

Using State Data to Assess the Influence of Child Safety Campaigns

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Research Question:

Were the child safety campaigns of the mid-1990s effective in moving children from the front seat to the back seat?

NHTSA Report Using State Data

- John Kindelberger and Marc Starnes.
“Moving Children from the Front Seat to the Back Seat: The Influence of Child Safety Campaigns” NHTSA Research Note, DOT 809 698, November 2003.

Why Choose State Data?

- Fatality Analysis Reporting System only collects data from fatal crashes
- National Occupant Protection Use Survey
 - not segmented by # of vehicle occupants or air bag presence
 - did not record seat position by age until 2002
- NASS General Estimates System data is a sample of police reported crashes
- State Data System (SDS) records data from all police reported crashes in the participating states

Main Variables

- Seating Position
 - front seat, back seat
- Passenger Air Bag (PAB)
 - in vehicle, not in vehicle
- Age of Child
 - 0-3, 4-7, 8-12 years old
- Year
 - 1995 through 2001

State Selection Criteria

- State must collect data on all vehicle occupants, both injured and uninjured
- State must record the Vehicle Identification Number (VIN)
 - To identify vehicle body type
 - To determine if passenger air bag exists in vehicle
- State data must be available for 1995 through 2001

States Selected for Report

- Three states met selection criteria
 - Maryland
 - Utah
 - Florida

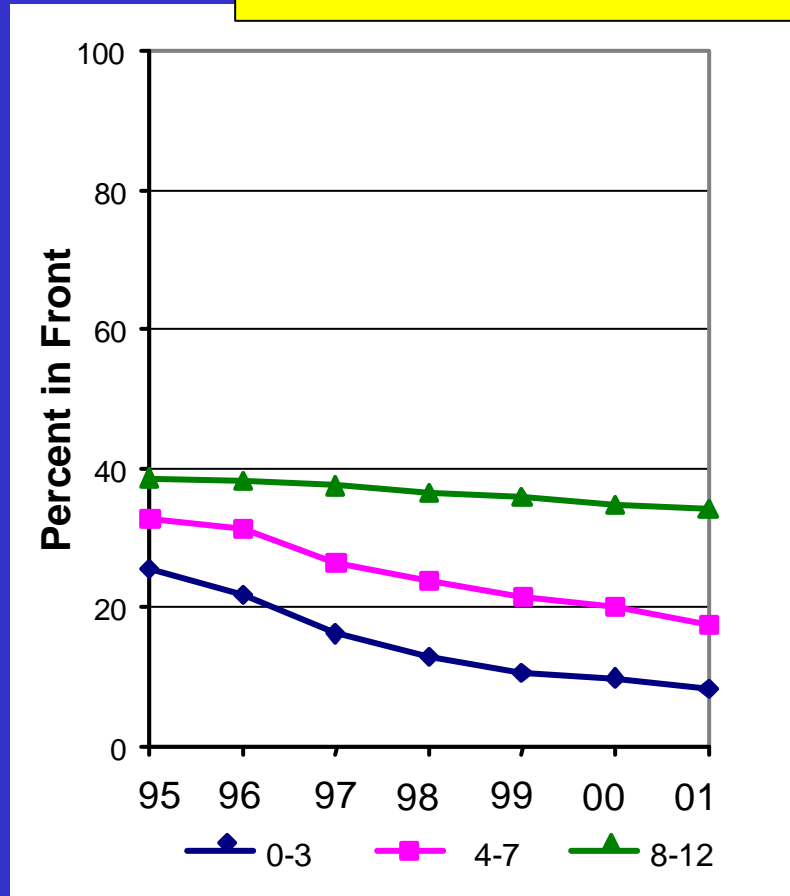
Case Selection Criteria

- Vehicle must have front and back seat
 - Pickups, two-seater sports cars, buses, large trucks were excluded
- Child passengers must be age 12 and under
- “Pair-populated” vehicles were the focus of the report
 - Exactly one adult
 - Exactly one child

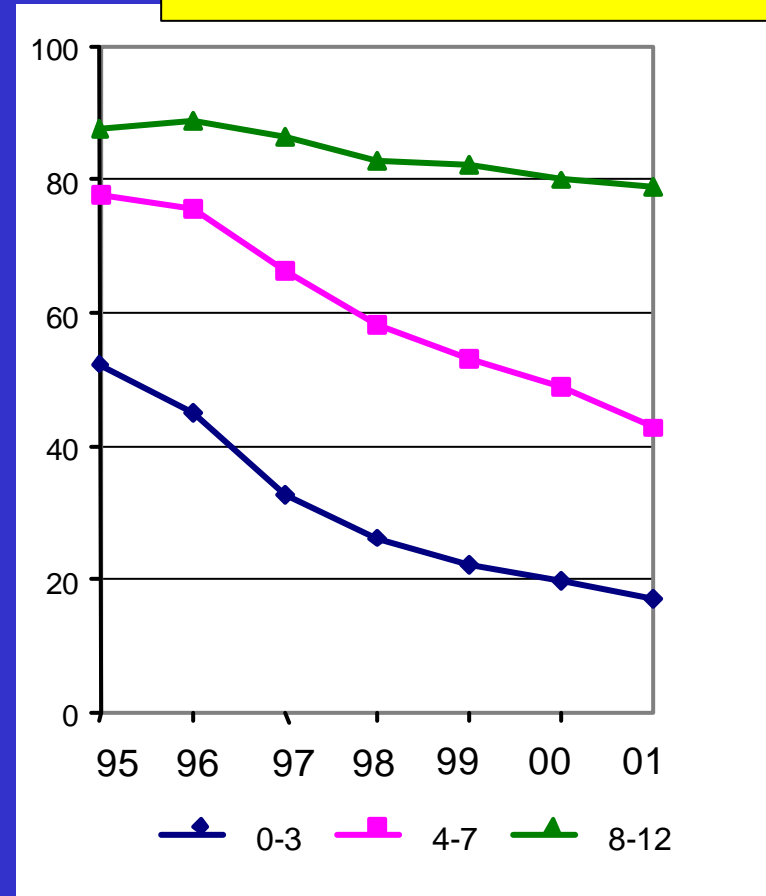
- Examine vehicles where driver was not limited in choosing the seat position of the one child passenger
- Vehicles with two occupants
 - Driver
 - One child passenger

Percent of Children in Front Seat

All children

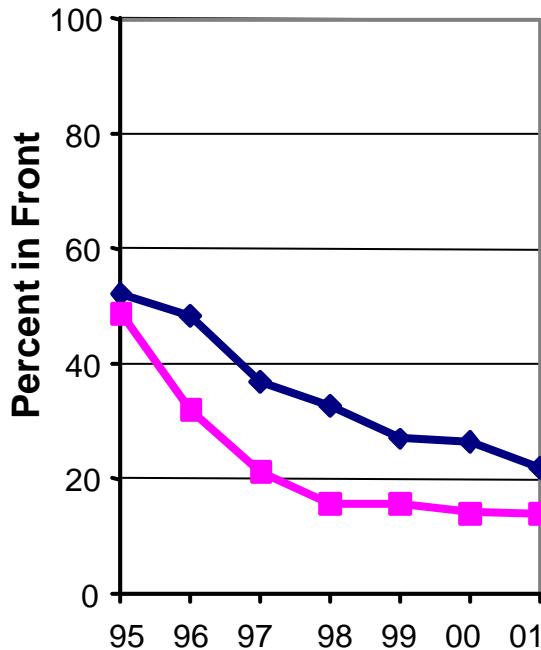


Vehicles with one child

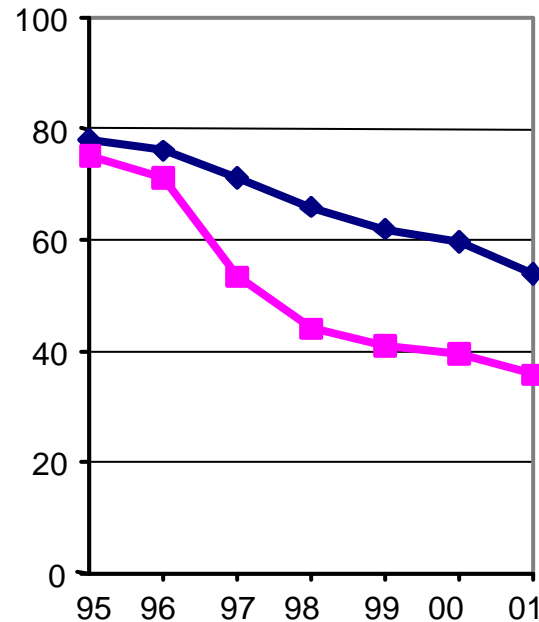


Percent of Children in Front Seat— Vehicles With or Without Passenger Air Bags (PAB)

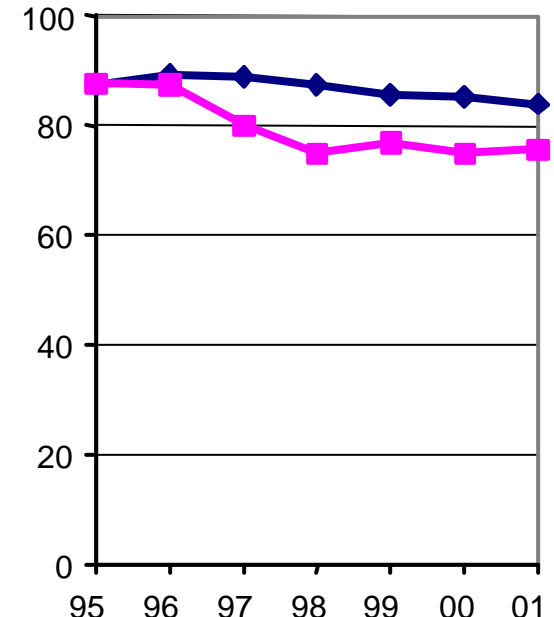
Age 0-3



Age 4-7



Age 8-12



—◆— No PAB —■— PAB

Data Issues

- Use of police crash reports
 - Police crash report data approaches representing the overall driving population, by including all property damage only crashes
 - Crash population not necessarily the same as the overall population

Data Issues (cont.)

- Some States do not record VINs
 - VINs needed to correct coding errors
 - Over 10 percent of vehicles were coded with a body type that did not match the VIN body type
 - VINs needed to remove pickups from study
 - Some states aggregate pickups, SUVs, and vans into one vehicle body type category
 - VINs needed to locate passenger air bags

Data Issues (cont.)

- 6 of the 17 possible states do not collect any data on uninjured occupants
 - These states not included in report in order to prevent seat position data from being skewed

Data Issues (cont.)

- Categorization of Age Variable
 - Many states officially have age = 0 as their unknown age
 - Several states unofficially use age = 0 as unknown age, according to state reps
 - More people of age = 0 than any other age
 - Some states do not code the age of infants
 - Children of age < 1 are coded as age = 1
 - Passenger date of birth not available

Data Issues (cont.)

- Many of these age = 0 coding methods varied greatly from year to year within a given state
- Examples from two states
 - Ratio of number of children of age = 0 vs age = 1
 - 5 in 1997-99, 15 in 2000, 35 in 2001
 - 16 in 1997-99, 1 in 2000, 0.15 in 2001

Data Issues (cont.)

- Receipt of raw State data files may be significantly delayed
 - Due to new police crash report
 - Due to change in State Computer System (hardware or software)

Conclusions

- State data can be a source of valuable information toward traffic safety research
- Aggregating State data can be difficult
 - Heterogeneity of State data across states
 - Inconsistency in State data over time
- Model Minimum Uniform Crash Criteria (MMUCC) helps states collect consistent, reliable crash data