



Evaluating the Effect of Requiring Alcohol Screening and Brief Intervention Programs in US Trauma Centers: Cost Evidence from Arizona

RTI International

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Acknowledgements

- Dan Hungerford (CDC)
- Participants at the June, 2012 International Conference on Emergency Medicine in Dublin, Ireland
- Funding:
 - National Institute on Drug Abuse, National Institutes of Health; Grant R01 DA025068. (Richard Saitz, PI)
 - RTI Fellow Program

The ACS-COT SBI Requirement

- Clinical studies on alcohol screening and brief intervention (SBI)
 - Effectively reduces drinking levels across many settings
 - In trauma centers, has been shown to reduce recidivism and injury rates
- The American College of Surgeons' Committee on Trauma (ACS-COT), an independent organization which verifies United States (US) hospitals as Level I or Level II trauma centers, added an SBI requirement to their verification process in 2006.
- The requirement went into effect on May 1, 2007.

Moving Beyond Clinical Effectiveness

- Given the high volume and expected costs of patients treated in trauma centers, SBI has the potential to reduce health care costs when implemented system-wide
- The ACS-COT requirement provides an opportunity to evaluate SBI cost-savings from a system-wide perspective

Data

- Data source
 - State Inpatient Database (SID) from the Healthcare Cost and Utilization Project (HCUP) for the state of Arizona
 - Uniform, monthly, individual-level discharge data from hospitals
- Why Arizona?
 - No current federal funding to implement SBI programs
 - 7 Level I/II verified trauma centers
 - Continuously available SID data from 2004-2010
 - Able to identify trauma center admissions using provider identifiers

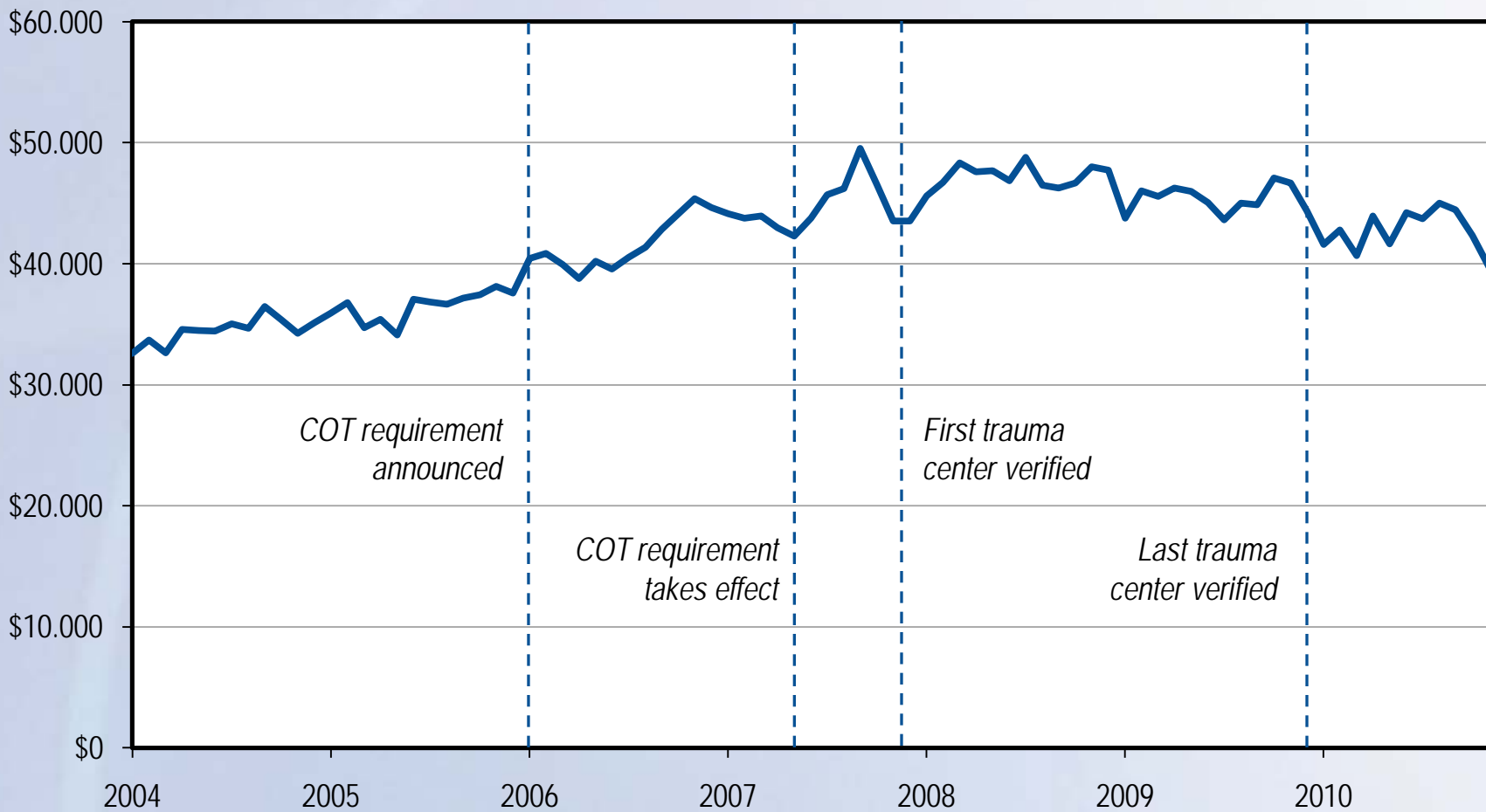
Limitations

- Individuals could not be tracked across hospitals
- Exact admission/discharge dates are not available
 - readmissions were identified by comparing admission and discharge months
 - Readmission was defined as 1 month, but could include up to 2 months
- Exclusion of 2 trauma centers
 - 1 trauma center verified at the end of 2009
 - 1 trauma center had a structural issue with its patient ids

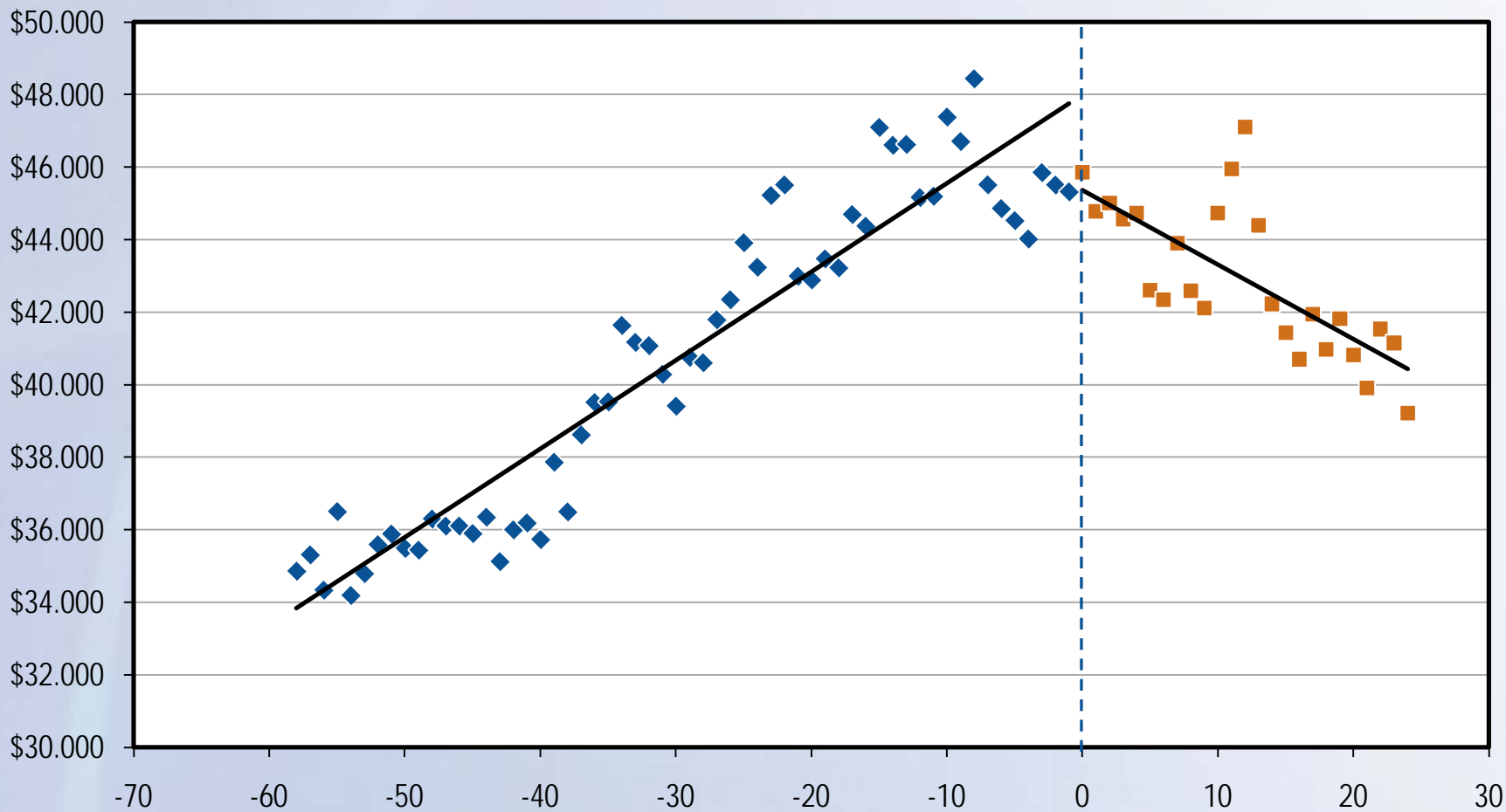
Outcomes and Methods

- The natural log of the cost per admission - OLS with robust standard errors.
- Probability of a readmission - logit with robust standard errors
- The natural log of the cost per readmission - OLS with robust standard errors.
- Covariates included in each model are:
 - Indicator for post-SBI requirement (POST)
 - Monthly time trend (TIME)
 - Interaction of POST and TIME (POST_TIME)
 - Quarterly seasonal indicators, gender, age, race
 - Trauma center fixed effects

Monthly Cost per Admission, 2004–2010

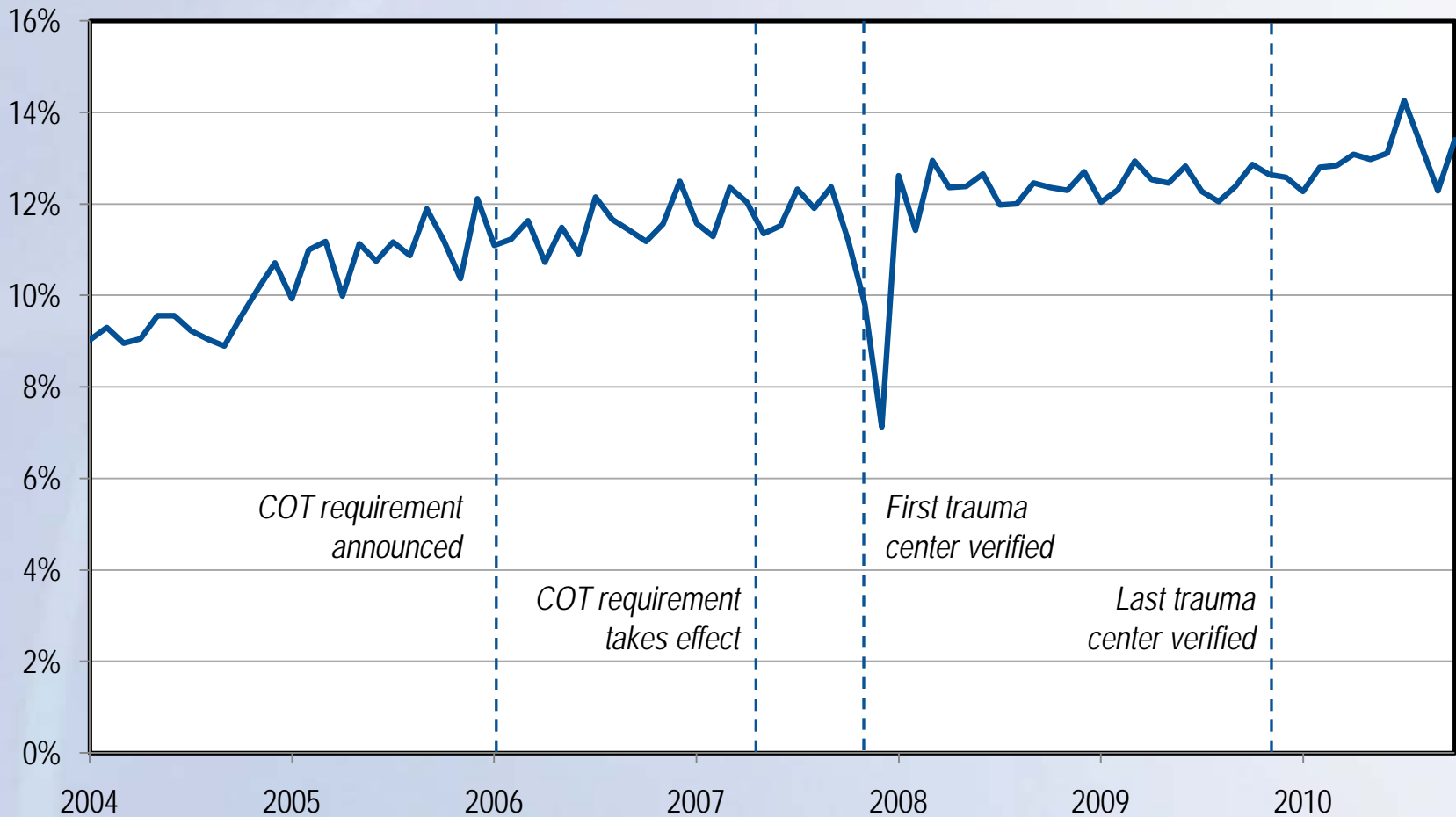


Cost per Admission, Pre/Post ACS-COT

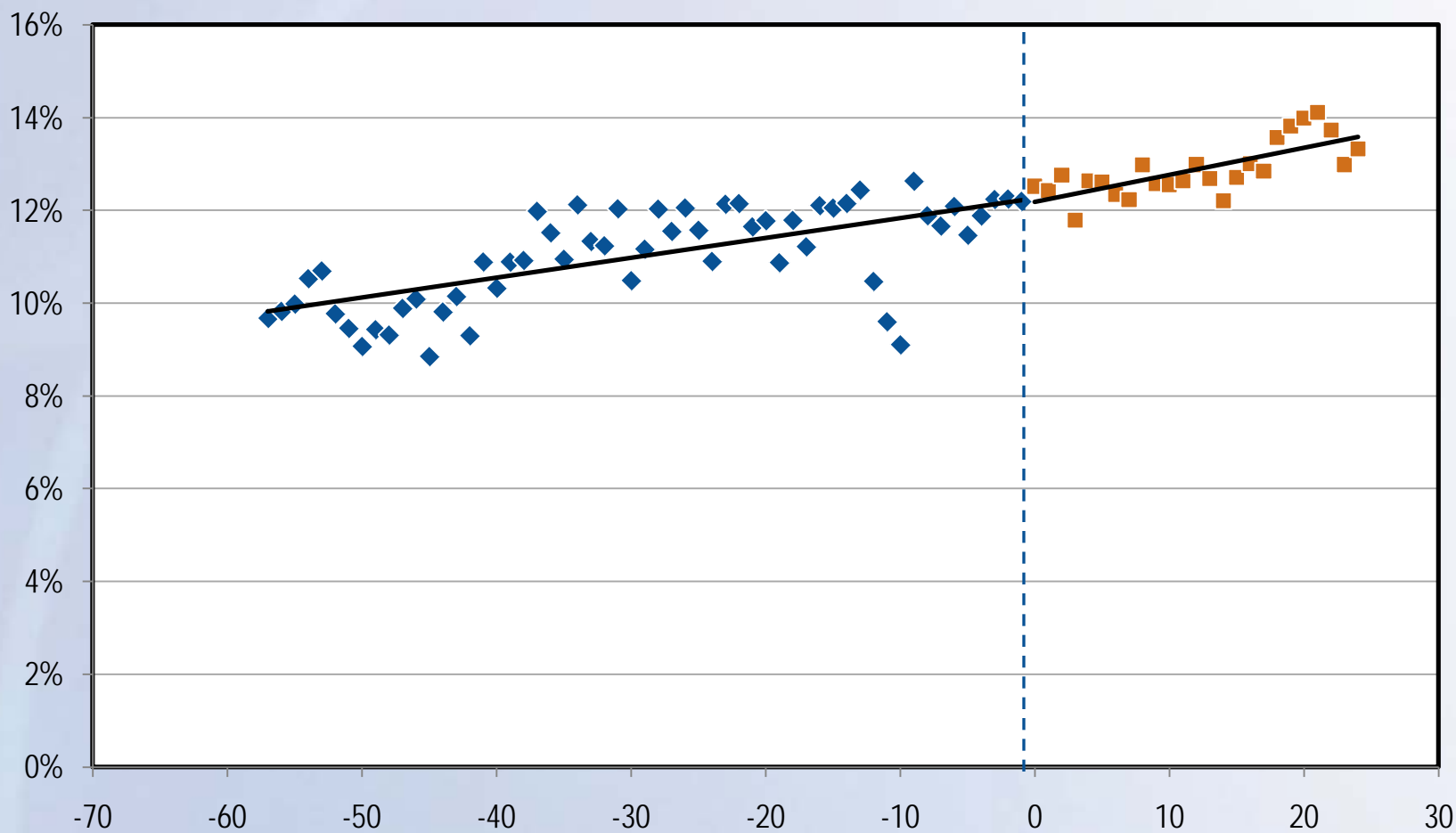


POST_TIME = -0.01, p=0.00

Monthly Readmission Rate, 2004–2010

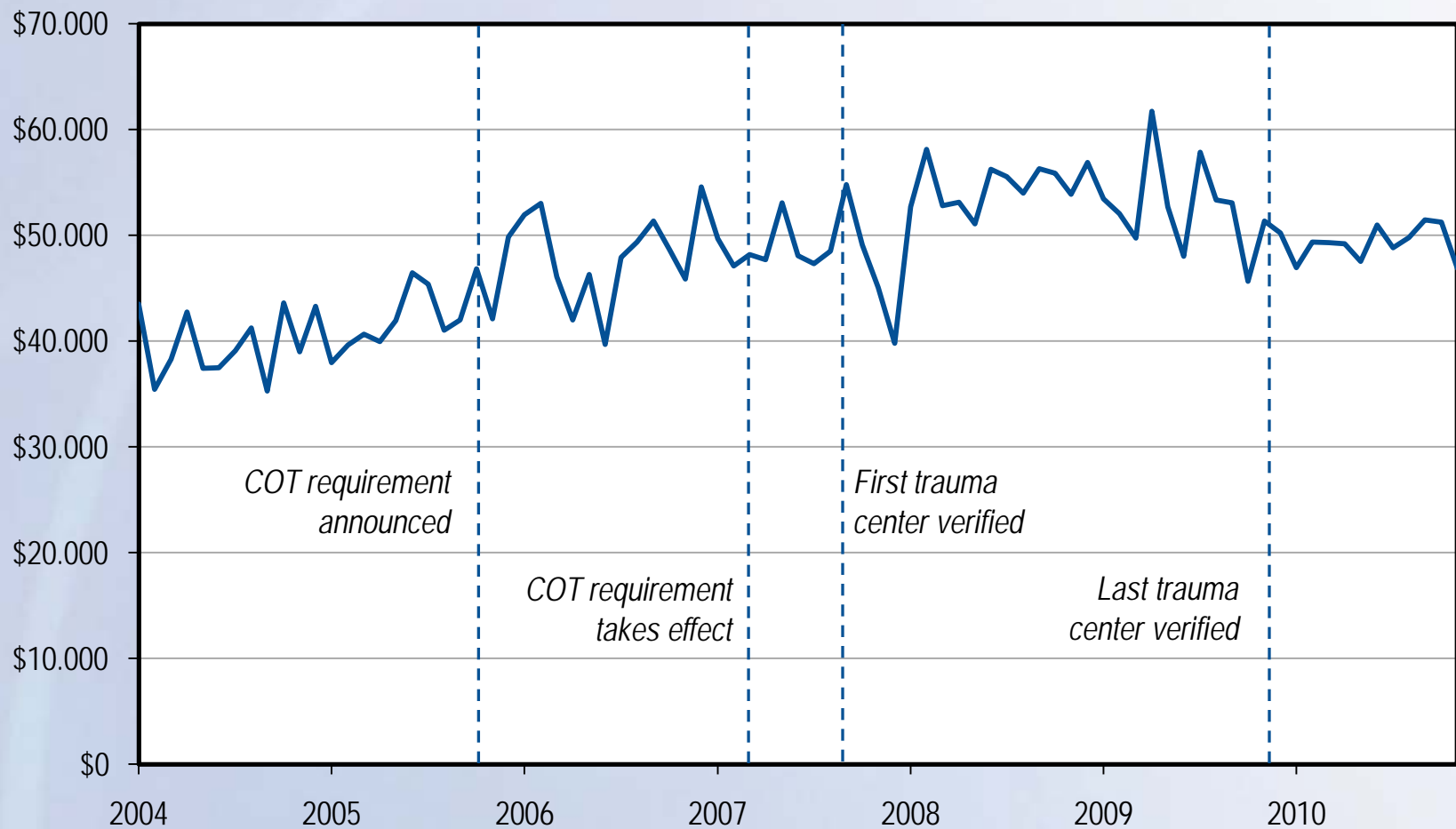


Readmission Rate, Pre/Post ACS-COT

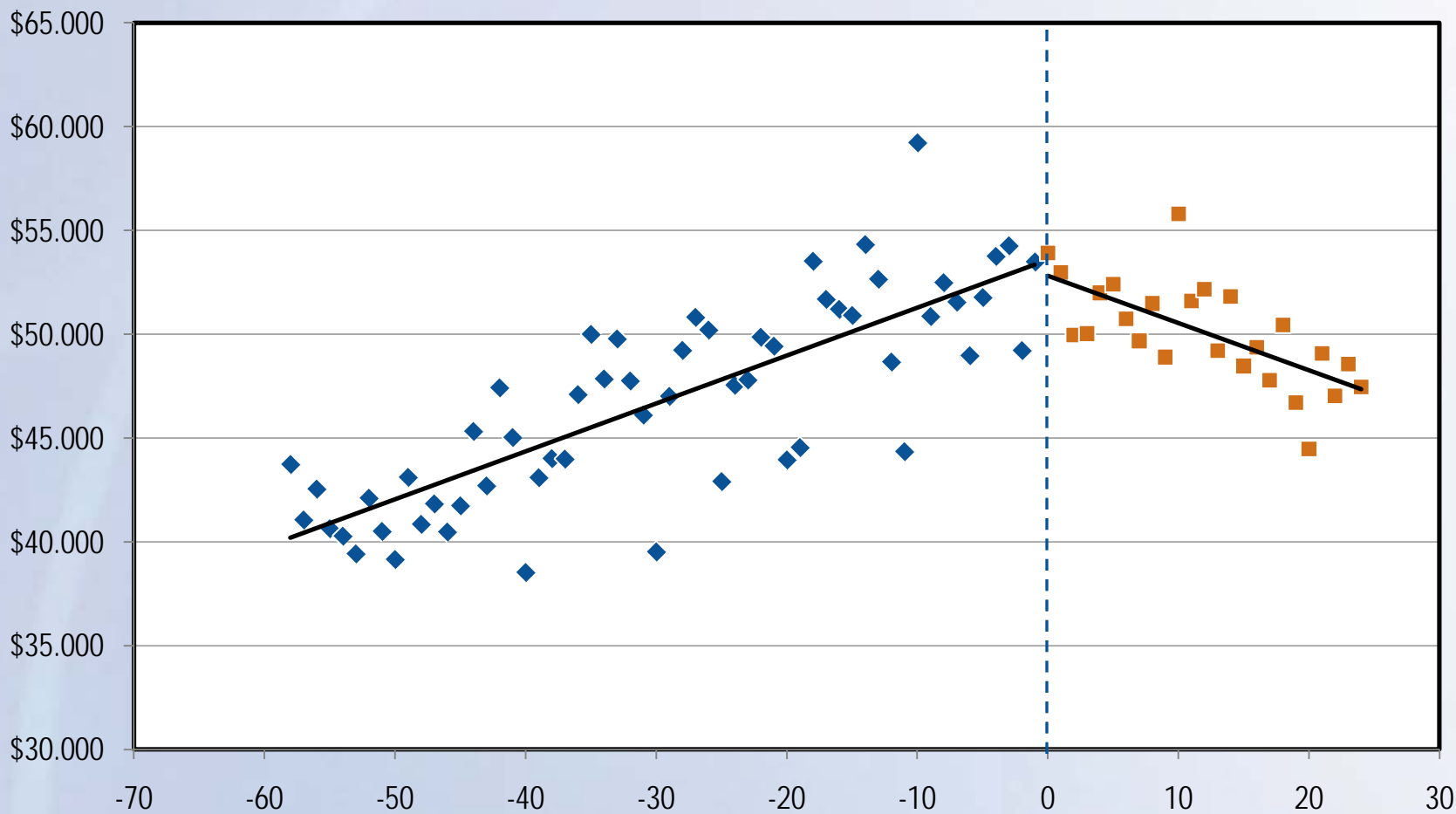


POST_TIME = -0.003, p=0.00

Monthly Cost per Readmission, 2004–2010



Cost per Readmission, Pre/Post ACS-COT



POST_TIME = -0.01, p=0.00

Discussion

- Potential cost savings from the ACS-COT SBI requirement in Arizona
 - Preliminary results suggest a statistically significant reduction in total costs, readmissions, and cost per readmission
- Limitations
 - Relatively weak definition of a readmission
 - Inability to track individuals across trauma centers
 - Unable to verify SBI program
- Next steps
 - Focus on readmissions with an alcohol-related diagnosis
 - Sensitivity analysis – increase/decrease readmission window
 - Expand to other states