500 drivers case study

Miao Cai miao.cai@slu.edu

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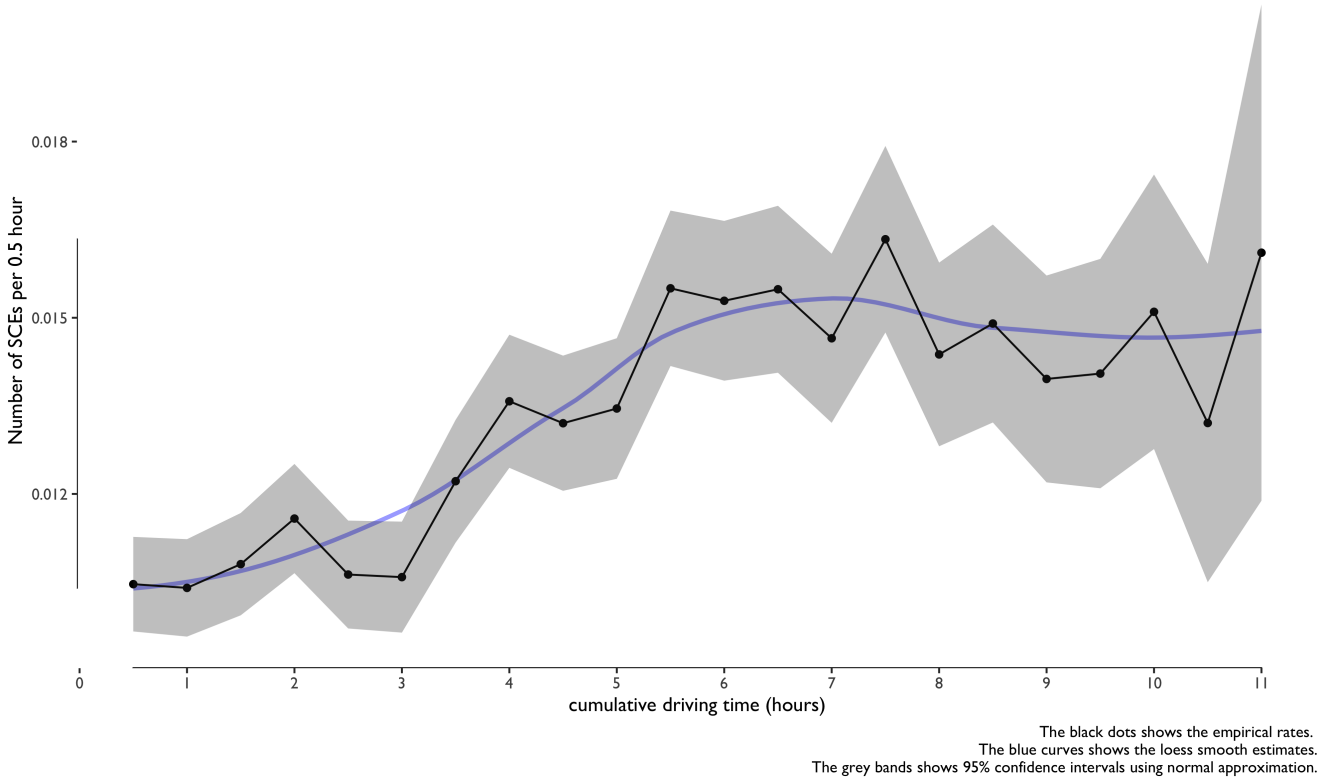

Figure 1: The rate of safety critical events and cumulative driving time

Table 1: Logistic regression and negative binomial regression models

	Dependent variable:	
	At least one SCE occurred or not	The number of SCEs in the interval
	logistic	*negative binomial*
	(1)	(2)
cumdrive	−0.005	−0.004
	(0.004)	(0.004)
speed_mean	−0.0002	−0.0003
	(0.001)	(0.001)
speed_sd	0.020***	0.017***
	(0.001)	(0.001)
age	−0.010***	−0.016***
	(0.001)	(0.001)
raceBlack	−0.055**	−0.124***
	(0.025)	(0.026)
raceOther	0.238***	0.145***
	(0.042)	(0.046)
genderM	0.288***	0.348***
	(0.050)	(0.053)
genderU	0.064	0.061
	(0.341)	(0.380)
prep_inten	0.519	0.418
	(0.663)	(0.704)
prep_prob	−0.175**	−0.164**
	(0.072)	(0.075)
wind_speed	−0.011***	−0.013***
	(0.004)	(0.004)
visibility	−0.029***	−0.043***
	(0.005)	(0.005)
interval_time	0.015***	
	(0.002)	
Constant	−4.979***	−7.333***
	(0.105)	(0.097)
Observations	1,019,482	1,019,482
Log Likelihood	-46,303.850	-49,627.630
θ		0.036*** (0.001)
Akaike Inf. Crit.	92,635.690	99,281.260
Note:		*p<0.1; **p<0.05; ***p<0.01

Table 2: Hierarchical logistic regression and negative binomial regression models with random intercepts and random slopes on cumulative driving time for each driver

	Dependent variable:	
	At least one SCE occurred or not	The number of SCEs in the interval
	(1)	(2)
cumdrive	−0.010	−0.008
	(0.006)	(0.007)
speed_mean	0.003***	0.001
	(0.001)	(0.001)
speed_sd	0.023***	0.020***
	(0.001)	(0.001)
age	−0.006	−0.007
	(0.004)	(0.004)
raceBlack	0.091	0.093
	(0.105)	(0.108)
raceOther	0.369**	0.347*
	(0.179)	(0.186)
prep_inten	0.997	0.961
	(0.670)	(0.662)
prep_prob	−0.024	0.059
	(0.074)	(0.073)
wind_speed	−0.023***	−0.024***
	(0.004)	(0.004)
visibility	0.011**	0.010*
	(0.006)	(0.006)
interval_time	0.017***	
	(0.002)	
Constant	−5.819***	−8.466***
	(0.235)	(0.237)
Observations	1,019,482	1,019,482
Log Likelihood	-43,042.570	-45,961.190
Akaike Inf. Crit.	86,115.150	91,952.390
Bayesian Inf. Crit.	86,292.670	92,129.910
Note:		*p<0.1; **p<0.05; ***p<0.01