

Presented at TRB Young Driver Subcommittee

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Naturalistic Teenage Driving Study [40- Car Study]

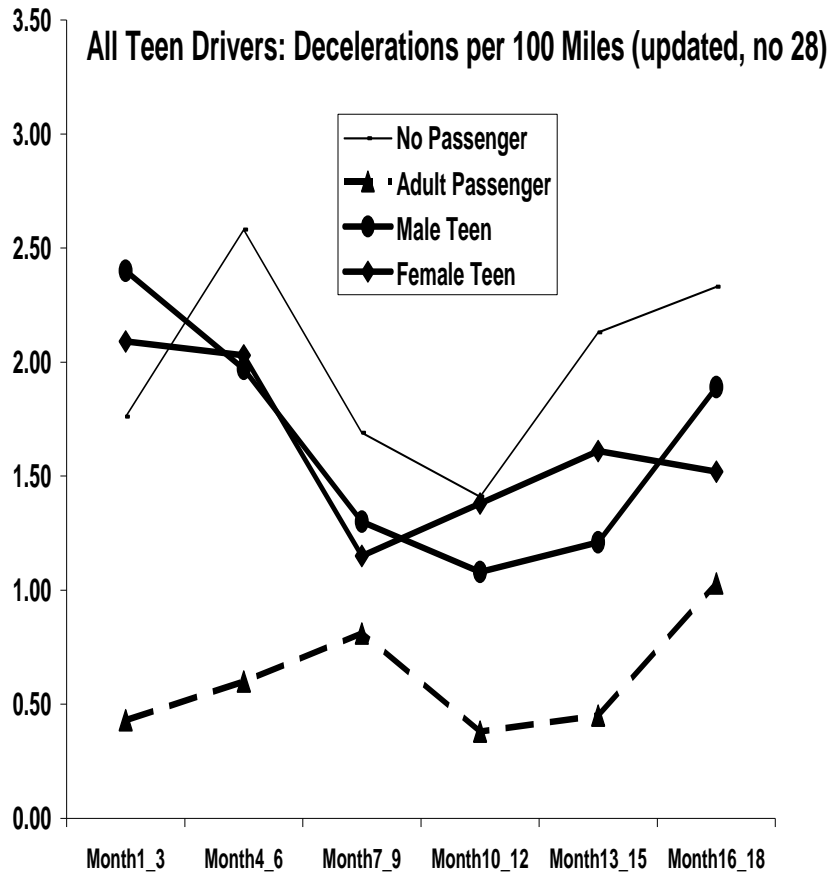
Purpose: Examine patterns of performance and risk over time by passenger, night, and other driving conditions

Design: Volunteer sample of teens and parents; vehicles instrumented with VTTI technology; followed 0-18 months of licensure

Workshop Presentation: Kinematic Analyses (in progress)

- Longitudinal deceleration
- Longitudinal acceleration
- Yaw
- Composite measure of kinematic risk

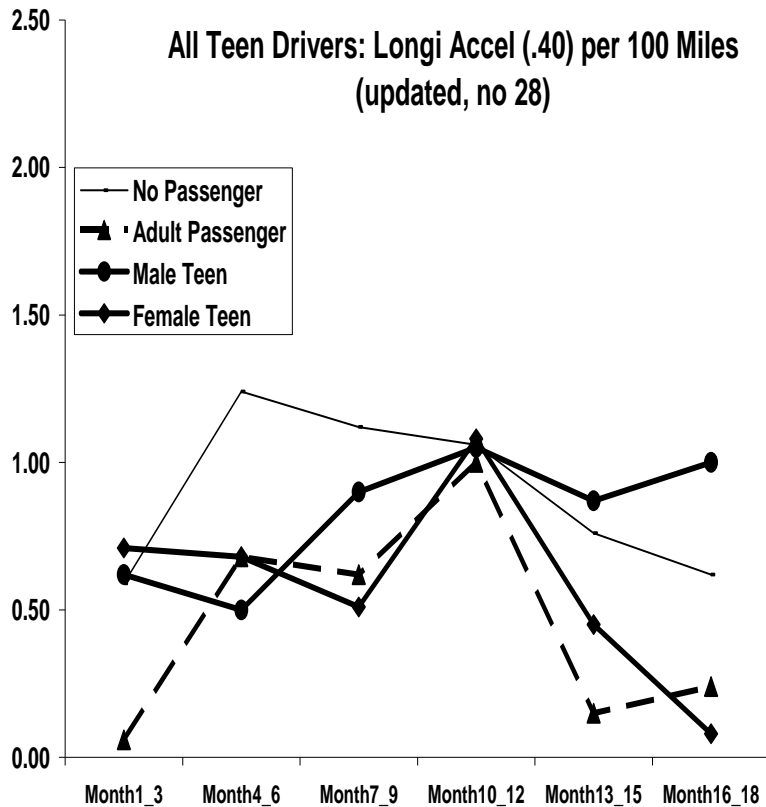
Longitudinal Decelerations/100 mi (-0.45 g)



Negative Binomial Regression

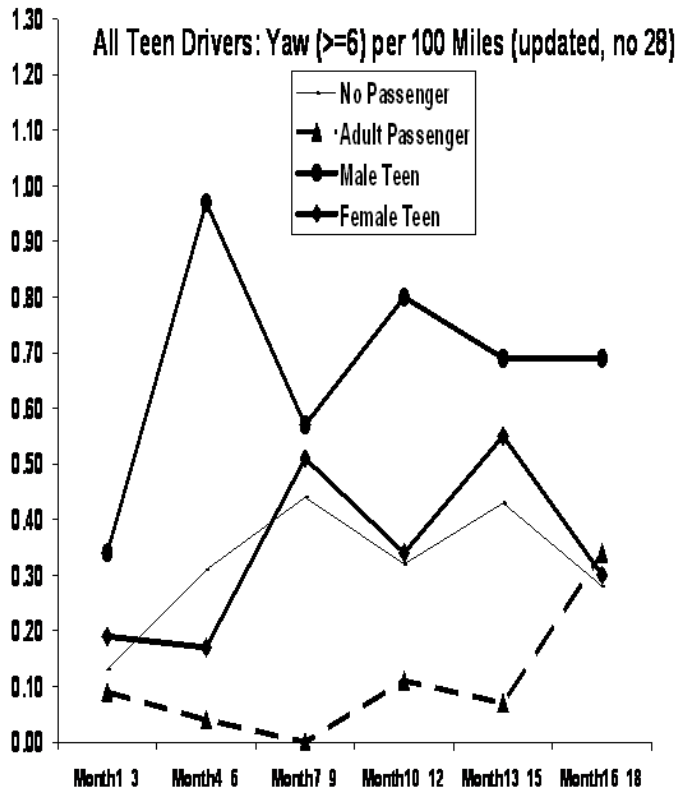
Teen Drivers RR	Month 1-18
<i>No Passenger</i>	<i>1.00</i>
Adult Pass	0.28(0.23-0.34)
Teen Pass	0.81(0.75-0.87)
- Male teen	0.80(0.73-0.87)
- Female teen	0.82(0.74-0.91)

Longitudinal Accelerations/100 Miles (0.40 g)



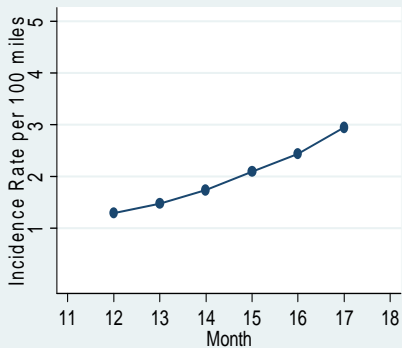
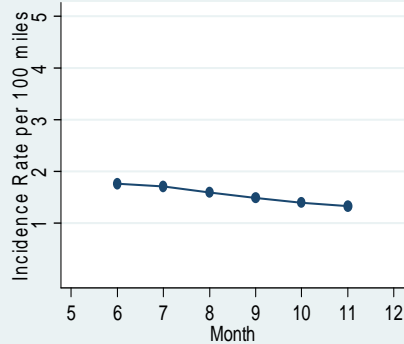
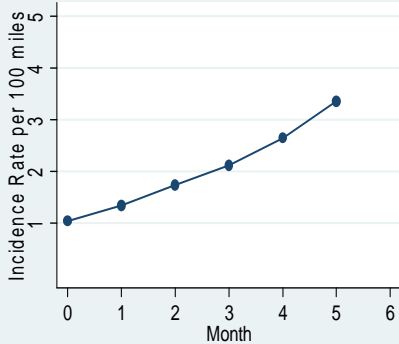
Negative Binomial Regression	
Teen Drivers	Month1-18
RR	
<i>No Pass</i>	<i>1.00</i>
Adult Pass	0.46(0.36-0.59)
Teen Pass	0.81(0.73-0.90)
-Male	0.93(0.82-1.05)
-Female	0.65(0.55-0.77)

Yaw Events/100 Miles ($\geq .6$ g)



Negative Binomial Regression	
Teen Drivers	Month 1-18
<i>No Passenger</i>	<i>1.00</i>
Adult Passenger	0.31(0.19-0.51)
Teen Passenger	1.62(1.41-1.87)
- Male teen	2.05(1.76-2.38)
- Female teen	1.05(0.84-1.32)

Kinematic Risk Index Events/100 miles



Negative binomial regression			
	0 – 5 mo	6 – 11 mo	12 – 17 mo
Day-Night	0.770 ^{***}	0.789 ^{**}	0.616 ^{***}
Month	1.231 ^{***}	0.940 ^{**}	1.184 ^{***}
Adult Pass	0.213 ^{***}	0.217 ^{***}	0.204 ^{***}
Teen pass - female	0.805 [*]	0.620 ^{***}	0.616 ^{***}
Teen Pass - male	0.719 ^{***}	0.692 ^{***}	0.591 ^{***}
Driver gender	2.270 ^{***}	0.470 ^{**}	0.842

Discussion

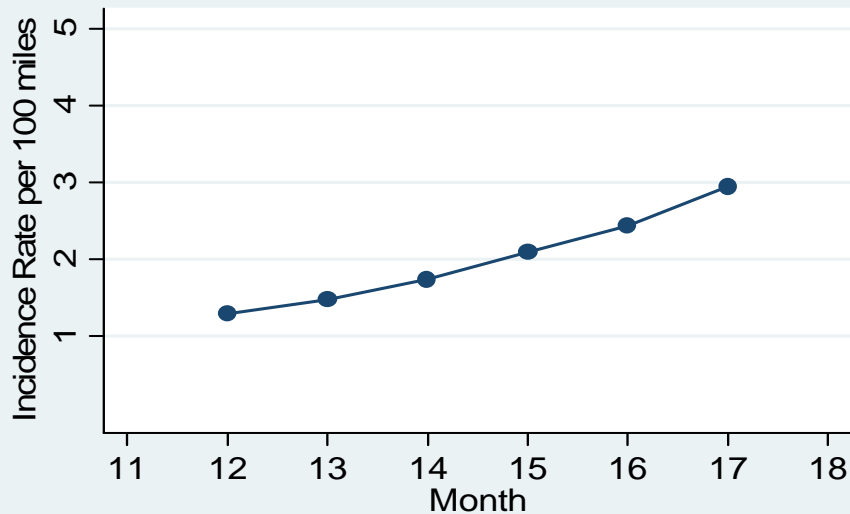
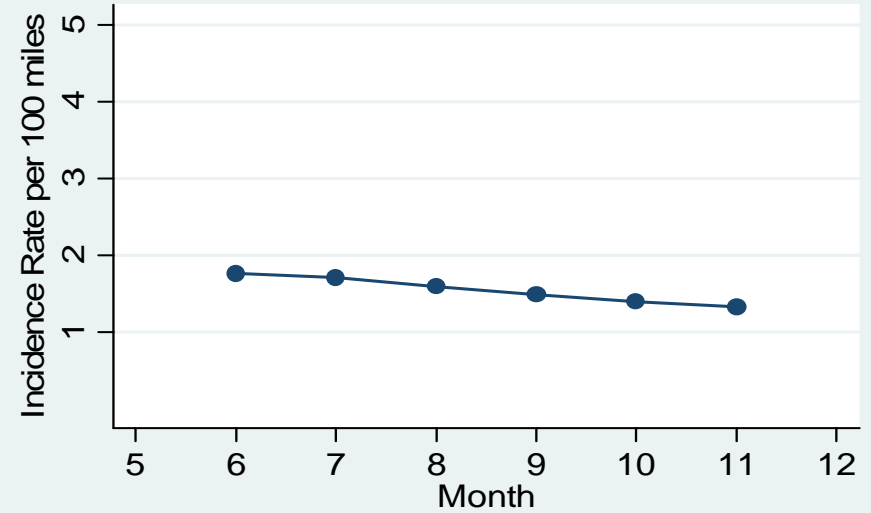
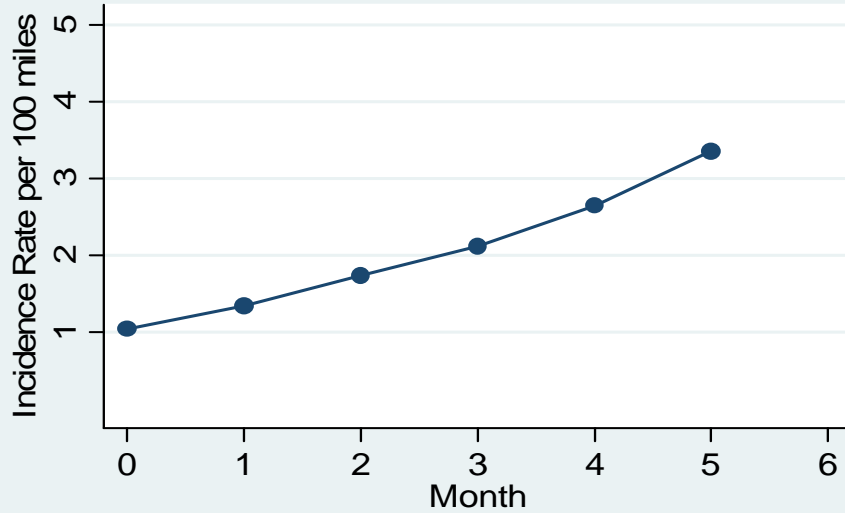
- Sorting out risk and performance:
 - Lower g force events consistent w/ performance?
 - Higher g force events consistent w/ risk?
 - Risk index
- Patterns over time:
 - < consistent w/ learning; > Increases w/ risk, confidence?
 - Variation over 6 mo. periods
- Passenger effects (generally protective):
 - Does parent pass effect indicate safe driving capability?
 - Teen passenger effects:
 - Why not consistently negative?
 - What is the nature of this social influence?

Thank you

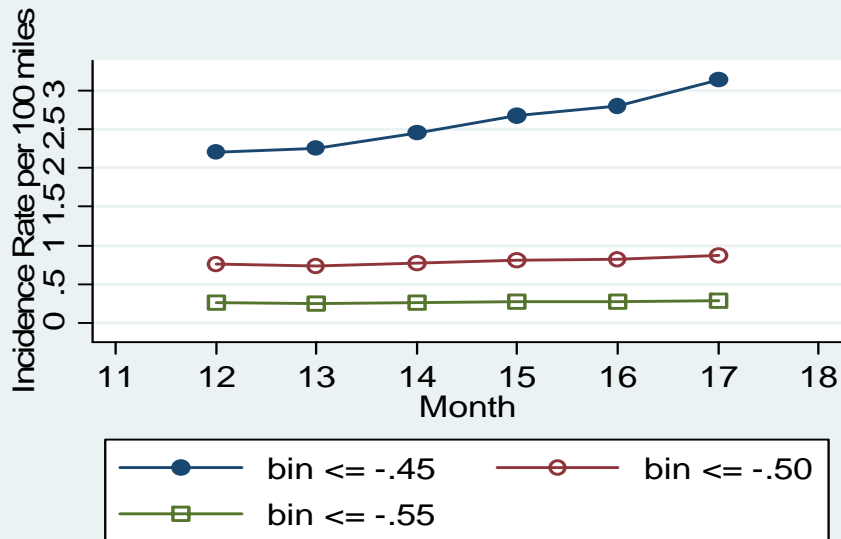
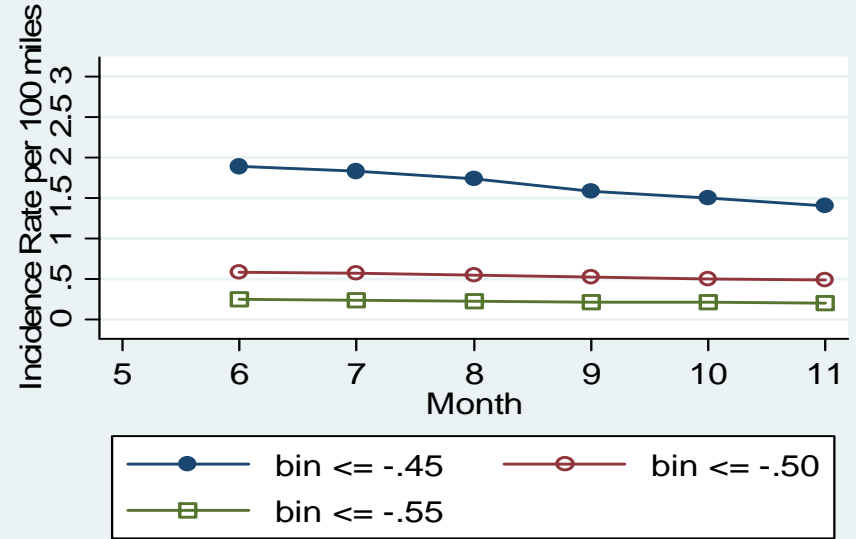
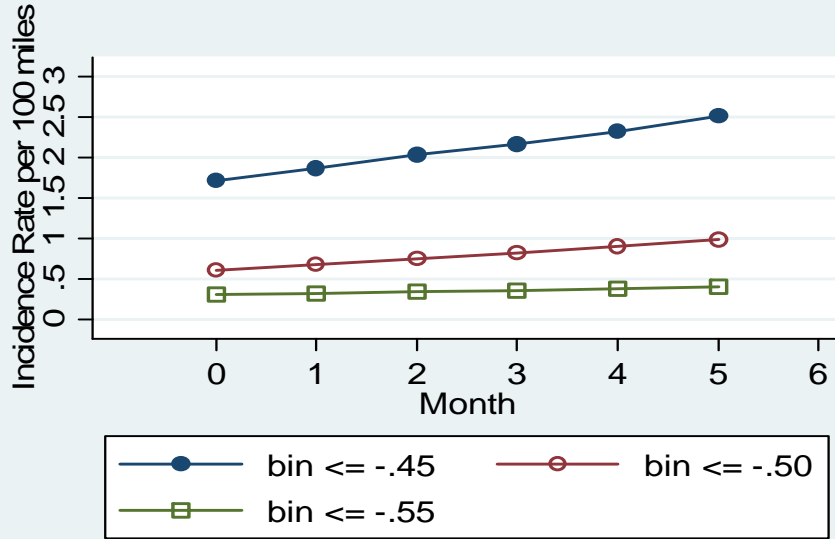


Projected Trajectories

Kinematic Risk Index Events/100 miles



Projected Trajectories Decelerations/100 miles



Projected Trajectories Accelerations/100 miles

