NSW local government and Legislative Council elections.

Origins of random sampling

The method of choosing ballots at random when distributing a surplus has its origins in a time when election counts were conducted manually, with ballot papers moved around a table to reflect those ballot papers being transferred between candidates.

When a surplus needed to be distributed, it was far easier to take a partial sample of the ballots rather than transfer every ballot at a different value than other ballot papers which were not part of that surplus.

This is no longer relevant. Local council election counts are conducted using data entry, with the actual distribution of preferences taking place within the computer.

Considering this purpose is no longer relevant, we should consider the relevance of random sampling for local government when using the technology now used for council elections.

I'd also like to note that the same system is used for Legislative Council elections in New South Wales. While many of the same arguments against random sampling apply to these elections, the random sampling system is embedded in the NSW Constitution for Legislative Council elections, thus making it far more difficult to change. This barrier does not apply to local government elections.

Lack of replicability

When a "random" sample of ballot papers are taken from a surplus to distribute as preferences, there is no guarantee that this sample will be representative of the total surplus.

When a result is very close, a recount can be necessary. While a recount can unmask errors in the counting process, it is also certain that all of the random samples used for distributing preferences from an elected candidate will be recalculated – a different sample of ballot papers will be used to distribute preferences, and there is no guarantee that these votes will produce the same proportion of preferences – even if there has been no change in the underlying vote totals.

We will occasionally see council election results where one candidate is narrowly elected on the first count, triggering a recount, which elects a different candidate. There may not be any errors in the tabulation of vote totals for each candidate, or in the recording of preference data – there may simply be a different result due to a different random sample. Both counts are technically correct, but the second count will be used to declare the result simply because it was conducted second.

It is crucial to our democratic system that an election result be reproducible. While a recount may be useful in identifying errors in vote tabulation and data entry during the first count, it should not result in a change in the result due to random luck.

Example – Greystanes ward, 2017

A very close election result in the Greystanes ward of the new Cumberland council triggered a recount after the 2017 council election. The Labor candidate Glen Richardson defeated Our Local Community's Eddy Sarkis by a 15-vote margin. The recount produced a victory for Sarkis by a 17-vote margin, a turnaround of 32 votes.

This turnaround was partly explained by an error in the count: seventeen additional primary votes were identified for Sarkis, while the Liberal Party's primary vote dropped by twenty. Labor also gained six primary votes. Thus, the net improvement for Sarkis compared to Labor was eleven votes.

The random sampling did not have a significant effect when the first candidates for Labor and Liberal were elected: most of their preferences were above-the-line votes which flowed

to their party's second candidate. But those preferences flowed very differently when the second Liberal candidate was eliminated.

Liberal candidate Charles Nassif held 467 votes at the point of his elimination in the first count. The correct vote totals led to him holding 450 votes when he was eliminated in the recount. 97 of his 467 votes were distributed as preferences in the first count, but this increased to 140 votes distributed in the recount.

The random sample of Liberal preferences passed on to Nassif were much more likely to have marked additional preferences in the recount than the sample selected in the first count.

Sarkis gained 26 more votes from Nassif in the recount than he had in the first count, while Richardson gained five more votes. This produced a net change of 21 votes, and Sarkis ended up winning by seventeen votes. If the Nassif preferences had flowed as they had in the first count, Richardson would have won by four votes.

This is not to say that Richardson is the 'rightful' winner – both candidates polled strongly and came very close to winning. But it is ridiculous that we cannot say definitively that the second count produced the correct result, because the first count's random sample was just as correct as the recount's random sample, and would have produced a different result.

No consistency of results

The NSW Electoral Commission publishes a complete dataset of all preference data for each local government election. This allows outside analysts to produce their own estimates of the distribution of preferences, conducting their own random sampling.

Using this process, numerous cases have been found where a candidate was elected thanks to a favourable sample, despite most random samples leading to another candidate being elected.

Dr Vanessa Teague from the University of Melbourne has analysed the results of the 2012 elections and discovered numerous cases where a candidate was elected despite a different candidate being more likely to have won that seat (based on multiple simulations of the count).

Some examples of this occurring include:

- Andrew Wilson was narrowly elected to the third seat in Arthur Phillip ward of Parramatta, but would have won in only 44 out of 100 cases.
- Peter White won the final seat in Mosman, but would have only done so in 14 out of 100 cases.

Disproportionate impact

Random sampling is more likely to have an impact on the result of an election when preferences are passed on to a candidate not on the same ticket. Where the first candidate

in a group is elected, and most of their votes were above-the-line, most of those votes should flow to their second candidate regardless of the sample. But when votes are flowing outside of the same group they are much more likely to scatter and exhaust, and the pattern of this scattering and the rate of exhaustion can vary between different random samples.

This means that differing random samples are more likely to decide results when preferences flow between a larger number of groups or where there are no groups standing. This is a particular problem in regional and rural areas, where political parties are less likely to run and most candidates do not stand as part of a group.

Recommendation for new method

There are a number of specific methods which could be used to more fairly transfer preferences from an elected candidate's surplus than random sampling. All of these methods can be summarised as the "Gregory method". Preferences from the elected candidate are all passed on at reduced value to ensure that the total number of votes passed on equals the surplus.

I would personally advocate for the Weighted Inclusive Gregory method, which is used for the Legislative Council in Western Australia. All ballot papers are passed on, with the value of each ballot paper weighted according to a transfer value equal to the proportion of the candidate's total vote which is surplus to quota.

Recommendation 1: That the method of random sampling be abandoned for local government elections, and be replaced by fractional transfers of votes using the Weighted Inclusive Gregory method.

Scrutineering data entry and calculations for computer-based counts

The process of monitoring and scrutineering counts has become more difficult now that more counts are conducted through a process of data entry and a computerised distribution of preferences. I note that in addition to this process being used for local government and Legislative Council elections, a similar process was adopted for the 2015 Legislative Assembly election.

I would thus like to echo the recommendations from Ian Brightwell and John Pyke to remedy this problem.

I would also like to suggest that the Committee consider trialing interim publications of full preference data and interim distributions of preferences, which would give time for candidates and voters to identify errors or trends in the data while counting is still progressing. This process is currently used for elections in the Australian Capital Territory.

This process would give the public a better sense of the likely result of a count as the count is still progressing. This process would be particularly useful for the NSW Legislative Council,

but I believe a trial at local government elections could lead to further adoption of this process.

Recommendation 2: That the NSW Electoral Commission be instructed to publish interim distributions of preferences based on those votes data-entered so far, on a daily basis, and consider publishing the full preference data that distribution is based on.