More Doctors in Town Now? Evidence from Medicaid Expansions

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Motivation

- One main goal of Medicaid expansions is to increase access to health care services
- Expanding Medicaid may not increase access to services if health care providers are not available to care for eligible population
  - Shortage or maldistribution
- It is important to understand how providers' practice locations respond to Medicaid expansions

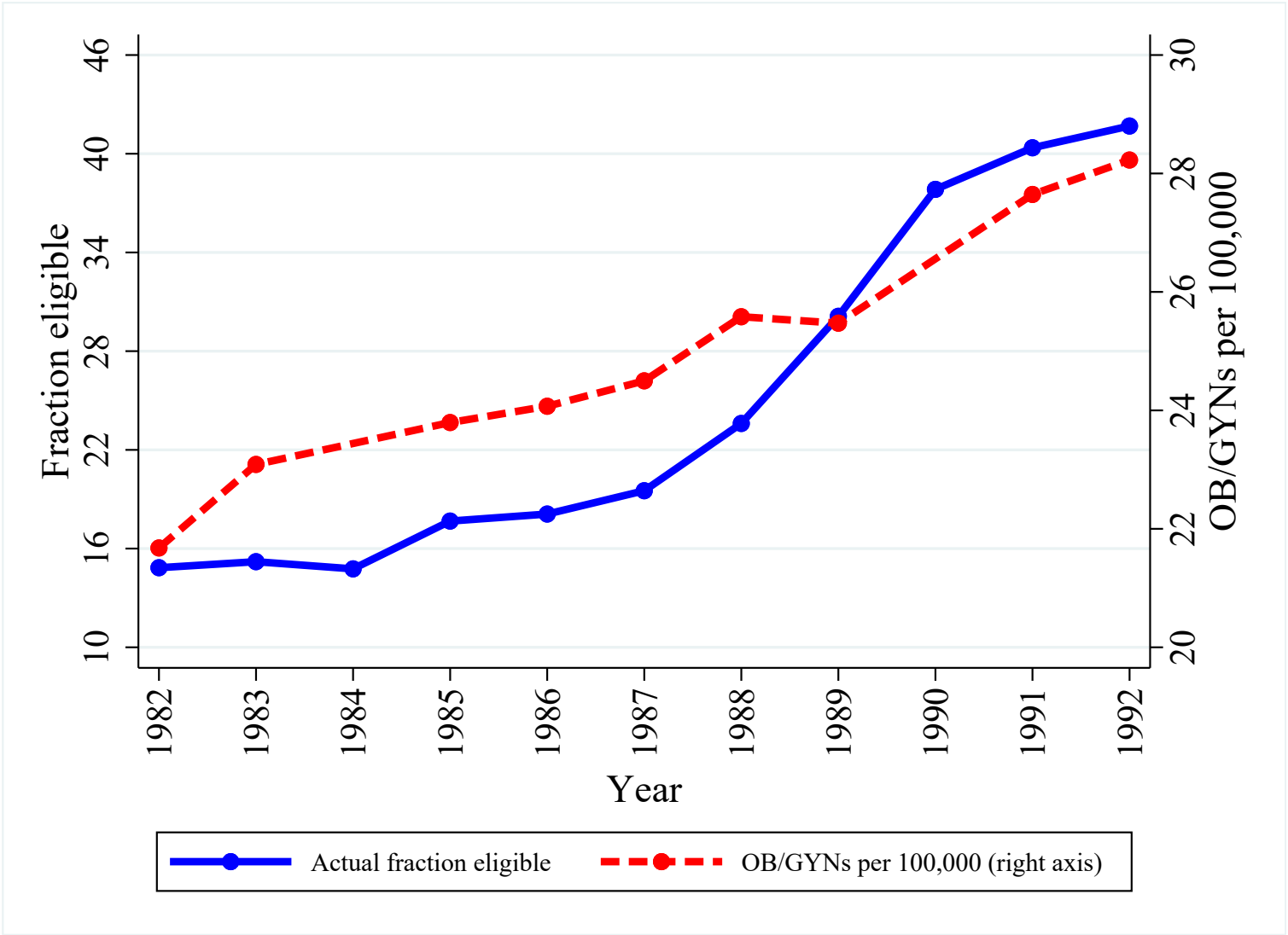
This paper

- Medicaid eligibility expansions for pregnant women between the early 1980s and early 1990s
- Expansions at very different rates across states and over time during our sample years 1982-1992
  - Fraction of pregnant women aged 15-44 eligible for Medicaid increased from 15 to 42 percent
- Focus on obstetricians and gynecologists (OB/GYNs) and examine how their practice location decisions may have been affected

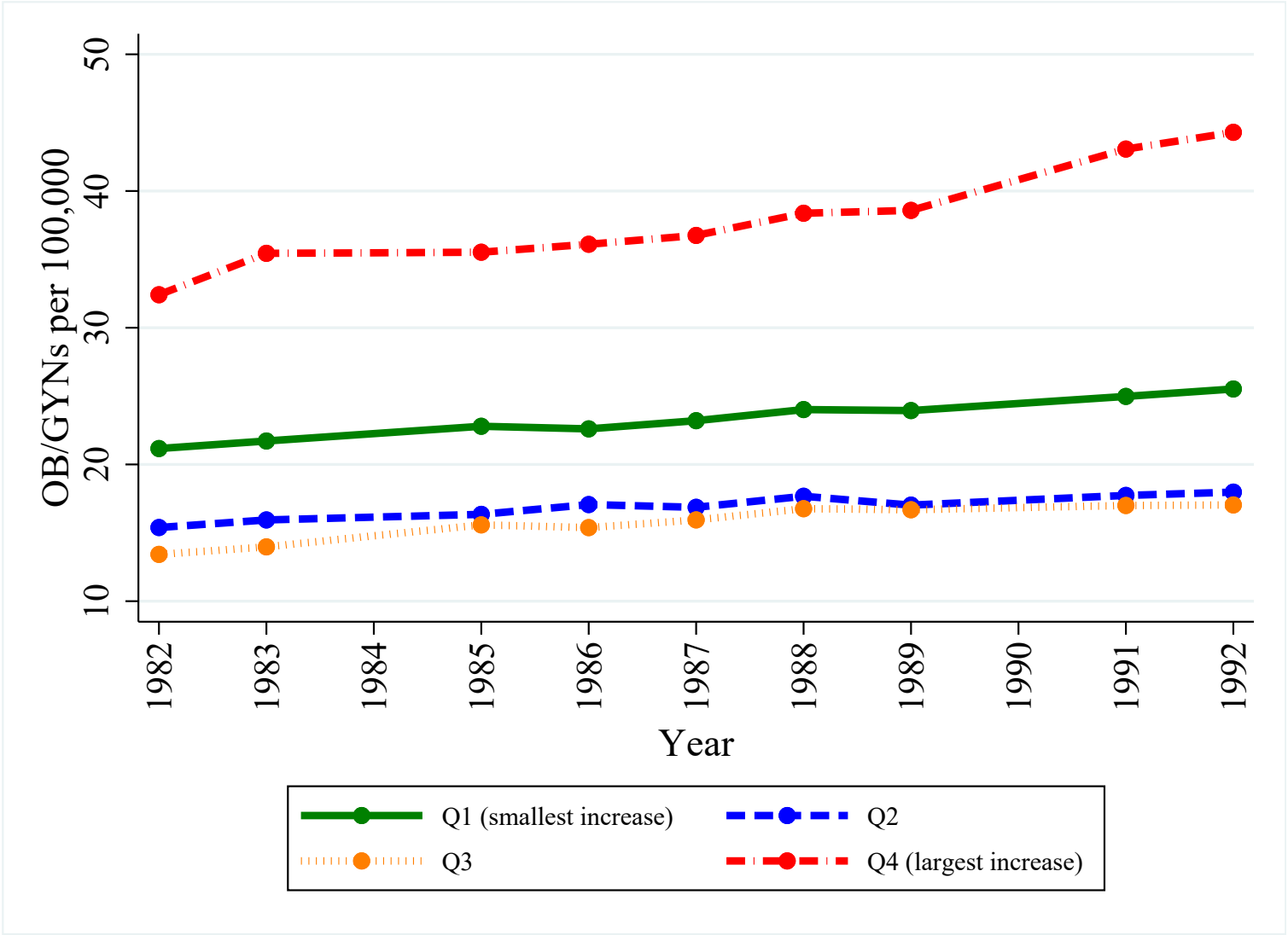
Previous research

- Much of previous literature examining Medicaid expansions is concerned with demand-side outcomes
  - E.g., increased prenatal care utilization, and reduced infant mortality and low birth weight (Currie and Gruber, JPE 1996)
- Far less is known about the effects on providers
  - Buchmueller et al. (AEJ 2016); Garthwaite (AEJ 2012); Baker and Royalty (JHR 2000); Huh (JPubE 2021)
- Literature lacks research on an important supply-side outcome, providers' practice locations
  - Intensive vs. extensive margin of supply

Changes in fraction eligible and OB/GYN supply, 1982-1992



Changes in OB/GYN supply by expansion size, 1982-1992



Data

- Main sources of data:
  - County-level OB/GYN counts from American Medical Association's (AMA) Physician Masterfile 1982-1992
  - Medicaid eligibility rates and Medicaid-to-private fee ratios from Currie and Gruber (JPE 1996)
  - County-level controls from Area Health Resources Files (AHRF) and Surveillance, Epidemiology, and End Results (SEER) Program
  - County-level poverty rates in 1980 and 1990 from U.S. Census Bureau, and 1983 urban-rural indicators from Economic Research Service (ERS)
- All data were collected at the annual level

Summary statistics

	All counties		Metro counties		Non-metro counties	
Variable	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
OB/GYNs per 100,000	26.31	139.54	32.38	24.33	24.34	159.93
Early-career OB/GYNs per 100,000	6.68	38.37	8.19	8.38	6.19	43.88
Mid-career OB/GYNs per 100,000	12.18	66.90	14.60	12.01	11.39	76.67
Late-career OB/GYNs per 100,000	7.45	39.94	9.58	8.73	6.76	45.67
Income per capita (in $)	12574.94	3737.72	14706.45	4339.35	11883.74	3231.80
Unemployment rate (in %)	7.66	3.49	6.57	2.61	8.01	3.66
Population density (per square mile)	55.56	440.35	199.44	874.20	8.91	10.31
Population female aged 15-44 (in %)	21.58	2.56	23.81	1.98	20.85	2.30
Population black (in %)	11.20	15.66	11.84	12.07	10.99	16.66
N	23,592		5,777		17,815	

Empirical strategy

- Estimating equation 1:

$$Y_{ct} = \beta_0 + \beta_1 ER_{s(t-1)} + \gamma X_{ct} + \theta_c + \delta_t + \varepsilon_{ct}$$

- Outcome: total number of OB/GYNs per 100,000 females aged 15-44 in county i in year t
- Key variable of interest: lagged eligibility rate in state s in year t
- County-level controls: per capita income, unemployment rate, % population females aged 15-44, % population black, and population density
- Weighted by county-specific population
- Standard errors clustered by state

Empirical strategy (Cont'd)

- Estimating equation 2:

$$Y_{ct} = \beta_0 + \beta_1 ER_{s(t-1)} + \beta_2 ER_{s(t-1)} \times Metro_c + \gamma X_{ct} + \theta_c + \delta_t + \varepsilon_{ct}$$

- β_1 measures the baseline effect on physician supply for non-metropolitan areas
- $\beta_1 + \beta_2$ measures the corresponding effect for metropolitan areas

Simulated eligibility approach

- Eligibility rate index: fraction of women aged 15-44 in each state and year actually eligible for Medicaid benefits
- Actual fraction eligible is likely correlated with economic and demographic characteristics of states that may also *have correlations* with physician supply and the scope and scale of Medicaid program

Simulated eligibility approach (Cont'd)

- Instrument from Currie and Gruber (JPE 1996):
  1) A fixed random sample of 3,000 women from the CPS
  2) Calculate the fraction of this sample who would be eligible for Medicaid according to each state's Medicaid eligibility rules

- Simulated fraction eligible relies only on the differences in Medicaid eligibility rules across states and is independent of other underlying characteristics of states

Results for all OB/GYNs

Increase of about 3 (= 0.1045*26.85) OB/GYNs per 100,000 in counties with moderate poverty, concentrated in metropolitan counties

	OLS estimation		IV estimation	
Coefficient	**(1)**	**(2)**	**(3)**	**(4)**
All				
Fraction eligible	0.0179	-0.0359	0.0178	-0.0365
	(0.0303)	(0.0330)	(0.0295)	(0.0319)
Fraction eligible		0.0521		0.0517
+ Fraction eligible × Metropolitan		(0.0445)		(0.0422)
Low poverty				
Fraction eligible	-0.0037	-0.0720	-0.0109	-0.0802*
	(0.0436)	(0.0446)	(0.0421)	(0.0436)
Fraction eligible		0.0080		0.0020
+ Fraction eligible × Metropolitan		(0.0462)		(0.0448)
Moderate poverty				
Fraction eligible	0.1013***	0.0050	0.1045***	0.0086
	(0.0317)	(0.0366)	(0.0302)	(0.0349)
Fraction eligible		0.1262***		0.1320***
+ Fraction eligible × Metropolitan		(0.0363)		(0.0341)
High poverty				
Fraction eligible	-0.0439	-0.0781	-0.0342	-0.0688
	(0.1055)	(0.1114)	(0.0986)	(0.1035)
Fraction eligible		0.0331		0.0388
+ Fraction eligible × Metropolitan		(0.1346)		(0.1281)

Effects driven by newly graduated OB/GYNs

Increase of about 2 (= 0.0640*26.85) early-career OB/GYNs per 100,000 in metropolitan counties with moderate poverty

	OLS estimation			IV estimation		
	Early career	Mid-career	Late career	Early career	Mid-career	Late career
Coefficient	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
All						
Fraction eligible	-0.0371*	-0.0029	0.0041	-0.0403**	-0.0003	0.0040
	(0.0207)	(0.0214)	(0.0202)	(0.0200)	(0.0203)	(0.0204)
Fraction eligible	0.0063	0.0365	0.0093	0.0031	0.0396	0.0090
+ Fraction eligible × Metropolitan	(0.0275)	(0.0253)	(0.0200)	(0.0264)	(0.0247)	(0.0195)
Low poverty						
Fraction eligible	-0.0440	-0.0093	-0.0186	-0.0512*	-0.0061	-0.0229
	(0.0285)	(0.0354)	(0.0279)	(0.0277)	(0.0337)	(0.0301)
Fraction eligible	-0.0280	0.0362	-0.0002	-0.0321	0.0389	-0.0048
+ Fraction eligible × Metropolitan	(0.0302)	(0.0319)	(0.0228)	(0.0284)	(0.0301)	(0.0245)
Moderate poverty						
Fraction eligible	-0.0171	0.0036	0.0186	-0.0156	-0.0028	0.0271
	(0.0321)	(0.0337)	(0.0303)	(0.0303)	(0.0310)	(0.0291)
Fraction eligible	0.0606*	0.0305	0.0351	0.0640**	0.0255	0.0424*
+ Fraction eligible × Metropolitan	(0.0301)	(0.0284)	(0.0237)	(0.0282)	(0.0264)	(0.0230)
High poverty						
Fraction eligible	-0.0507	-0.0402	0.0129	-0.0559	-0.0260	0.0131
	(0.0420)	(0.0495)	(0.0397)	(0.0405)	(0.0453)	(0.0368)
Fraction eligible	0.0037	0.0318	-0.0024	-0.0068	0.0495	-0.0039
+ Fraction eligible × Metropolitan	(0.0720)	(0.0524)	(0.0466)	(0.0683)	(0.0518)	(0.0433)

Heterogeneity by existing supply of OB/GYNs

Focusing on early-career OB/GYNs, effects concentrated in counties with high existing supply

	OLS estimation		IV estimation	
	Low supply	High supply	Low supply	High supply
Coefficient	**(1)**	**(2)**	**(3)**	**(4)**
Low poverty				
Fraction eligible	0.0376	-0.0562*	0.0296	-0.0643**
	(0.0358)	(0.0325)	(0.0315)	(0.0319)
Fraction eligible	-0.0149	-0.0291	-0.0222	-0.0332
+ Fraction eligible × Metropolitan	(0.0345)	(0.0318)	(0.0335)	(0.0298)
Moderate poverty				
Fraction eligible	0.0189	-0.0220	0.0119	-0.0207
	(0.0374)	(0.0354)	(0.0347)	(0.0335)
Fraction eligible	-0.0202	0.0730**	-0.0214	0.0765**
+ Fraction eligible × Metropolitan	(0.0528)	(0.0334)	(0.0494)	(0.0313)
High poverty				
Fraction eligible	0.0160	-0.0790	0.0104	-0.0844
	(0.0266)	(0.0567)	(0.0227)	(0.0539)
Fraction eligible	0.0468	-0.0275	0.0382	-0.0395
+ Fraction eligible × Metropolitan	(0.0453)	(0.0937)	(0.0392)	(0.0887)

Conclusion

- Changes in physician supply due to Medicaid eligibility expansions are associated with poverty level and metropolitan status
- Effects mainly driven by early-career OB/GYNs
- Resulting changes may partially arise from a flow of new OB/GYNs from non-metropolitan counties to metropolitan counties with high take-up rates
- Effects not equal across counties!