Effects of Retail Health Clinic Entry on Wait Times 2014-2018

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SURE EXP+ Undergraduate Research

Introduction

- This study assesses the impact of retail health clinics on hospital wait times from 2014 to 2018, as they offer quicker access to care.
- We explore whether the growth of retail clinics helped mitigate the increased demand for services following the ACA's expansion of healthcare coverage.
- The study also examines how advancements in healthcare technology and the shift towards immediate care intersect with retail clinic growth, providing insights for healthcare providers and policymakers.

Purpose Statement (Goals)

- Examine effect changes in wait times on each type of care
- Estimate impact of retail health clinics has had wait times of each type of care for each county in the United States
- Provide evidence of whether the retail health clinic market alleviates the wait times across the county

Research Questions

1. What is the impact of retail health clinic market entry on county-level medical appointment wait times, on average?
2. How do the effects of retail health clinic market entry vary by medical specialty?

Data and Sample

- Outcome: Wait times in U.S. counties, 2013-2023; Source: Veterans Health Administration (VHA)
- Key Policy Variables: Affordable Care Act (ACA), Full Practice Authority (FPA)
- Explanatory Variables: RHC geolocation, median household income, young female population rate, poverty rate, Health Professional Shortage Areas (HPSA); Sources: Merchant Medicine, Health Resources and Services Administration.
- Strengths & Limitations: Data obtained from VHA records are inclusive and reliable; however, the dataset is limited to 2014-2018 due to incomplete data on control variables.

Methods

Research Design: Comparative Case Study.
Model: Poisson Pseudo-Maximum Likelihood with High-Dimensional Fixed Effects (PPML-HDFE).
Interpretation: Effects on RHC entry on wait times
Fixed Effects: Absorbed county and year fixed effects to control for unobserved hetero-geneity.
Weights: To reflect clinic count or population.
Covariates: Included ACA, FPA, socioeconomic, and demographic factors.

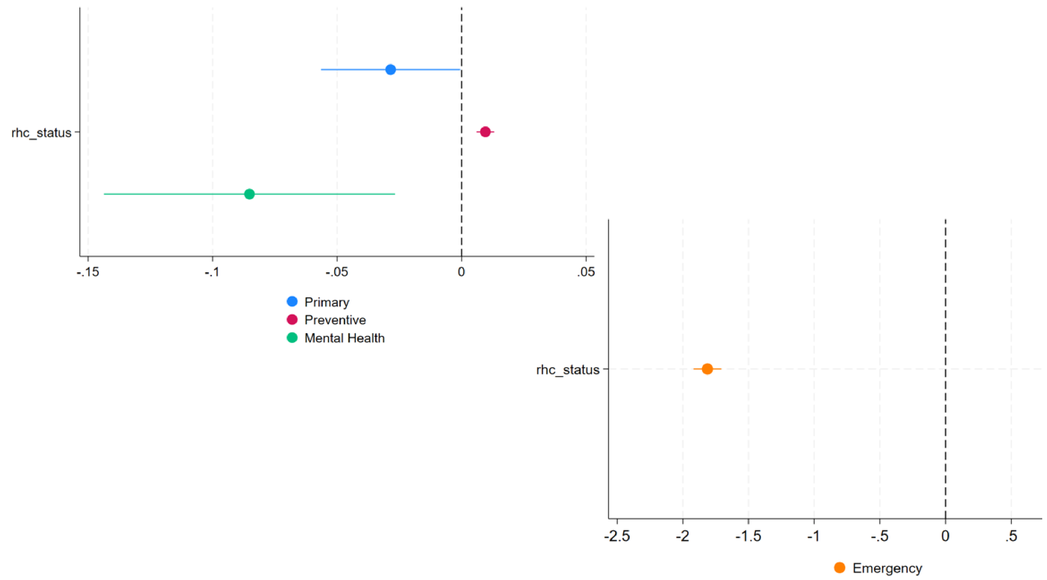
Empirical Model

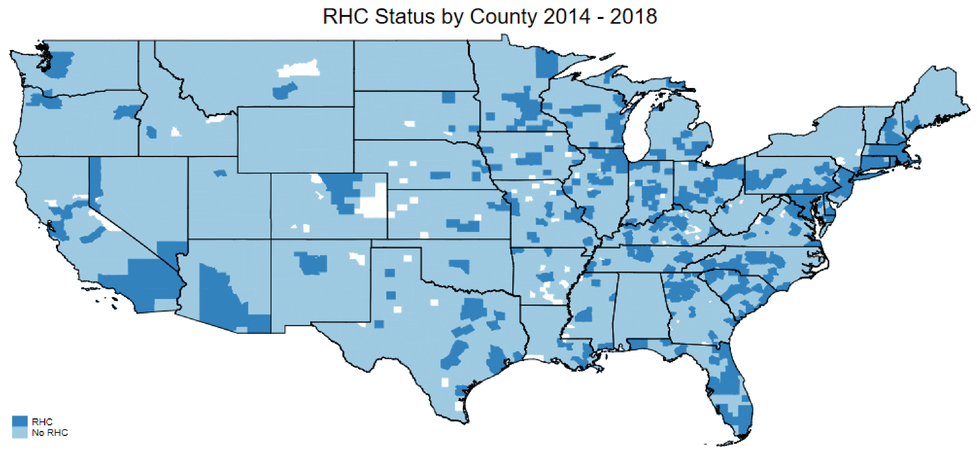
We specify the following Poisson pseudo-maximum likelihood (PPML) model:

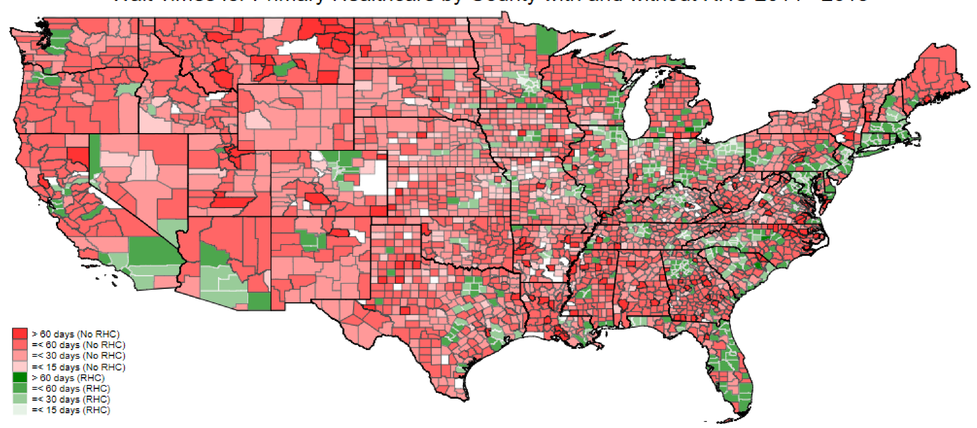
$$\text{wait_times_(typecare)}_{it} = \exp(\beta_0 + \beta_1 \text{rhc_status}_{it} + \beta_2 \text{ACA}_{it} + \beta_3 \text{FPA}_{it} + \beta_4 \text{under200_18to64_rate}_{it} + \beta_5 \text{ln_medianhhincome}_{it} + \beta_6 \text{hpsa_part}_{it} + \beta_7 \text{young_female_rate}_{it} + \sigma_i + \tau_t)$$

- $\text{wait_times_(typecare)}_{it}$ = Wait times for primary healthcare services at the county level in year t.
- rhc_status_{it} = Indicator for retail health clinic status in county i in year t.
  - ACA_{it} = Indicator for the implementation of the Affordable Care Act in year t.
  - FPA_{it} = Indicator for the presence of Full Practice Authority in county i in year t.
  - $\text{under200_18to64_rate}_{it}$ = Percentage of the population aged 18-64 in county i in year t that is under 200% of the federal poverty line.
  - $\text{ln_medianhhincome}_{it}$ = Natural logarithm of the median household income in county i in year t.
  - hpsa_part_{it} = Indicator for healthcare professional shortage area in county i in year t.
  - $\text{young_female_rate}_{it}$ = Proportion of young females in the population of county i in year t.
  - σ_i = County fixed effects to account for unobserved heterogeneity across counties.
  - τ_t = Year fixed effects to account for time-specific effects that might impact all counties equally.

Results







Conclusions

Type of Care	Coefficient
Primary	-0.0285***
Preventive	0.0096**
Emergency	-1.8123***
Mental Health	-0.0852***
Overall	-0.0399***

Figure 1. Coefficients: *p<0.1, **p<0.05, ***p<0.01

Primary Care:

- RHC entry slightly reduce wait times for primary care.
- The result is statistically significant with a small effect.

Emergency Care:

- RHC entry significantly reduce wait times for emergency care.
- The effect is large and highly statistically significant.

Future Directions

- Expand the list of control variables.
- Analyze data from recent years (2019-2023).
- Submit for publication in AY 2024-2025.
- Collaborate with the University of Michigan of Public Health.

Skill Acquired: Technology

- Became acquainted with the statistical software Stata, used for the majority of data cleaning process and statistical analysis for the research.
- Used various statistical software to clean, append, and merge datasets:
  Excel: Managed datasets as they are initially obtained, either as .xls or .csv files. Made adjustments to datasets before importing them into Stata.
  Stata: Finalized the cleaning process by dropping irrelevant variables and data, such as observations pertaining to foreign migration. Created new variables, such as an indicator variable for counties under the 2008 Florida portability law, and merged all datasets to observe all variables of interest under one dataset.
- Used Stata to create a Poisson Pseudo Maximum Likelihood with High-Dimensional Fixed Effects model and to display the coefficients of those models in a graph.
- Used Stata to create a Two-Dimensional map and to overlay the relevant data on the map.
- Gained proficiency in Overleaf for creating and formatting LaTeX documents, including research papers and presentations.

References

- **RAND (2010)**: Retail clinics are convenient but often located in affluent areas and haven't significantly reduced emergency visits. They might increase overall health care utilization.
- **Abara et al. (2019)**: Retail clinic use among Medicare beneficiaries in Houston is linked to lower continuity of care with primary physicians, especially for chronic conditions.
- **Liss et al. (2023)**: Retail clinics increase follow-up and preventive care, improving access and filling gaps in primary care.