The Maternal Health Consequences of Reduced Access to Abortion

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Introduction

- With the recent overturning of Roe v. Wade, it is important to understand the relationship between abortion access and women's health
  - It is predicted that women will suffer health consequences as a direct result of this ruling (Coen-Sanchez et al., 2022)
- The United States consistently ranks poorly in maternal health compared to other high income countries (Tikkanen et al., 2020)
  - Significant disparities in maternal health outcomes exist across racial and socioeconomic groups
- How to measure adverse maternal health outcomes?
  - Quantify these outcomes by measuring **Severe Maternal Morbidity (SMM)**, defined by the CDC as "unexpected outcomes of labour and delivery that result in significant short- or long-term consequences to a woman's health
  - For every maternal death in the United States, about 100 women experience severe maternal morbidity (Creanga et al., 2014)

Policy Overview

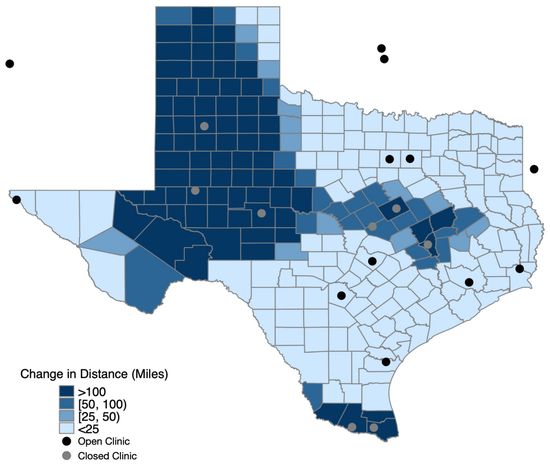
House Bill 2: As of November of 2013, Texas doctors performing abortions were required to obtain admitting privileges at nearby hospitals

→ Almost half of the abortion clinics in Texas closed immediately

→ Doubled the average Texas resident's distance to her nearest clinic

Figure 1

Change in Distance to the Nearest Abortion Clinic, 2013Q2 to 2013Q4



Summary Statistics

Table 1

Summary Statistics

	2009-2015		2012		2014	
Variable	Mean	SD	Mean	SD	Mean	SD
SMM rate (per 1,000 deliveries)						
Total	18.59	4.55	18.63	5.94	18.82	5.63
Medicaid funded birth	21.28	5.67	20.84	7.13	21.74	7.60
Non-Medicaid funded birth	16.02	4.04	16.46	6.84	16.36	6.11
Average distance to nearest clinic (miles)	27.37	49.21	21.02	33.13	45.40	69.24
Expected payer distribution						
Medicaid funded birth	50.91		50.46		50.03	
Non-Medicaid funded birth	49.09		49.54		49.37	
Observations	254		254		254	

Notes: Summary statistics calculated for Texas counties (N = 254) for the pooled sample (2009Q1-2015Q2) and individually for 2012 (the year prior to HB2) and 2014 (the year following the clinic closures), weighted by in-hospital deliveries. SMM rates per 1,000 in-hospital deliveries are calculated using total deliveries for women in the indicator expected payer group as denominator.

Research Questions

1. Do exogenous increases in distance to abortion clinics lead to increases in the rate of adverse health outcomes associated with pregnancy?
2. If there are health consequences associated with these closures, do low-income women feel these consequences more than their high-income counterparts?

Mechanisms through which SMM rates could increase:

- The women with the greatest need for abortions (highest risk pregnancies) are also the women who face the greatest barriers to accessing abortion when distance increases
- Risk factors of SMM: pregnancy is unintended, mother is low-income, Black, or younger than 17/older than 35 (CDC)

Empirical Approach

$$SMM_{c,t} = \beta_0 + \beta_1 dist_{c,t} + \alpha_t + \alpha_c$$

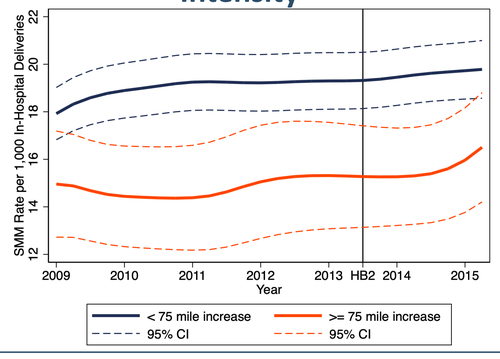
- TWFE DID design exploits within-county, across time variation in abortion access
- **Identifying assumption:** changes in SMM rates for counties with small changes in access provide a good counterfactual for counties with larger changes in access
- **Coefficient of interest:** β_1 is the effect of having no abortion clinic within a given distance (50, 75, 100, or 125 miles) relative to having a clinic within the same distance

Data

Construct panel data at the county-year-quarter level on SMM rates per 1,000 women in Texas from 2009Q1 to 2015Q2

- **SMM and delivery data:** Texas Department of State Health Services: Hospital Discharge Data PUDF
- **SMM diagnosis codes:** Centers for Disease Control and Prevention
- **Population data:** Surveillance, Epidemiology, and End Results Program (SEER)
- **Clinic closure data:** Lindo et al. (2020)
- **County level population centroids:** U.S. Census Bureau

Trends in SMM Rates By Treatment Intensity



Main Variables

c = county t = quarter-year

- $SMM_{c,t}$: SMM rate per 1,000 in-hospital deliveries
- $dist_{c,t}$: set of distance indicator variables equal to one if the closest clinic at time t is a given distance away
  - 1(nearest clinic > 50 miles), 1(nearest clinic > 75 miles), 1(nearest clinic > 100 miles), 1(nearest clinic > 125 miles)
  - Geodesic distance to each clinic from each county population centroid is calculated before and after HB2 (2013Q2 and 2013Q4)
- α_t : quarter-year fixed effects
- α_c : county fixed effects

Main Results

Table 2

Access to abortion clinics on SMM rate per 1,000 in-hospital deliveries

	(1)	(2)	(3)	(4)
1(Nearest Clinic > 50 miles away)	0.1469			
	(0.1589)			
1(Nearest Clinic > 75 miles away)		0.2342**		
		(0.1134)		
1(Nearest Clinic > 100 miles away)			0.1964*	
			(0.1123)	
1(Nearest Clinic > 125 miles away)				0.2262**
				(0.1103)
County Fixed Effect	X	X	X	X
Time Fixed Effect	X	X	X	X
Observations	6,604	6,604	6,604	6,604

Notes: Each observation is a county-quarter-year from 2009Q1 to 2015Q2. Each estimate comes from a separate regression. The arcsinh transformation is used on the SMM rate. This regression includes county fixed effects and quarter-year fixed effects. Standard errors (in parentheses) allow errors to be correlated within counties over time. * p<0.1; ** p<0.05; *** p<0.01.

Heterogeneity Analysis

Table 3

Access to abortion clinics on SMM rate per 1,000 in-hospital deliveries, by insurance coverage status

	(1) Medicaid	(2) Non-Medicaid
1(Nearest Clinic > 50 miles away)	0.3427*	-0.2259
	(0.1815)	(0.1690)
1(Nearest Clinic > 75 miles away)	0.3373***	-0.0578
	(0.1274)	(0.1280)
1(Nearest Clinic > 100 miles away)	0.2420**	-0.0045
	(0.1217)	(0.1071)
1(Nearest Clinic > 125 miles away)	0.2439**	0.0578
	(0.1141)	(0.1067)
County Fixed Effect	X	X
Time Fixed Effect	X	X
Observations	6,271	6,376

Notes: Each observation is a county-quarter-year from 2009Q1 to 2015Q2. Each estimate comes from a separate regression. The arcsinh transformation is used on the SMM rate. This regression includes county fixed effects and quarter-year fixed effects. County-quarter-years with zero subgroup births are omitted from the regression. Standard errors (in parentheses) allow errors to be correlated within counties over time. * p<0.1; ** p<0.05; *** p<0.01.

Key Findings

- SMM rates increase in counties where abortion access decreases relative to counties where abortion access remains constant
- Increases in SMM rates are being driven by low-income women
  - Low-income women are more likely to experience SMM and are less able to travel long distances to receive an abortion
  - They are the group which suffers most from the loss of ability to avoid mistimed pregnancies
- High-income women are not affected by increases in distance to the nearest clinic
  - They have the means to travel for an abortion (access to transportation, able to take time off from work, etc.)

Implications

- Policymakers considering the imposition of abortion restrictions should be prepared to see a rise in SMM rates
- Certain high-risk populations are disproportionately harmed by restrictions
  - Equitable access to abortion will play a key role in closing the maternal morbidity/mortality gap between privileged and underprivileged populations in the United States
- Further research is necessary to quantify the full health consequences of abortion restrictions
  - My measure does not capture health complications arising from unsafe abortions

Literature & Contribution

- Previous study focusing on U.S. state-level abortion policies has shown that laws restricting abortion based on gestational age increase maternal mortality by 38% (Hawkins et al., 2020)
- Several authors have studied the effects of distance to the nearest abortion clinic on abortion and fertility rates, all finding that abortions decrease and fertility rates increase when driving distance to the nearest clinic increases (Fischer et al., 2018; Lu and Slusky, 2019; Venator and Fletcher (2021))
- This study contributes to our understanding of the causal impacts of abortion restrictions on women's health
  - Connection has not been established in any existing economic literature

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