



Australian Statistician

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Australian Electoral Commission

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Dear Ms Griffiths

PARTY REGULATION - POLICY FORMULATION

Last Friday Bill Gray faxed to me a draft policy formulation relating to the registration of political parties for preliminary consideration. He asked me to pass any comments I had on to you. Unfortunately, I have been tied up on Population Census matters, and haven't been able to reply until today.

2 I will talk about some general issues, discuss a number of specific points, and finally make some suggestions.

General Issues

3 First, in Stage 1 I think we will have to formulate the policy in terms of providing evidence of at least 500 members, who are entitled to vote. This is not an insignificant change, as I think it significantly impacts on the logic of the proposal.

4 Second, I have some difficulty with the sequential nature of the stages/tests which are proposed. For example, Stage 3 is about checking whether the purported members are eligible to be enrolled, and only after this test is failed do we then check the authenticity of the membership applications. You might better see what I mean if I give an example. If I wanted to register a political party, and do so illegally, I would get a list of 1,000 names off the electoral roll and write out fraudulent application forms for each. Assuming this got past your preliminary check, which I don't think would be very difficult, then the AEC examining the electoral roll for the sample of 50, as specified in Stage 3, would find 100 per cent on the roll and, if the proposed rules were followed, my party would be registered. However, if you checked the authenticity of any declarations one would presume that you would find a significant number of them saying they never heard of Bill McLennan's proposed party. Are the tests proposed under Stages 3 and 4 parallel tests, or to put it another way are they complementary? If there was a practical need to run them in sequence, at the very least, I suggest, they should be reversed.

5 Third, in the conclusion there is a comment made that there is no valid methodology to extrapolate membership from random samples, which I would strongly dispute, but more about that later on. In any event the steps proposed under 3 in particular and partially under 4 in effect do just that.

Specific Comments

6 First, with Stage 3, the test proposed, i.e. checking 50 names against the roll with an 80 per cent cut off, is a very weak test. For example, let's assume for a particular party that all 500 members are indeed eligible to vote, and let's assume if we did a 100 per cent check we would find 400 of them on the electoral roll. (This in fact is the assumption made in the draft.) If you take a random sample of 50 and then check against the rolls, you would have a 41.64 per cent chance of finding 39 or less of them on the roll, and the complementary probability 58.36 per cent of finding 40 or more on the roll. That means with nearly half the possible samples which could be selected, the test would fail! Has this been taken into account?

7 Second, it might also be worthwhile considering at this stage, what test would you want to apply at this Stage 3, if the party presented 1,200 membership applications? For example, if 30 of the 50 were found to be eligible and you applied that proportion to the 1,200 you would imply that 720 of those applications were from people eligible to enrol, and presumably therefore the party would meet the criteria under the Act.

8 Third, with the proposal in Stage 4 you have made two assumptions which I think need to be re-examined. One is that if declarations are fraudulent then it is likely someone will respond saying so. This, I believe, is at least open to strong debate, as mail out mail back surveys usually have very low response rates, and often people will simply not respond under any circumstances. The other is that people responding denying membership have actually signed membership applications and been accepted for membership. This is acknowledged as a rare event, but I really do wonder about that, particularly as the test proposed is very sensitive to that assumption.

Suggestions

9 With the check of names against the electoral roll for eligibility, I think there is only one way of proceeding, but being an ex sampling statistician I might be biased! I'd strongly advocate taking a sample as proposed in Stage 3, but I'd produce an estimate of the number of names eligible, together with confidence ranges around that estimate. This would give a means of making an assessment on the balance of probabilities whether or not the 500 eligible members criteria was met.

10 Let's say a new party submits N names and we selected n at random for checking against the roll. Let's also say we found the proportion p were eligible; all

things being equal we'd expect p to be around 0.8. Then our best estimate of the number of members eligible to vote would be Np . Assuming N is significantly larger than n , then this estimate has a sampling error of $N \sqrt{\frac{p(1-p)}{n}}$. This means there are two chances in three that the number of members eligible lies between $Np - N \sqrt{\frac{p(1-p)}{n}}$ and $Np + N \sqrt{\frac{p(1-p)}{n}}$, or 19 chances in 20 that the number lies between $Np - 2N \sqrt{\frac{p(1-p)}{n}}$ and $Np + 2N \sqrt{\frac{p(1-p)}{n}}$. In making decisions the AEC or the Commissioners would need to consider the relationships between 500, Np , $Np - N \sqrt{\frac{p(1-p)}{n}}$ and $Np + 2N \sqrt{\frac{p(1-p)}{n}}$. It would also be telling, I believe, if p were significantly different from 0.8.

11 Perhaps an example will help. Let's assume 900 names are submitted and that a random sample of 50 is checked with 35 being found to be eligible. In this case $p = 35/50 = 7/10 = 0.7$, and $Np = 630$, with a sampling error of $900 \sqrt{\frac{0.7 \times 0.3}{50}} = 58$. In other words there are 19 chances in 20 that the number of eligible names lies between 514 and 746. We would then confidently conclude that the new party has submitted enough eligible names to be registered.

12 This leaves checking the authenticity of the membership applications up in the air. In my view any approach by mail to the purported members has almost insurmountable problems relating to what assumptions you can make about both the response and the non response. The only way I can think of which **might** overcome some or most of these problems, is to talk with the named people. A small sample of the names could be chosen with the people interviewed over the telephone. It is well known that this approach often illicit more accurate and more frank approaches. I think that only a few people need to be contacted, say 10, as I expect the best we can do is to guard against whole scale fraud, as in the example I gave earlier. Further, the possibility of outsourcing this job to a market research agency specialising in telephone interviewing might also be worth considering.

13 If you want to discuss any of the above please give me a ring on 252 6705.

Yours sincerely

W. McLennan

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