

Final Project Proposal: Medicaid Expansion and Adult Smoking

A Reproducible BRFSS Study (2003–2015)

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Article to Replicate

Citation: Valvi NR, Vin-Raviv N, Akinyemiju T. (2019). The association of smoking and quit attempts with Medicaid expansion: Findings from the 2003–2015 BRFSS. *Preventive Medicine Reports*, 16:100973.

Study design: The article examines ACA Medicaid expansion effects on adult smoking using BRFSS data (sample $n > 4$ million adults) and survey-weighted **logistic regression** with repeated cross-sections to analyze (1) current smoking and (2) past-year quit attempts among smokers. **Why chosen:** public data with documented complex survey design; regression-centered methods covered in class; feasible scope with single data source; pedagogical value in handling 2011 BRFSS methodology change (cell-phone sampling + raking weights).

Data Sources & Variables

Data source: BRFSS (Behavioral Risk Factor Surveillance System) adults, 2003–2015 (CDC; > 4 million observations, 50 states + DC). **Outcomes:** (1) Current smoking (yes/no), (2) past-year quit attempts among smokers. **Exposures:** State Medicaid expansion status by year; cessation-coverage barriers (prior authorization, copays). **Covariates:** Age, sex, race/ethnicity, education, income, employment, insurance, care access, state, year. **Survey design:** Sampling weights, strata, PSUs; Taylor-linearized variance; state clustering.

Analysis Plan

Replication: (1) Download/merge BRFSS 2003–2015 data; apply sample restrictions to match original study. (2) Recode variables per article codebook; verify weighted descriptives. (3) Specify survey design with weights/strata/PSUs. (4) Estimate survey-weighted logistic regressions for both outcomes using difference-in-differences (expansion \times post-ACA interactions) with full covariate adjustment. (5) Include 2011+ indicator for methodology change; conduct sensitivity analyses. (6) Report ORs, AMEs, and 95% CIs; compare with published results.

Extensions: (1) **Mechanism:** Triple interaction (expansion \times post \times "no barriers") to test policy pathways. (2) **Equity:** Stratify by income ($\leq \$20k$ vs $> \$20k$) and age (18–49 vs 50+). (3) **Interpretability:** Report AMEs alongside ORs. (4) **Robustness:** Year/state FEs; alternative clustering; exclude low-response states.

Anticipated Challenges & Mitigation

2011 methodology change: BRFSS introduced cell-phone sampling/raking in 2011. *Mitigation:* Include 2011+ indicator; separate pre/post-2011 analyses. **Policy definitions:** Expansion and barrier coding vary. *Mitigation:* Follow article appendix; test alternates. **Survey design:** Complex weights critical. *Mitigation:* Use R `survey`; verify effective n and SEs. **Recoding diffs:** May vary from original. *Mitigation:* Document; test robustness.

Timeline, Tools & Deliverables

Timeline: Wks 1–2: download/merge BRFSS data; apply sample restrictions; construct variables; weighted descriptives. Wk 3: estimate main replication models; compare with original results. Wk 4: extension analyses; finalize code/documentation; prepare slides. **Software:** R (`tidyverse`, `survey/srvyr`, `marginalEffects`) or Stata (`svyset`, `margins`). **Deliverables:** Replicated tables/figures, reproducible scripts, presentation deck.