

Information Congruence and Redistricting: An Ensemble-Based Test of Whether District Lines Cut Marginalized Communities Off From Local Political Information in the United States, Hungary, and Malaysia

Soham Dwivedi

Independent Researcher

San Jose, California, United States

ORCID ID: 0009-0008-4365-9338

Abstract

Redistricting research quantifies vote dilution but rarely examines how boundaries divide counties and media markets that supply local news. This study asks whether enacted maps fragment marginalized communities' information environments beyond neutral alternatives and whether fragmentation reduces political knowledge. An Information Congruence Index (ICI) measures the share of a small area's county and media-market population assigned to its legislative district. The study draws on fourteen public datasets across three countries. The United States design covers 429 districts across 44 multi-district states, 84,414 census tracts, 210 media markets, and 220,000 ALARM simulated plans, with outcomes that include identifying a representative's party in the 2020–2024 Cooperative Election Studies ($N \approx 180,000$) and House ballot roll-off. The Hungarian design covers 106 single-member constituencies, 3,155 settlements, four elections from 2014 to 2026, and 2022 Roma population shares; the 2024 redrawing of 39 constituencies enables before-and-after comparison. The Malaysian component covers 222 parliamentary seats, 160 administrative districts, and constituency returns with rejected-ballot counts from 2008 to 2022; the 2018 redelineation enables comparison. GerryChain is the reference-plan method for Hungary and Malaysia, and difference-in-differences models are specified that compare areas with ICI declines against unchanged areas, with interactions for race, ethnicity, income, and English proficiency. In the U.S. precinct data, reassigned precincts show 0.86 percentage points more House roll-off than same-incumbent precincts in the same district and election (95% confidence interval 0.41–1.31), and the fitted contrast rises from 0.81 points at a 10% Black population share to 1.14 points at 50%. In Malaysia, constituencies with more than 10% territorial turnover show no distinguishable change in rejected-ballot rates after 2018. Published evidence that majority-minority areas are divided across districts about twice as often, taken together with these estimates, indicates that exposure to the informational costs of redistricting falls disproportionately on marginalized communities.