THE EFFECTS OF MANDATORY SEAT BELT LAWS

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Goal

- This paper investigates the effects of mandatory seat belt laws on driver behavior and traffic fatalities.
- The seat belt usage rate data also allow for a direct investigation of the compensating-behavior theory. Drivers wearing seat belts feel more secure, they drive less carefully, leading to more traffic accidents.
- The compensating-behavior theory predicts positive correlation between seat belt usage and fatalities among nonoccupants (Peltzman,1975).
- During the observation period, all U.S. states except New Hampshire passed mandatory seat belt laws.

Data

- Panel of annual state-level variables for all U.S. jurisdictions—the 50 states and the District of Columbia. Period between 1983 and 1997.

Dependent variable

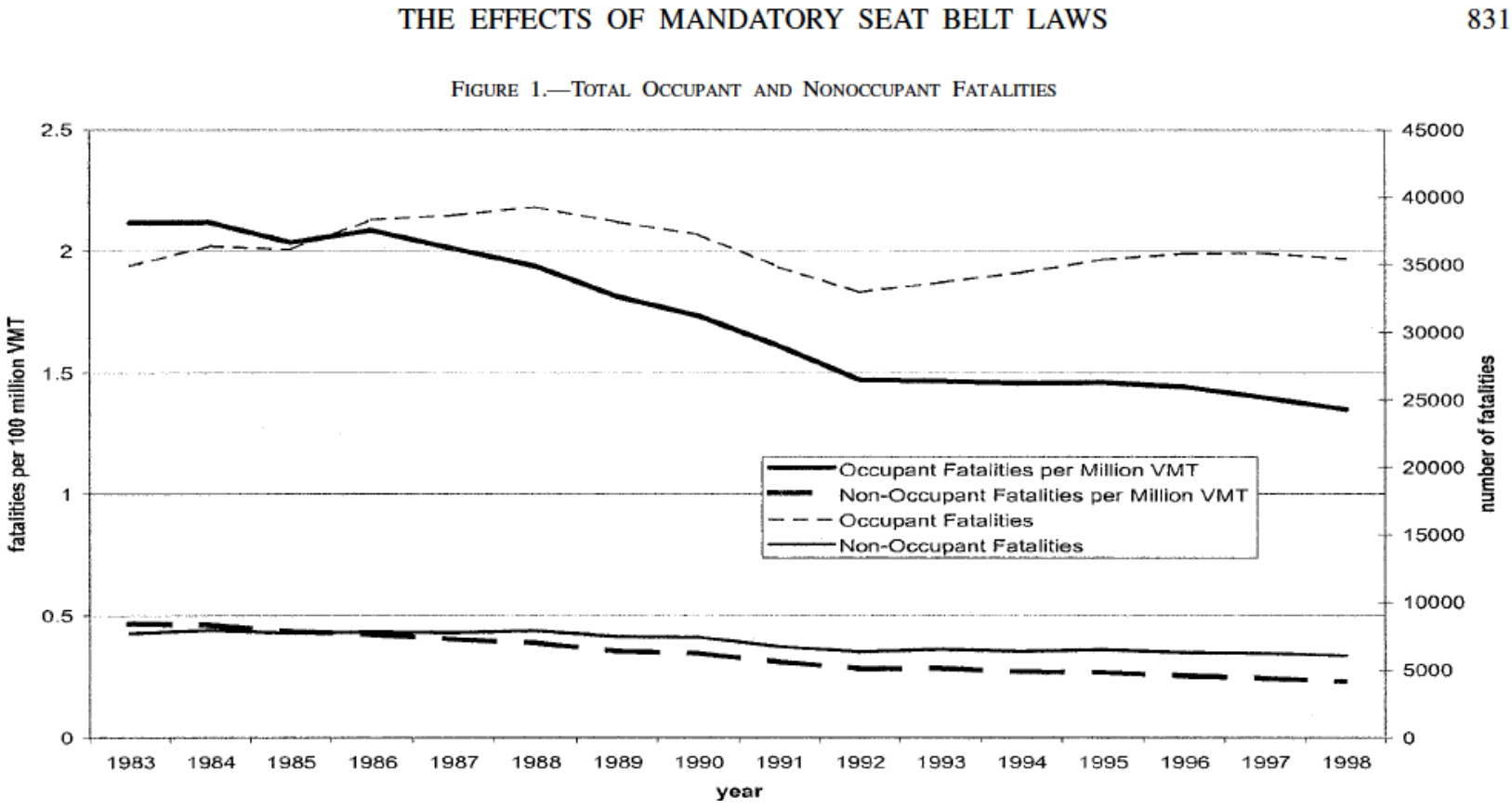

Figure: Effect of Mandatory Seat belt laws

Independent variable

- Data from the Highway Safety Of ce of each state and Data from the National Highway Traffic Safety Administration (NHTSA) are used to construct the average of seat belt usage.

Average of seat belt usage

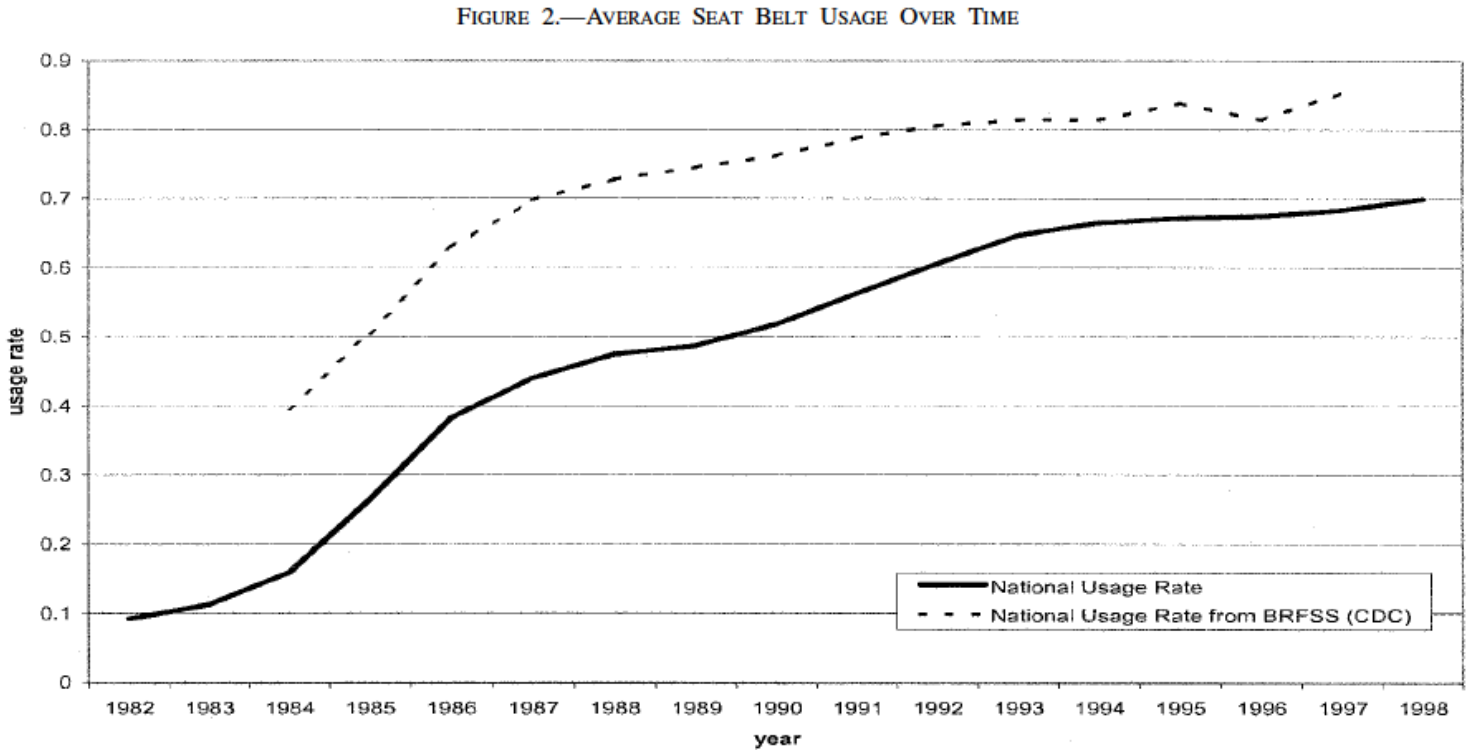

Figure: Effect of Mandatory Seat belt laws

Another variation

- Another variation comes from the fact that several states revised their laws, moving from secondary enforcement to primary enforcement

Empirical specification

$$fatality_{it} = \alpha + \rho_t + \theta_i + \beta * seatbelt + \gamma * X_{it} + \epsilon_{it}$$

- ρ_t : Year fixed effects. To control for any time-specific macro effects that shift the level of traffic fatalities for all states. Macro effects might involve technological changes that introduced safer cars or national campaigns that affected the behavior of drivers across the nation.
- θ_i : state fixed effects to capture any unobserved state characteristics that are fixed over time, such as population characteristics, general weather conditions, traf c conditions, and so forth.

Findings

- OLS regressions without controlling for state fixed effects are positive and significant, indicating that higher seat belt usage increases occupant fatalities.
- Once they control for state fixed effects the coefficient on usage changes its sign and becomes negative and statistically significant.

Concerns

- State fixed effects might not completely eliminate endogeneity problems.
- The inclusion of state fixed effects corrects only for that part of the endogeneity problem that arises from cross-sectional differences across states.
- States that experienced an increase in traffic fatalities might invest in promoting seat belt use. The usage variable is still likely to be positively correlated with the error term, and hence to be biased upwards.

Second approach

- Using the dummies of mandatory seat belt law and type of enforcements, seatbelt usage is instrumentalized.
- Still, a concern might remain with respect to the possible endogeneity of the mandatory seat belt laws. However the endogeneity of the lwas is less serious than in a cross section. Why?