

A Comparison of Bias Among Relaxed Divisor Methods Using 3 Bias Measurements

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Abstract : The apportionment method is used by many countries, to calculate the distribution of seats in political bodies. For example, this method is used in the United States (U.S.) to distribute house seats proportionally based on the population of the electoral district. Famous apportionment methods include the divisor methods called the Adams Method, Dean Method, Hill Method, Jefferson Method and Webster Method. Sometimes the results from the implementation of these divisor methods are unfair and include errors. Therefore, it is important to examine the optimization of this method by using a bias measurement to figure out precise and fair results. In this research we investigate the bias of divisor methods in the U.S. Houses of Representatives toward large and small states by applying the Stolarsky Mean Method. We compare the bias of the apportionment method by using two famous bias measurements: The Balinski and Young measurement and the Ernst measurement. Both measurements have a formula for large and small states. The Third measurement however, which was created by the researchers, did not factor in the element of large and small states into the formula. All three measurements are compared and the results show that our measurement produces similar results to the other two famous measurements.

Keywords : apportionment, bias, divisor, fair, measurement

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