

**Epidemiology
Research
Group in
Organ
Transplantation**



JOHNS HOPKINS
M E D I C I N E

Changes in Liver Distribution Following the Implementation of Share-35

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Disclosures

I have no financial relationships to disclose within the past 12 months relevant to my presentation. The ACCME defines "relevant" financial relationships as financial relationships in any amount occurring within the past 12 months that create a conflict of interest.

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Background: Share35

June 18, 2013: major change to liver allocation in the United States, offering livers first to all candidates in an OPTN region with MELD \geq 35 before local candidates with MELD $<$ 35.

Research questions

Analyze changes to liver utilization following Share-35:

- **Efficiency** (discard rate, CIT)
- **Fairness** (MELD at transplant, transplant rate per DSA)
- **Outcomes** (Waitlist mortality, post-transplant mortality, overall mortality)

Study population

- SRTR dataset
- “Pre-Share35”: 9 months (Sep 18, 2012-June 17, 2013)
- “Post-Share35”: 9 months (June 18, 2013-March 17, 2014)
- Exclude: pediatric, multiorgan candidates/recipients

Efficiency

Efficiency: Discard rate

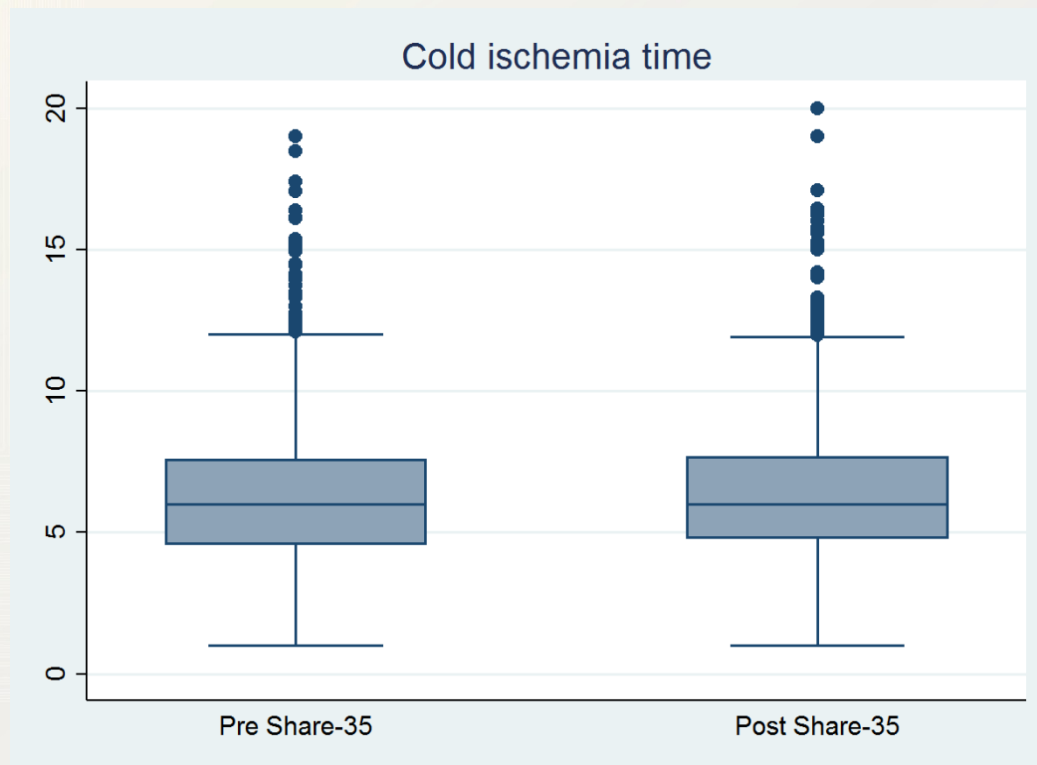
	Discarded	Transplanted	Total
Pre Share-35	487 (11.1%)	3918 (88.9%)	4405
Post Share-35	443 (9.6%)	4155 (90.4%)	4598

$p=0.03$ (χ^2 test)

Efficiency: Disposition of transplanted livers

	Pre Share-35 (N=4133)	Post Share-35 (N=4369)	p
Local	3233 (78.2%)	2883 (66.0%)	
Regional	782 (18.9%)	1327 (30.4%)	<0.001
National	118 (2.9%)	159 (3.6%)	

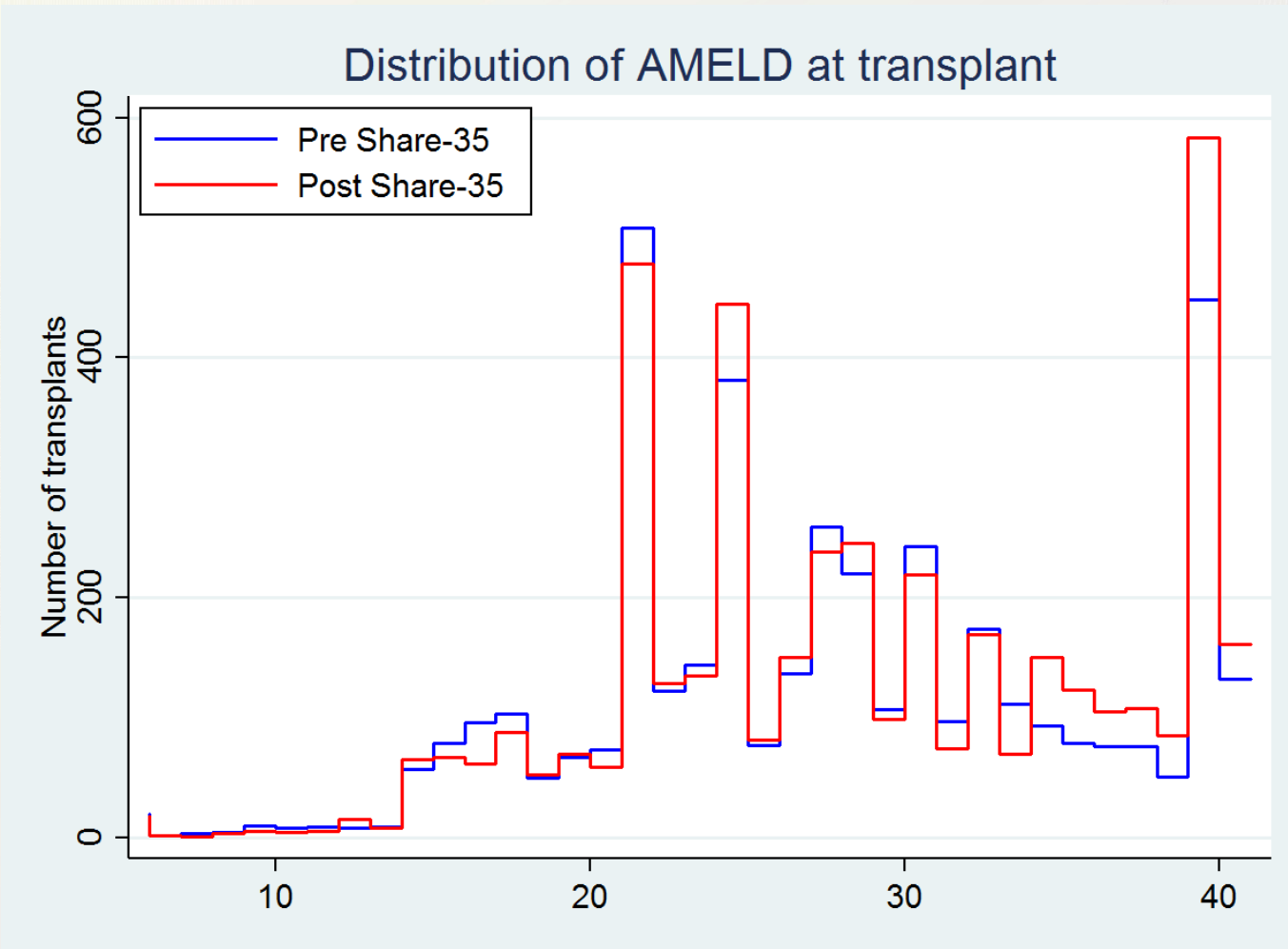
Efficiency: CIT



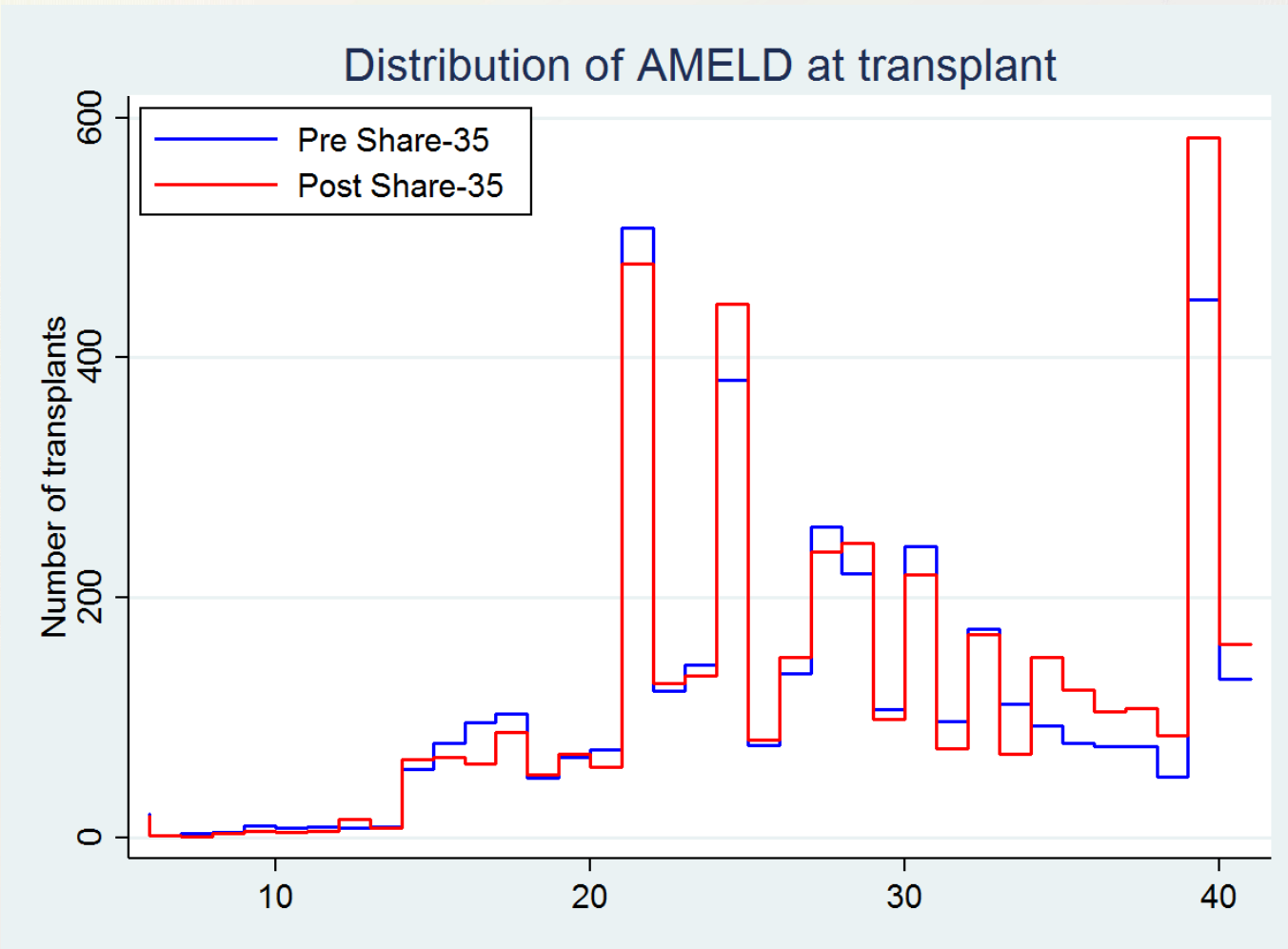
- Pre-Share35 median (IQR) CIT: 6.0 (4.7-7.6) h
- Post-Share35 median (IQR) CIT: 6.0 (4.8-7.8) h
- Omits outliers with > 20h (N=20 pre-Share35, 27 post-Share35)
- Rank-sum $p=0.1$

Fairness

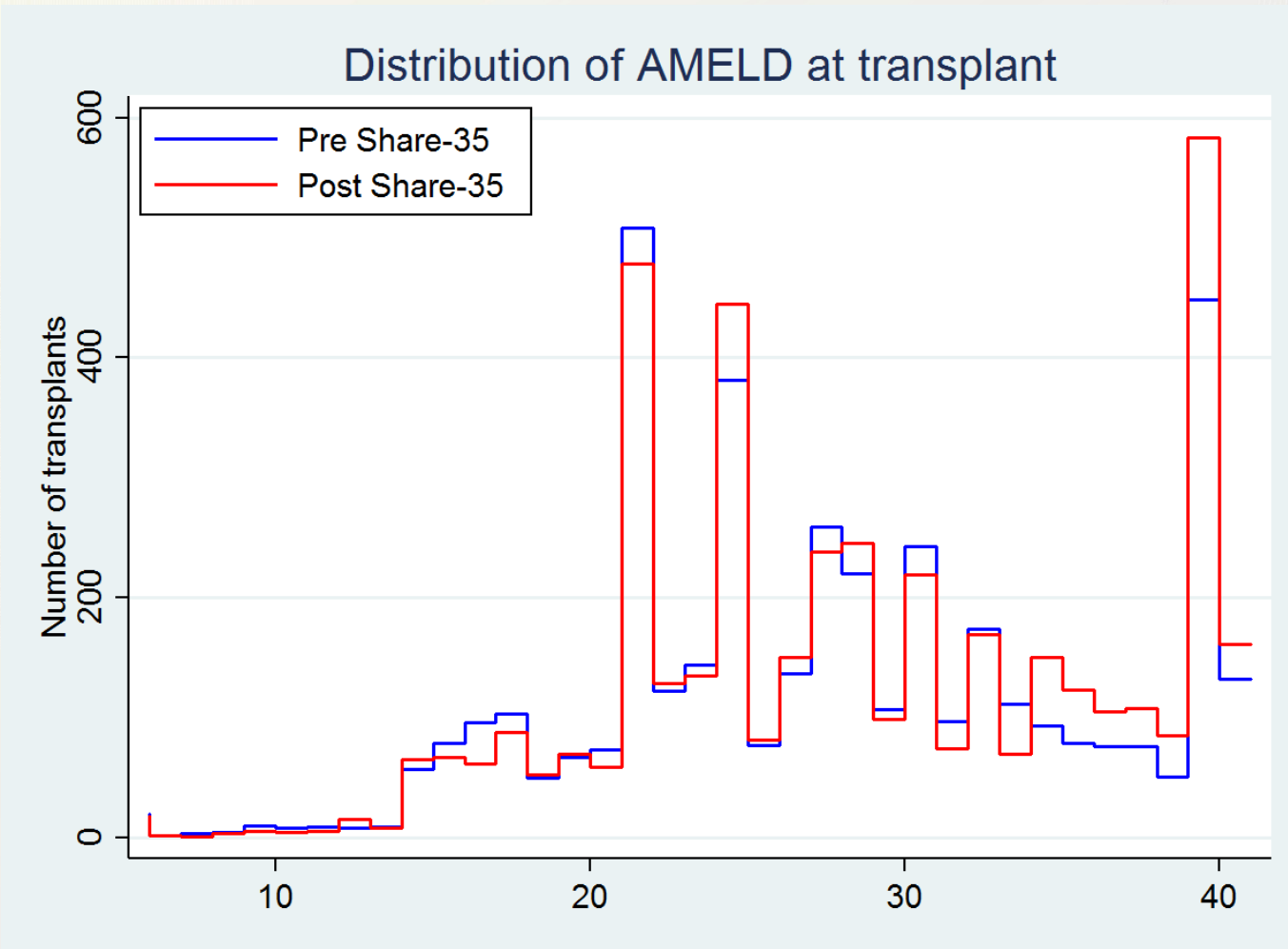
Fairness: AMELD at transplant



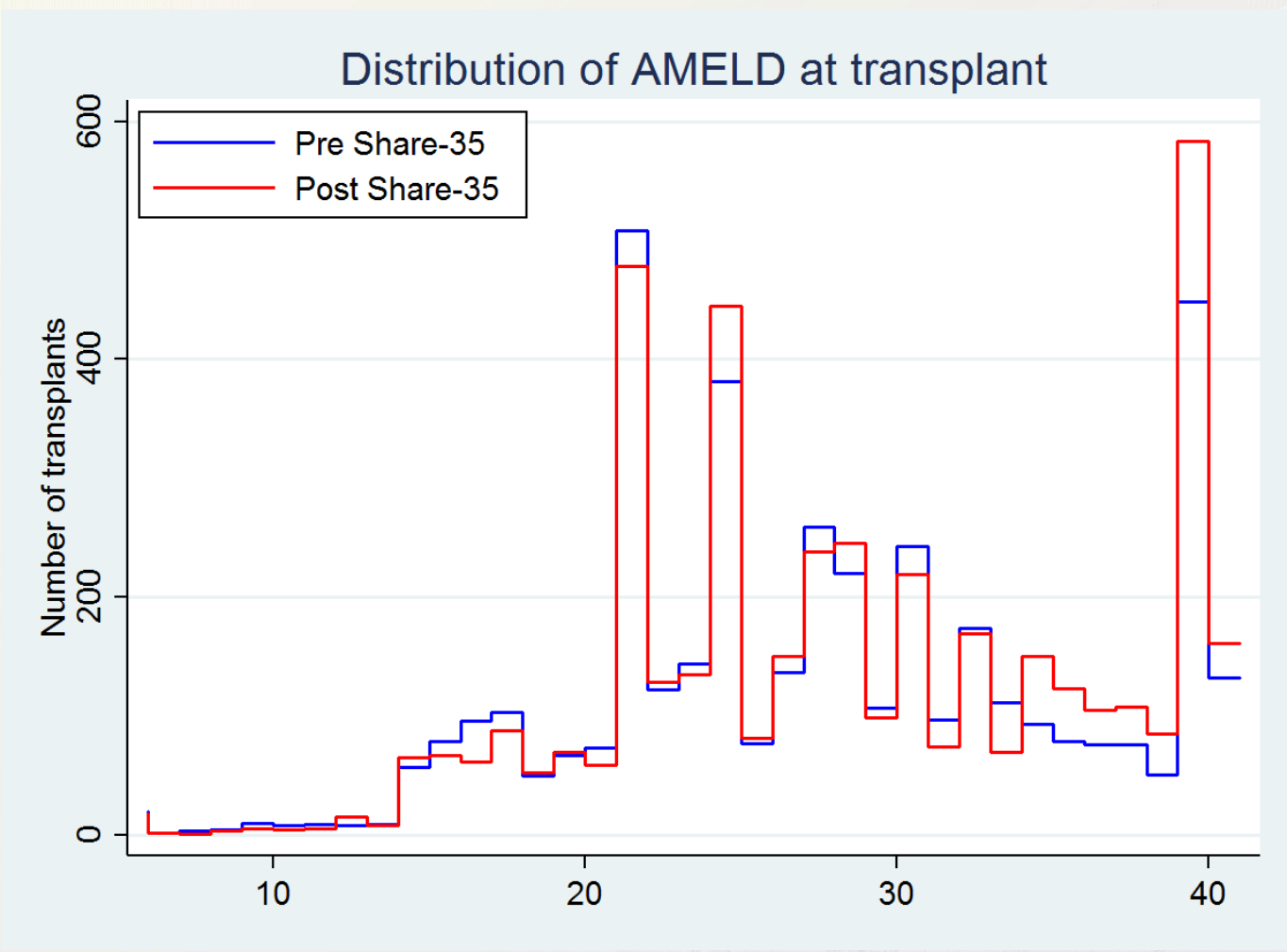
Fairness: AMELD at transplant



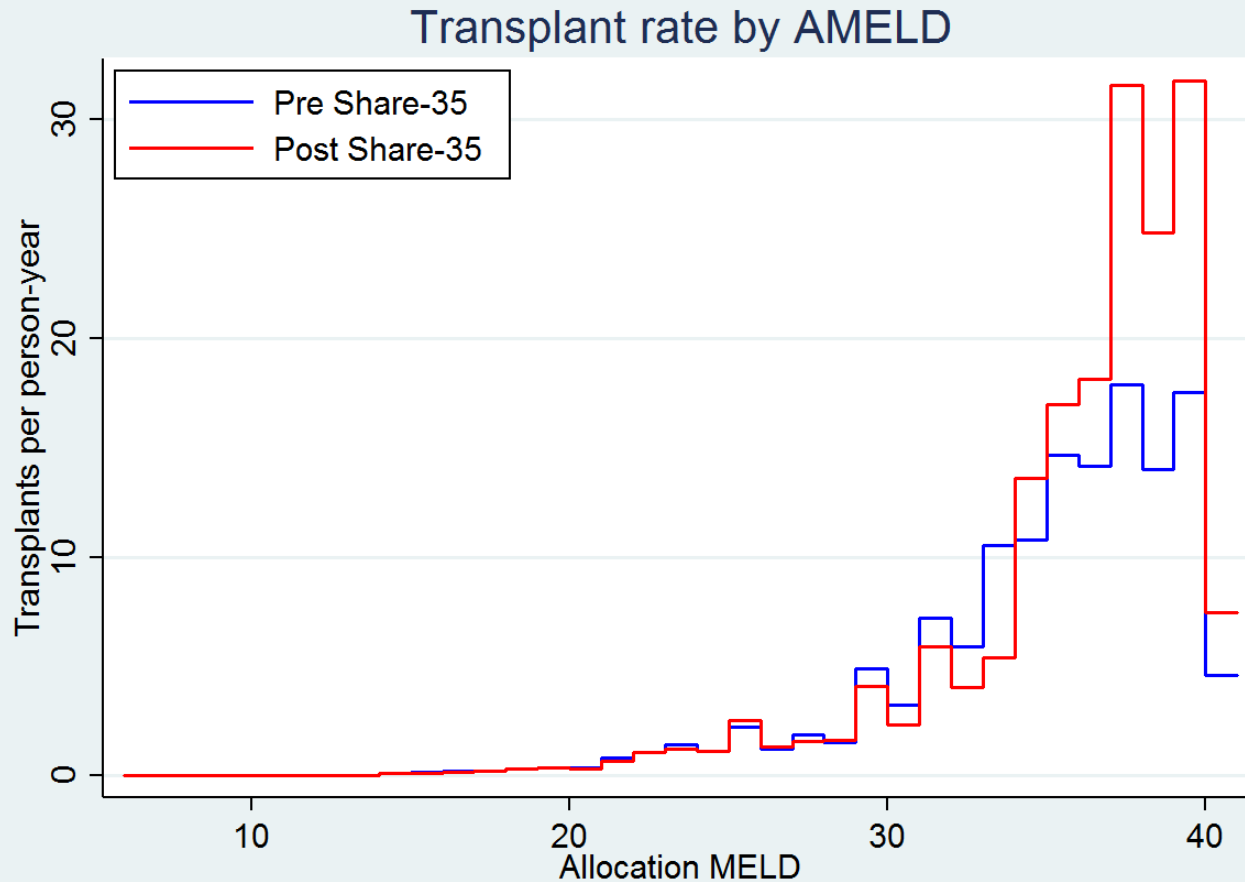
Fairness: AMELD at transplant



Fairness: AMELD at transplant

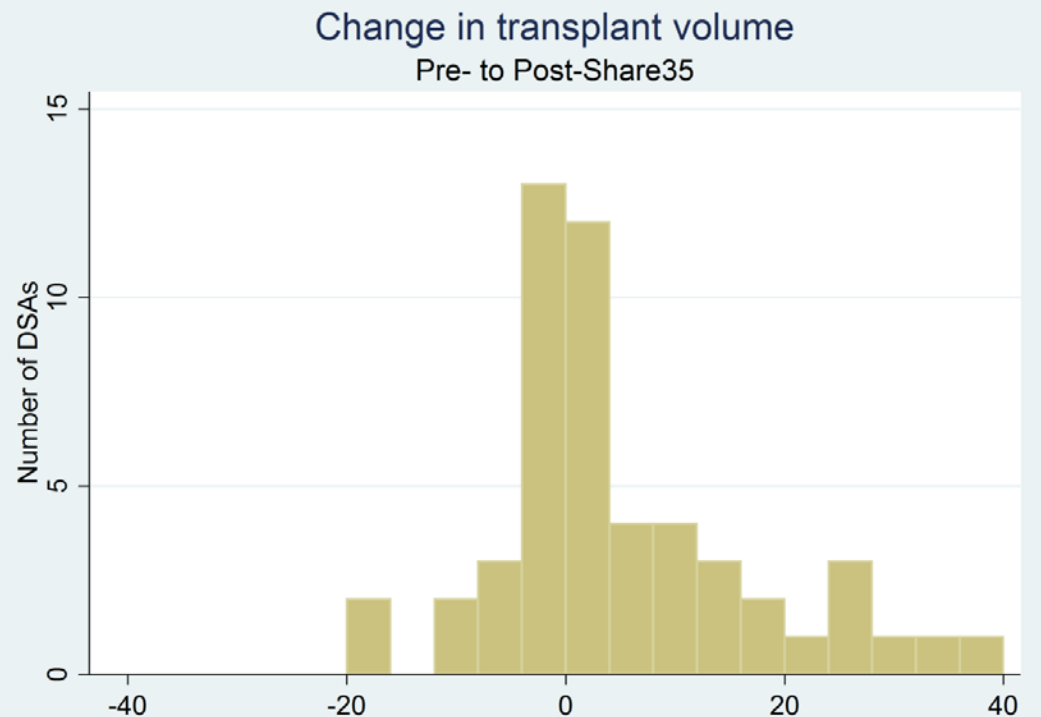


Fairness: transplant rate per person-year



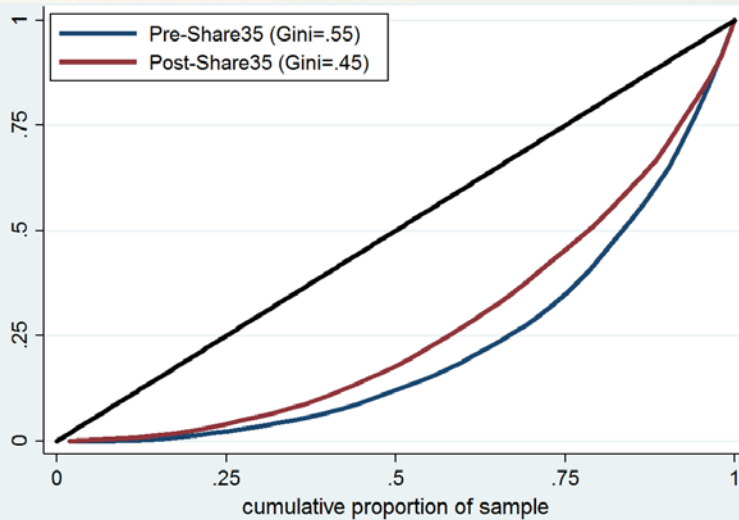
Fairness: change in transplant volume

- Volume increased in 30 DSAs, stayed the same in 2 DSAs, and decreased in 20 DSAs
- Median (IQR) change in volume was 1 (-3 to 10) transplants

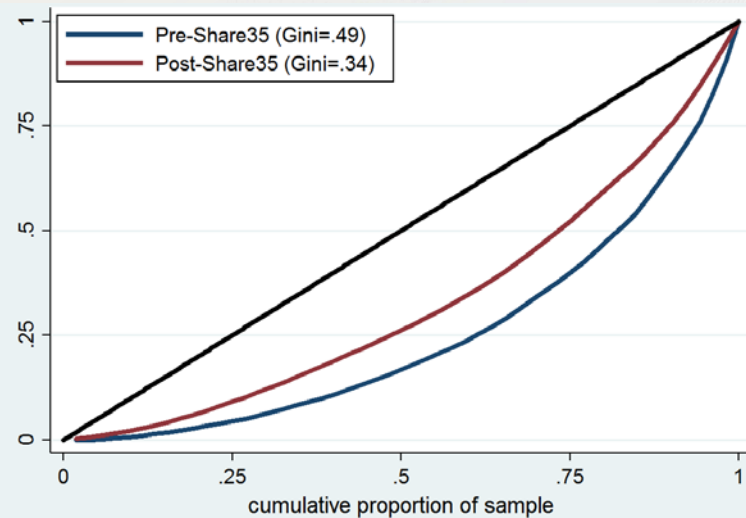


Fairness: distribution of imports and exports

Imports

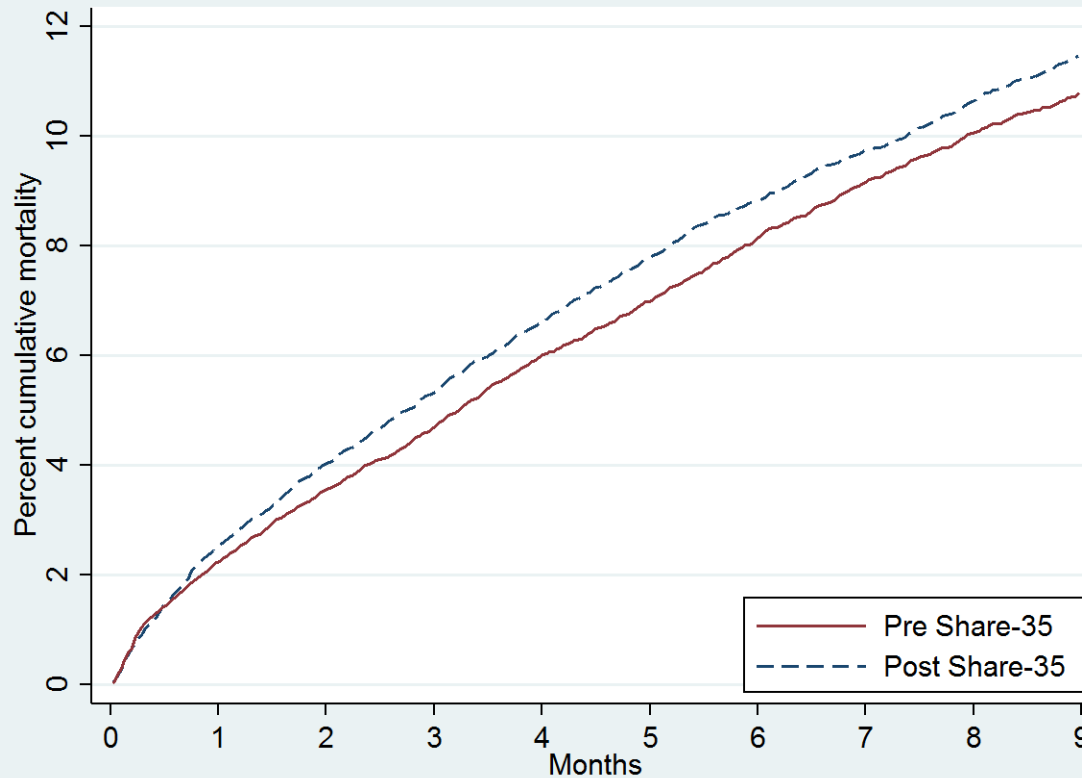


Exports



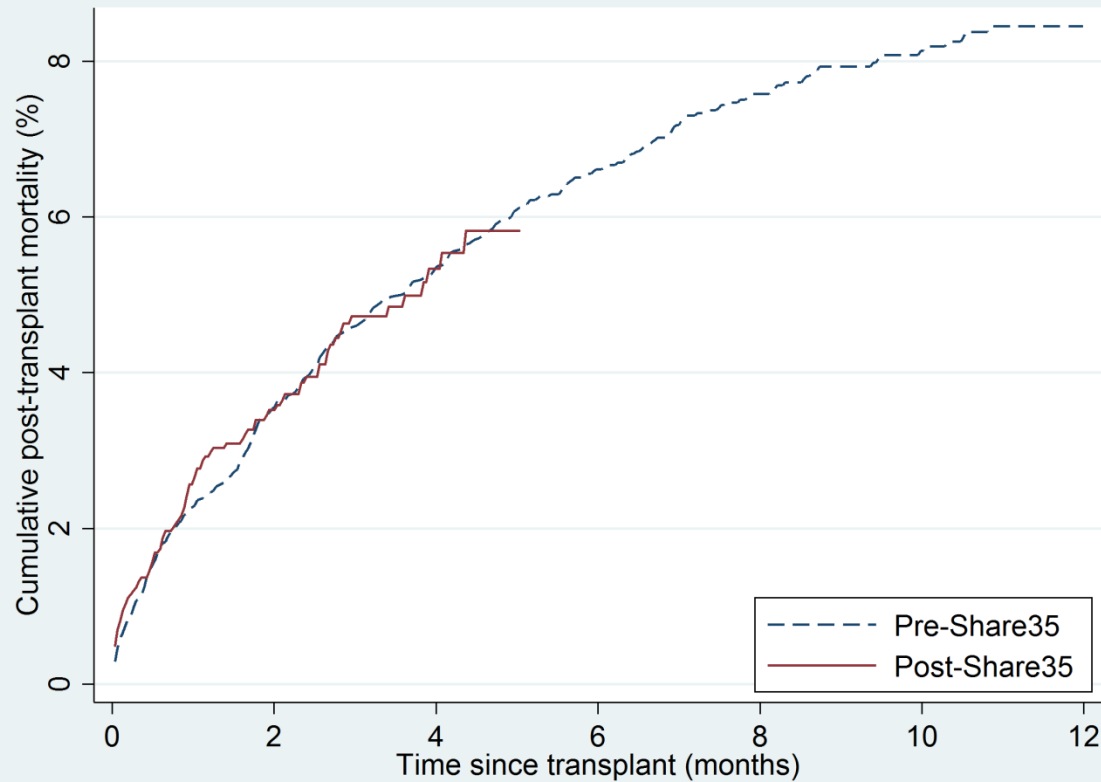
Outcomes

Waitlist mortality/dropout



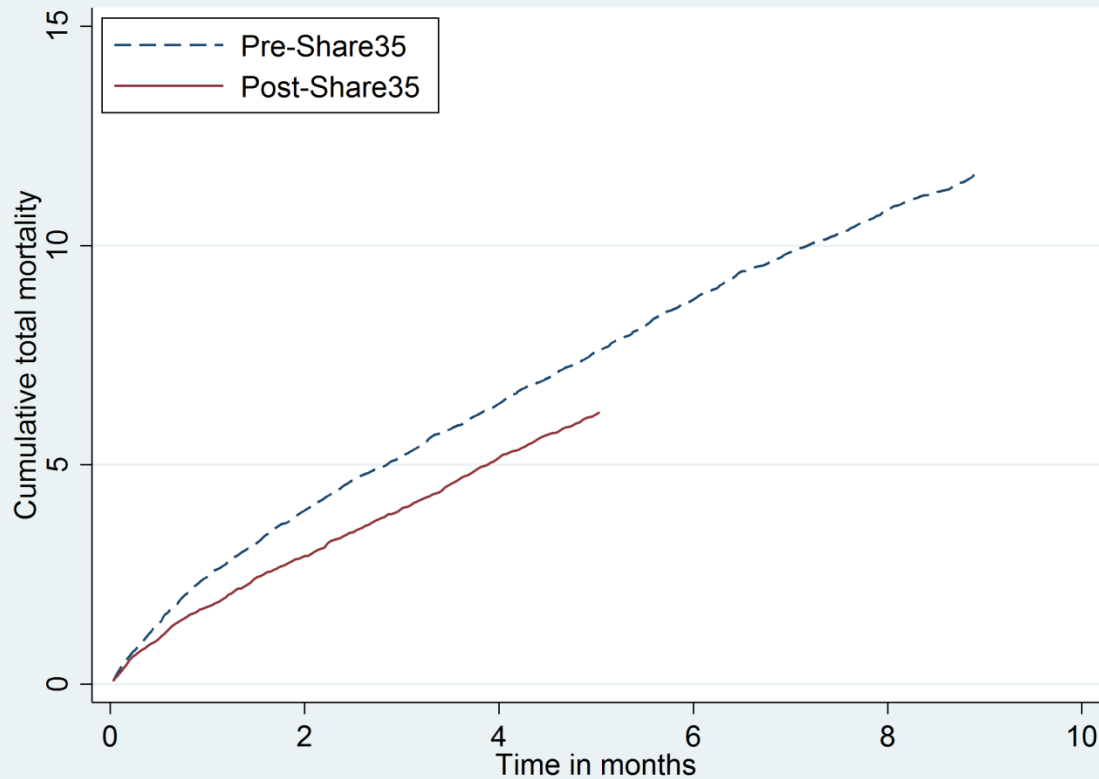
- Adjusting for baseline MELD, competing risks SHR = 0.85 0.90 0.96 ($p < 0.01$).
- 2213 deaths in the pre-Share35 era, 2082 deaths in the post-Share35 era

Post-transplant mortality



- Censored Nov. 18, 2013 to reduce risk of mortality ascertainment bias
- P=0.9

Overall mortality



- Not censored for transplant
- Censored Nov. 18, 2013 to reduce risk of mortality ascertainment bias
- IRR: 0.84 0.91 0.98 , $p=0.01$

Conclusions

- Decrease in discard rate
- No change in CIT
- Increase in transplants AMELD ≥ 35 , decrease in transplants AMELD 30-34
- Broader sharing of imports and exports
- 10% decrease in adjusted waitlist mortality
- No change in post-transplant mortality
- 9% decrease in overall mortality

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