

Competition in Rural Settings

Carroll et al. (*Health Aff.*, 2023) and Fischer et al. (*AEJ:Applied*, forthcoming)

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- Carroll et al. (2023) provides an overview of what kinds of rural hospitals are closing or merging, focusing on what happens to unprofitable hospitals.
- Fischer et al. (forthcoming) looks at what happens to health outcomes when hospital-based OB units close. They find that closures do not lead to worse health outcomes.

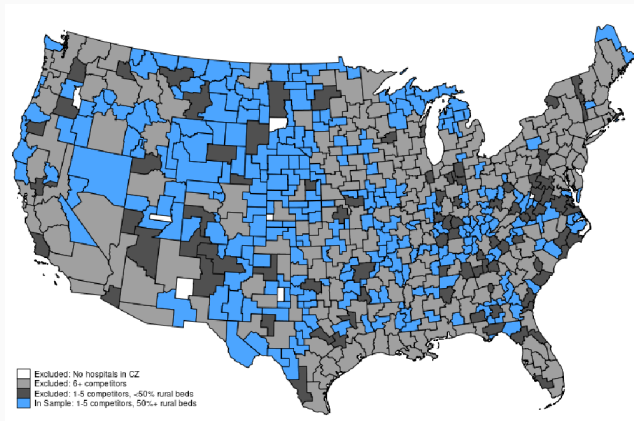
Hospital Survival in Rural Markets: Closures, Mergers, and Profitability

Carroll et al. (2023)

Overview and data

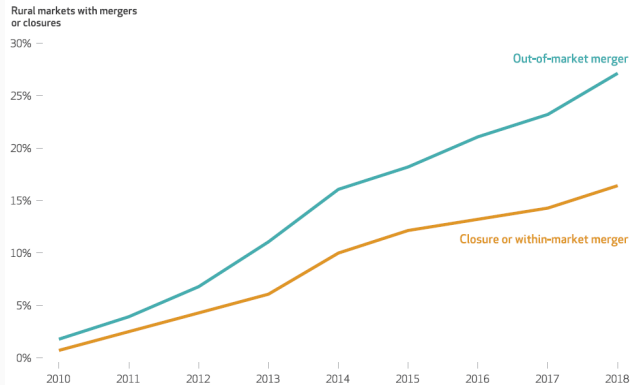
Key questions

1. How often do unprofitable hospitals close or merge?
 2. How have rural markets consolidated over time?
- Hospital-level financial data from **HCRIS** (2008-2018)
 - Hospital closures and mergers data from various sources
 - Hospital markets defined using 2010 **commuting zones**



Results

Cumulative percent of rural markets with closures or within-market mergers and with out-of-market mergers, 2010-18



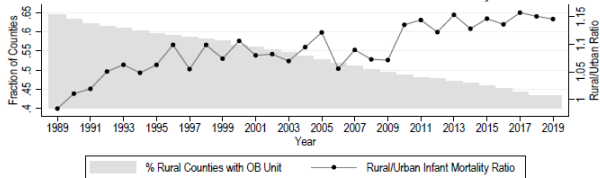
- Rural hospitals are closing, and unprofitable hospitals are more likely to close or merge.
- But 77% of unprofitable hospitals continued to stay open through 2018 without merging.

Health Care Centralization: The Health Impacts of Obstetric Unit Closures in the U.S.

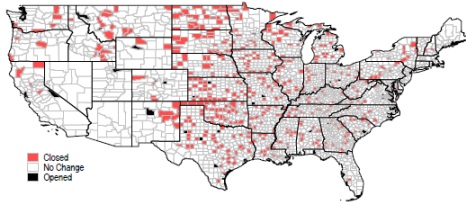
Fischer, Royer, and White (forthcoming)

Overview

A: Trends in Rural Obstetric Unit Access and Infant Mortality



B: Obstetric Unit Closures and Openings



- OB units on the decline in the past 31 years
- Define closure as all OB units in a county close
- More closures in states with more rural populations

What's the big deal?

Key question

What is the effect of OB unit closures on maternal and infant health outcomes?

Closures can affect health through...

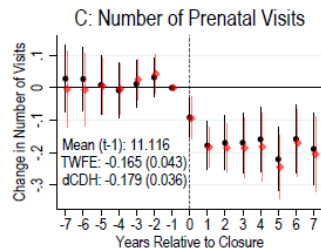
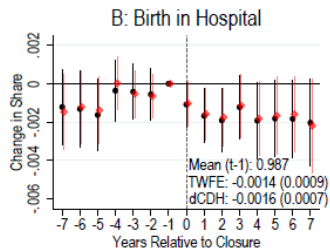
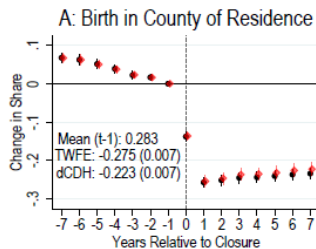
1. Increases in travel during labor
2. OB unit crowding out
3. Declines in prenatal care
4. Reallocation to higher quality hospitals

- **Birth-related outcomes** from the natality and mortality files from the National Vital Statistics System (NVSS) from 1989-2019
- **Closures** are both inferred from the natality files and observed from the AHA Annual Surveys from 1995-2016
- **Hospital quality metrics** come from the AHA Annual Surveys and Hospital Compare

Estimation is via TWFE difference-in-differences with time-varying county-level covariates, county FE, and urban group by year FE.

$$Y_{cy} = \beta \text{Closed}_{cy} + \gamma X_{cy} + \delta_c + \delta_{uy} + \epsilon_{cy}$$

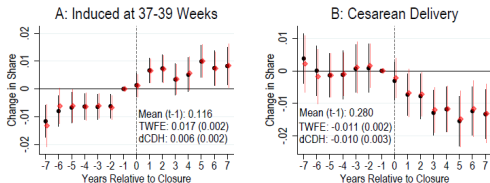
Results: Birth



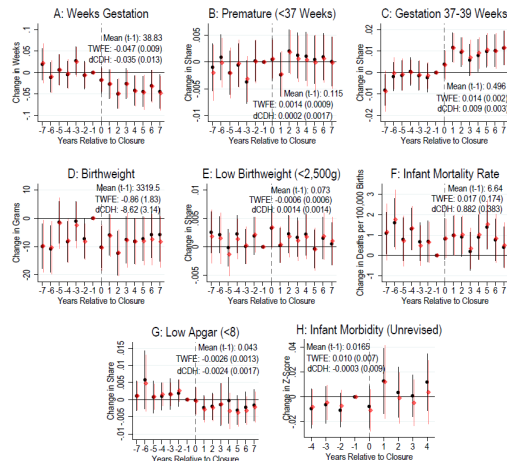
• TWFE ♦ dCDH

Results: Infant health

- Small decline in gestation weeks driven by increase in births 37-39 weeks
- Suggestive evidence that that induced births increase in response to longer travel times at labor

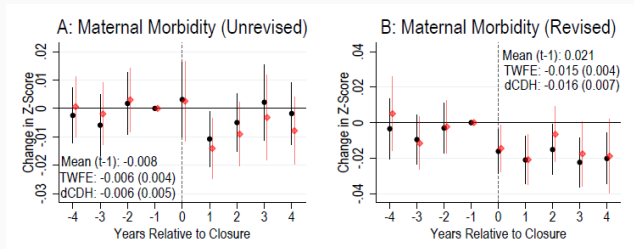


• TWFE ♦ dCDH



• TWFE ♦ dCDH

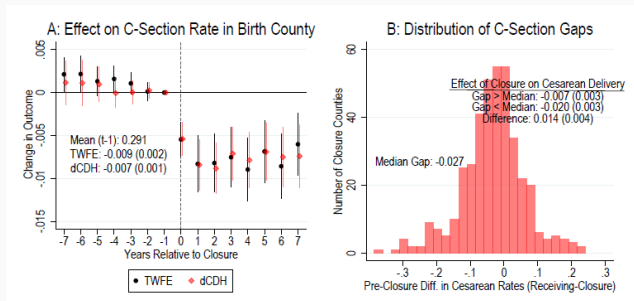
Results: Maternal health



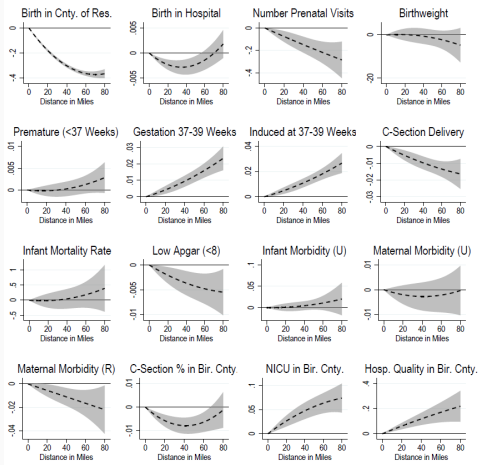
- Composite morbidity score
- Decline in composite score attributed to declines in maternal blood transfusions and perineal lacerations

Mechanisms: Decrease in C-sections

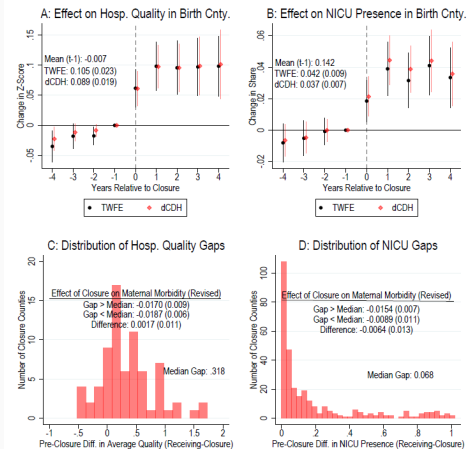
- Women give birth in counties that have lower C-section rates as a result of closures
- Overall decline in C-sections can be explained by the fact that women are now giving birth in hospitals that just do fewer C-sections



Mechanisms: Decrease in morbidity and mortality



Mechanism: Increase in travel distance



Mechanism: Hospital quality

Rural closures of OB units does not make infant and maternal mortality worse. This is largely due to the fact that mothers reallocate to higher quality hospitals after a closure.

Discussion questions

1. This paper looks at OB units in particular. Do we expect to see similar results when looking at other services and procedures?
2. There have also been many urban hospital closures in recent years, e.g. Atlanta Medical Center, which disproportionately impacted Black patients. How can we think about competition when demand is different across different patient populations?