

BACKGROUND

- The Social Determinants of Health (SDoH) have a significant impact on accessing medical care.
- Despite the availability of medical interventions, SDoH may affect the type of treatment received, leading to an unequal distribution of high-quality care among disadvantaged communities.

STUDY OBJECTIVE

To explore how differences in socioeconomic disadvantage ranking, measured by the Area Deprivation Index (ADI) impacts access to aortic valve replacement (AVR) procedures (with a focus on Transcatheter Aortic Valve Replacement (TAVR)), in comparison to other open and minimally invasive procedures.

METHODS

- The 2016-2019 Healthcare Cost and Utilization Project (state inpatient sample) data from 18* states was used.
- This study employed the ADI, a multidimensional index of socioeconomic conditions at the zip code level, ranging from 0-100.
- We estimated the relationship between ADI ranking and the difference in volume of AVR and TAVR, versus Coronary Artery Bypass Graft (CABG) surgery and Laparoscopic Colectomy (LC).
- All regressions control for state and year fixed effects, population size, total number of hospitalizations, race, household income, median home value, labor force participation, unemployment rate, share of college educated, median family size, share married and median age.

*HCUP States with patient zip codes: Arizona, Delaware, Florida, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Missouri, New Jersey, North Carolina, Oregon, Rhode Island, South Dakota, Vermont, Washington, and Wisconsin.

Figure 1: Procedure Volumes by ADI Rank and Year

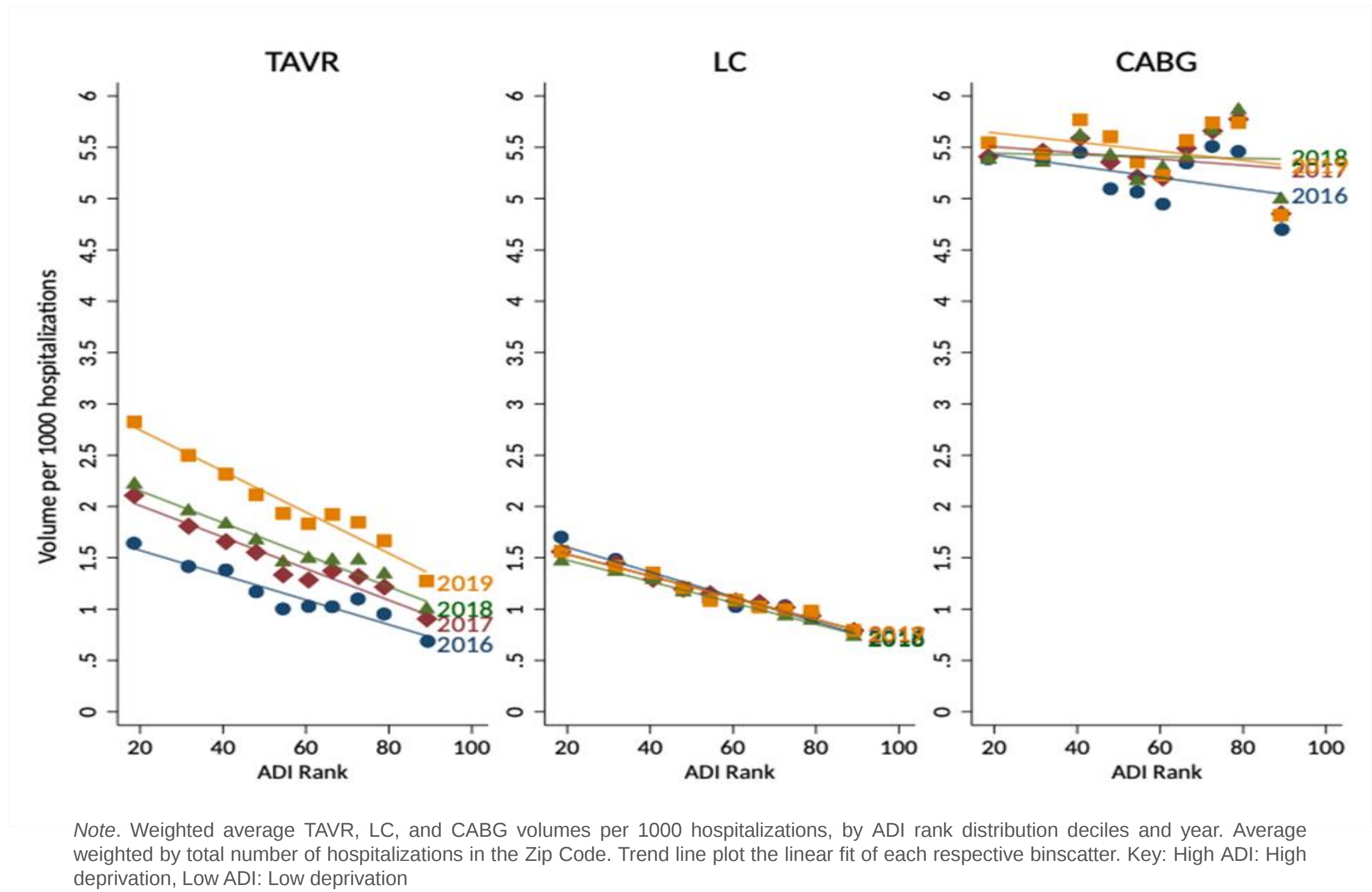
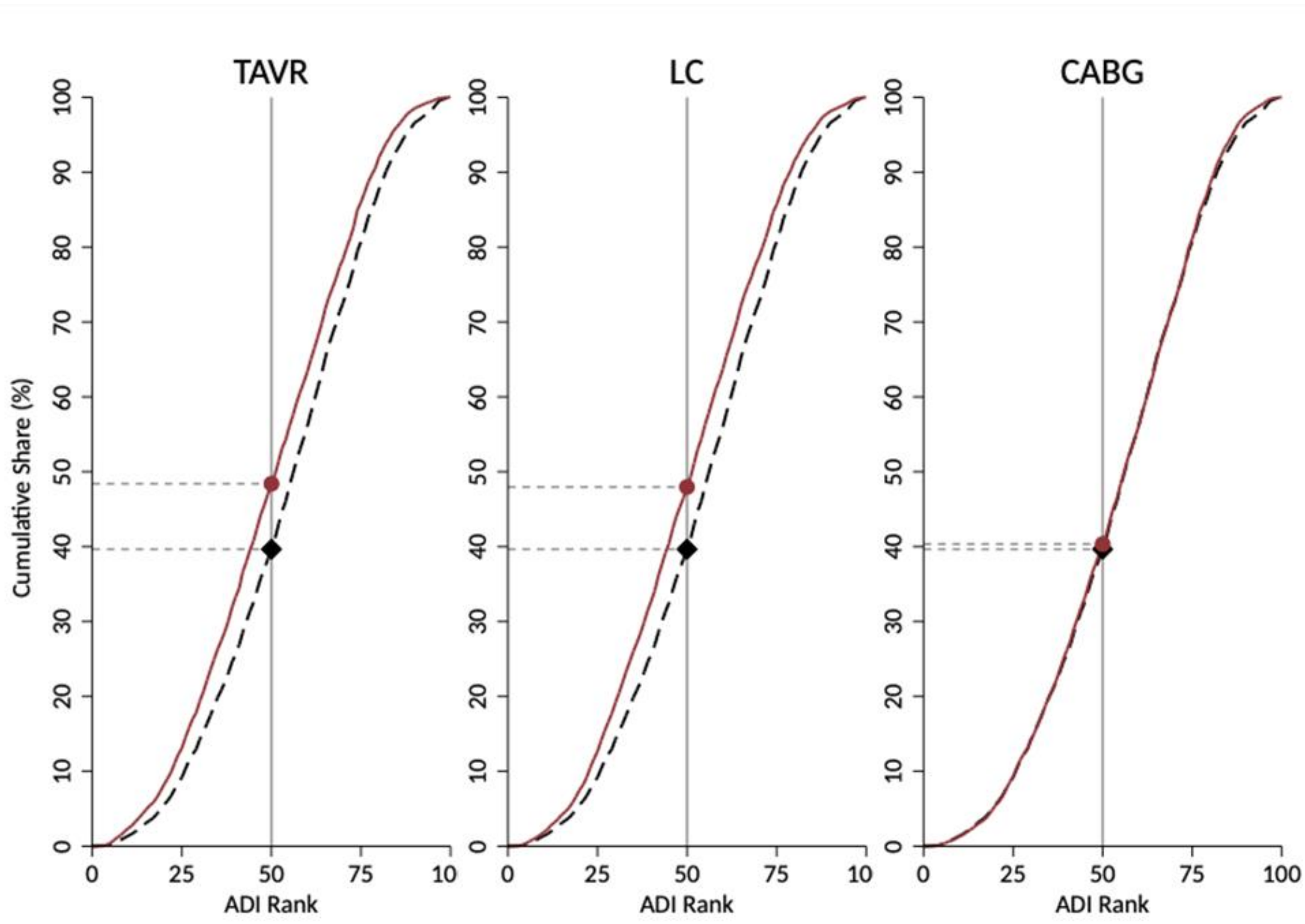


Figure 2: Cumulative Share of Hospitalizations and Procedures by ADI Rank



Note. Cumulative shares of procedures (red) and all hospitalizations (blue) of the sample, sorted by area ADI rank. Key: High ADI: High deprivation, Low ADI: Low deprivation

RESULTS

- Although the share of TAVR out of AVR procedures increased over time across zip codes, the increase is negatively correlated with ADI, with high ADI areas lagging approximately by 1 year (**Figure 1**).
- This is despite the higher share of hospitalizations per population in high ADI zip codes (**Figure 2**).
- Regression results show that there is a statistically significant and negative relationship between ADI and access to AVR (13.7% fewer AVRs in high ADI areas), TAVR (9.1% fewer TAVRs in high ADI areas), and LC (20% fewer LCs in high ADI areas), while no statistical difference in access to CABG, a common procedure.

Table 1: Relationship Between Procedure Volume and ADI Rank

Extensive Margin: $1[Volume_{it} > 0]$				
	CABG	AVR	TAVR	LC
High ADI	0.0170	-0.00491	-0.0338**	-0.0774***
	(0.0152)	(0.0148)	(0.0148)	(0.0135)
Intensive Margin: $\log(Volume_{it})$				
	CABG	AVR	TAVR	LC
High ADI	-0.0253	-0.137**	-0.0908**	-0.199**
	(0.0482)	(0.0586)	(0.0421)	(0.0734)

Note. State cluster-robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. All regressions control for state-year fixed effects, log population size, log total number of hospitalizations, percent white, percent black, median household income, median house value, labor force participation, unemployment rate, share of college educated, median family size, share married, and median age.

CONCLUSION

People living in **high deprivation areas** have **less access** to cutting edge life-saving technologies, such as AVR, and even more so to **device-intensive minimally invasive procedures** such as TAVR.

