

ROAD FATALITIES IN THE US

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ENAC

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SUMMARY

- 1) Study Definition
- 2) Scatter Plots
- 3) Regression Model
- 4) Conclusion

Study Definition

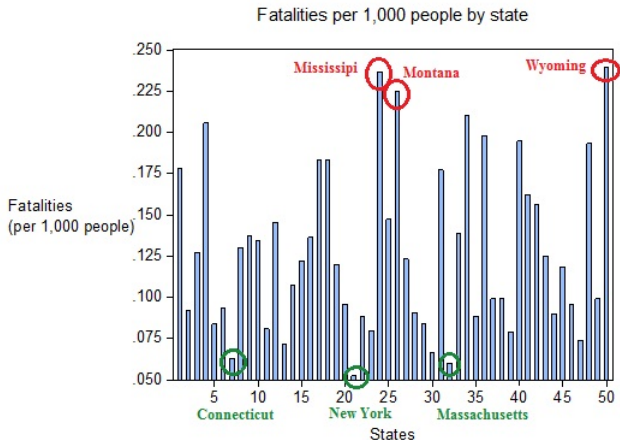
The purpose of our study is to analyse the factors that influenced the fatalities in 2009 in the United States.

Explanatory Variables:

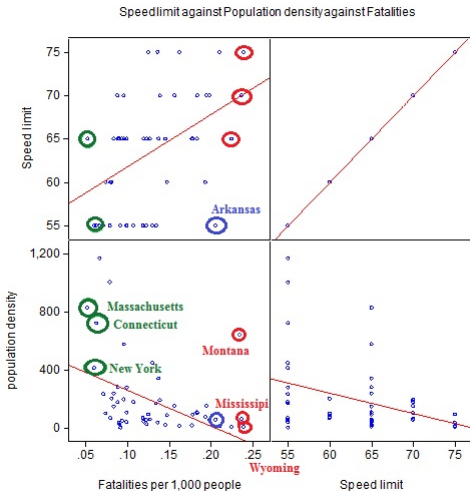
- Drivers under the influence of alcohol
- Gross state product
- Number of law enforcement employees (per 1,000 people)
- Percentage of urbanized area
- Population density
- Precipitation (mm)
- Speed limit (Mph)
- Sex ratio
- Average temperature
- Unemployment rate (per 1,000 people)
- Number of vehicles (per 1,000 people)

Study Definition

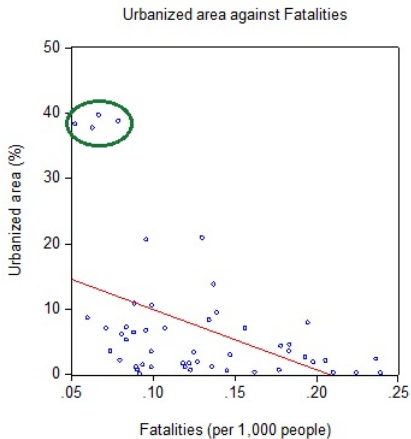
Interest of study - Number of fatalities per 1,000 people



Scatter Plots



Scatter Plots



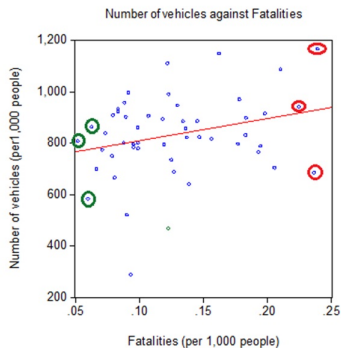
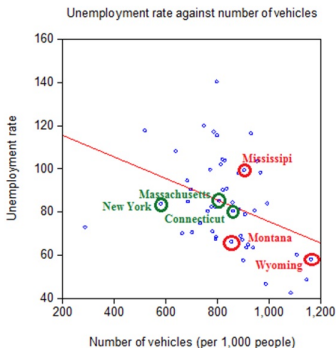
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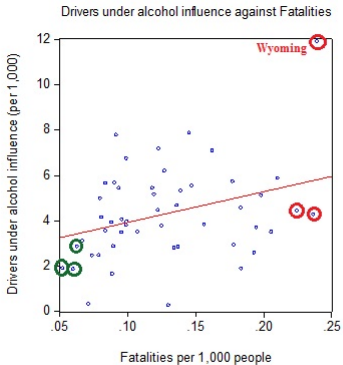
Scatter Plots



Scatter Plots



Scatter Plots



Regression Model

$$F_{P1} = \beta_1.A_I + \beta_2.LEE_P + \beta_3.P_{UR} + \beta_4.SL + \beta_5.SR + \beta_6.T + \beta_7.GSP + \beta_8.RN + \beta_9.UR + \beta_{10}.VR_P + \beta_{11}.PD + \beta_{12}$$

Regression Model

$$F_{P1} = 0.555.A_I + 1.607.LEEP - 0.114 * P_{UR} + 0.137 * SL - 0.361 * SR + 0.314 * T - 0.0057 * GSP + 0.00094 * RN - 0.00064 * UR + 0.0084 * VR_P - 0.0035 * PD + 23.59$$

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Regression Model

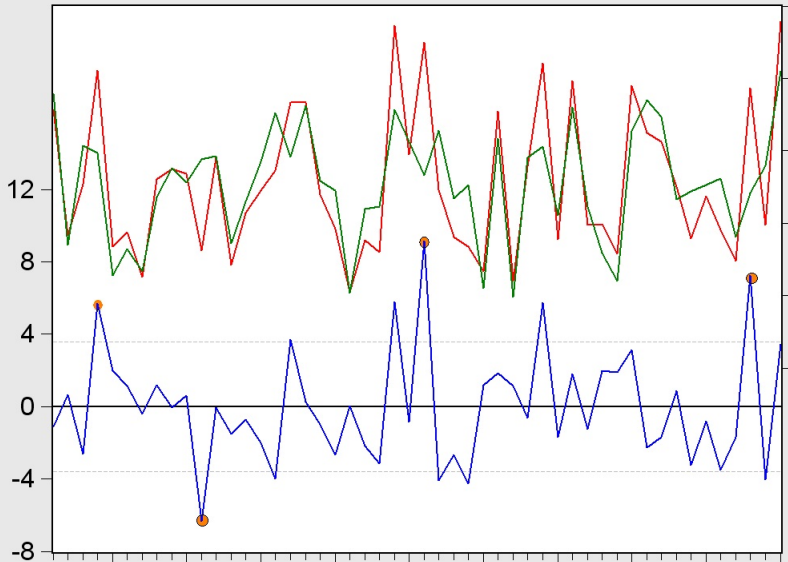
Dependent Variable: F_P1
 Method: Least Squares
 Date: 01/15/13 Time: 17:51
 Sample: 1 50
 Included observations: 50

	Coefficient	Std. Error	t-Statistic	Prob.
A_I	0.555313	0.375800	1.477683	0.1477
LEE_P	1.608787	1.121407	1.434615	0.1596
P_UR	-0.114618	0.255363	-0.448845	0.6561
SL	0.137898	0.098418	1.401141	0.1693
SR	-0.361095	0.303029	-1.191619	0.2408
T	0.314630	0.168427	1.868050	0.0695
GSP	-0.005788	0.001976	-2.929246	0.0057
RN	0.000941	0.002328	0.404271	0.6883
UR	-0.000642	0.028972	-0.022165	0.9824
VR_P	0.008414	0.003922	2.145406	0.0384
PD	-0.003519	0.010772	-0.326658	0.7457
C	23.59993	32.17073	0.733584	0.4677
R-squared	0.604127	Mean dependent var	12.76000	
Adjusted R-squared	0.489532	S.D. dependent var	5.015739	
S.E. of regression	3.583598	Akaike info criterion	5.596175	
Sum squared resid	488.0026	Schwarz criterion	6.055060	
Log likelihood	-127.9044	Hannan-Quinn criter.	5.770921	
F-statistic	5.271848	Durbin-Watson stat	2.439263	
Prob(F-statistic)	0.000054			

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Regression Model



Conclusion

Of our model data

Road Fatalities increases with increase in the following

- the speed limit
- the number of vehicles
- the number of drivers under alcohol influence

Urbanization has an impact on Road Traffic fatalities only when the value is high.

Conclusion

Other explanatory variables

- Daylight
- Road infrastructure
- Emergency efficiency
- Snow and icing condition
- Terrain

THANK YOU FOR YOUR ATTENTION