Seminar – Week 3

Remind yourself of the concept of statistical bias.

In the seminar I will get reactions to an warplane picture that I will hand out.

Now consider the civilian-combatant DWI for a group.

Suppose this group has killed 1,000 civilians and 1,000 combatants for a DWI of 50 (1,000/(1,000+1,000).

Now suppose that we don't observe all these killings but, rather, we observe only some fraction, f, of civilian killings and some fraction, g, of combatant killings.

1. What has to be true for our calculated DWI (based on the data we have) to be equal to the true DWI?
2. What has to be true for the calculated DWI to be greater than (less than) the true one?

Now suppose we have a second group that has killed 2,000 civilians and 1,000 combatants for a DWI of 67.

Call the first group (true DWI of 50) "group A" and the second group (true DWI of 67) "group B".

We observe a fraction, h, of civilian killings and some fraction, i, of combatant killings.

We know that group B has a higher DWI than group A (67 versus 50).

3. What would have to be true for the calculated DWI for group A (which has to be based just on the data we see) to be higher than the calculated DWI for group B (which, of course, also has to be based just on what we see)?

4. Show that this reversal can't happen if the estimates for both groups' DWI's are unbiased, i.e, if f=g and h=i.

This reversal problem also can't arise if the activities of both groups are measured with similar biases. So, for example, if only ½ of all civilian deaths and ¾ of combatant deaths are captured for both groups then the calculated DWI's for both groups will be too low but group B's DWI will still (correctly) come out higher than group A's. In particular, we get 40 for group B and 57 for group B.

5. Derive these numbers

To actually reverse the positions of A and B there have to be pretty strong differences in the ways the victims of the two groups are measured. If, for example, combatants are recorded perfectly (g=i=1) then civilian victims of group A must be more than twice as likely to get recorded as civilian victims of group B (f>2h) in order for group A's DWI to (incorrectly) come out higher than group B's DWI.

6. Derive these numbers