

AGCO Seminar

Speaker: Paul Gözl, Harvard U.

Title: In this apportionment lottery, the House always wins.

Abstract Apportionment is the problem of distributing h indivisible seats across states in proportion to the states' populations. In the context of the US House of Representatives, this problem has a rich history and is a prime example of interactions between mathematical analysis and political practice. Grimmett suggested to apportion seats in a randomized way such that each state receives exactly their proportional share q_i of seats in expectation (ex ante proportionality) and receives either $\lfloor q_i \rfloor$ or $\lceil q_i \rceil$ many seats ex post (quota). However, there is a vast space of randomized apportionment methods satisfying these two axioms, and so we additionally consider prominent axioms from the apportionment literature. Our main result is a randomized method satisfying quota, ex ante proportionality and house monotonicity — a property that prevents paradoxes when the number of seats changes and which we require to hold ex post. This result is based on a generalization of dependent rounding on bipartite graphs, which we call cumulative rounding and which might be of independent interest, as we demonstrate via applications beyond apportionment.

When: June 22, 3:00 pm.

Where: Sala de Seminario John Von Neuman, CMM, Beauchef 851, Torre Norte.