4) from exam march14 2011

4a) Estimate proportions by row sum / n;   
0.32481752 0.07937956 0.04288321 0.03923358 0.32208029 0.05930657 0.08485401 0.04744526

And SE by (p(1-p)/n)^.5;  
0.014145719 0.008165624 0.006119569 0.005864521 0.014114514 0.007134609 0.008417364 0.006421494

4b) Here we can poststratify. Treat the 10 groups from last elections as stratums. Then weigh by w=p(true,last year)/p(est, last year) / sum(p(true,last year)/p(est, last year)), where p(true,last year) = [(.32, .09, .04, .04, .33, .09, .05, .04)\*(1-.1-.013), .1, .013], and p(est,last year) = column sum / n

4c) SE is the sum[w^2\*(p(1-p)/n)]^.5 over the stratums, for each of the eight parties; 0.012 0.009 0.006 0.008 0.016 0.012 0.012 0.011.

4d) The differences from a) is 0.0201 and from b) is 0.0261. Estimate variances by Sum[Variances]+2\*Sum[Cov within blocks]-2\*Sum[Cov within blocks], where covariances are given by –pi\*pj/n. SE are then 0.029 and 0.026.

4e) Ratio of variances from 4d) gives DEFF=0.792.