

Primary Investigative Question: Is the quantity of Fatal Police Shootings in each State correlated with State: demographics, gun statistics, or crime statistics?

Theoretical Foundation



Michael Brown Eric Garner



II



Ferguson, MO, Black Lives Matter

Washington Post Police Shootings Database (Information about Response)

- 2015-current
- Tracks Fatal Police Shootings (FPS)
- Incidences not tracked:
 - People already in police custody
 - People shot by off-duty police officers
- Tracks
 - Information about the victim
 - Gender
 - Race/Ethnicity
 - Age
 - Signs of Mental Illness
 - Circumstances about the Shooting
 - State & State
 - Victim's Weaponry
 - Officer Body Camera
 - If/how victim was fleeing
 - If Officer of record for Death was ID'd

Covariate Transformation

First Regression: FPS~StatePopulation

Coefficients:				
	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	2.152e+00	7.470e+00	0.288	0.775
StatePop	7.855e-06	8.234e-07	9.539	9.41e-13 ***

Second Regression: StatePopulation~Other Variables

Coefficients:					
	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	-41689048	1237473048	-0.034	0.9733	
Poverty	209405	636037	0.329	0.7438	
HS	-1016436	498204	-2.040	0.0483	
White	923323	12024353	0.077	0.9392	
Black	685254	12028884	0.057	0.9549	
Asian	2988880	12156487	0.246	0.8071	
NativeAmerican	972583	12033518	0.081	0.9360	
Hispanic	879370	195223	4.504	6.16e-05	
Other	-1716834	11792735	-0.146	0.8850	
NumMurders	95700	669391	0.143	0.8871	
GunOwners	-9382411	17613716	-0.533	0.5974	
Under45	688577	351101	1.961	0.0572	
PercMale	96289	729611	0.132	0.8957	

$$\text{totalFPS}_i' = |\text{totalFPS}_i - \text{StatePop}_i|$$

TRENDS IN FATAL POLICE SHOOTINGS SINCE 2015

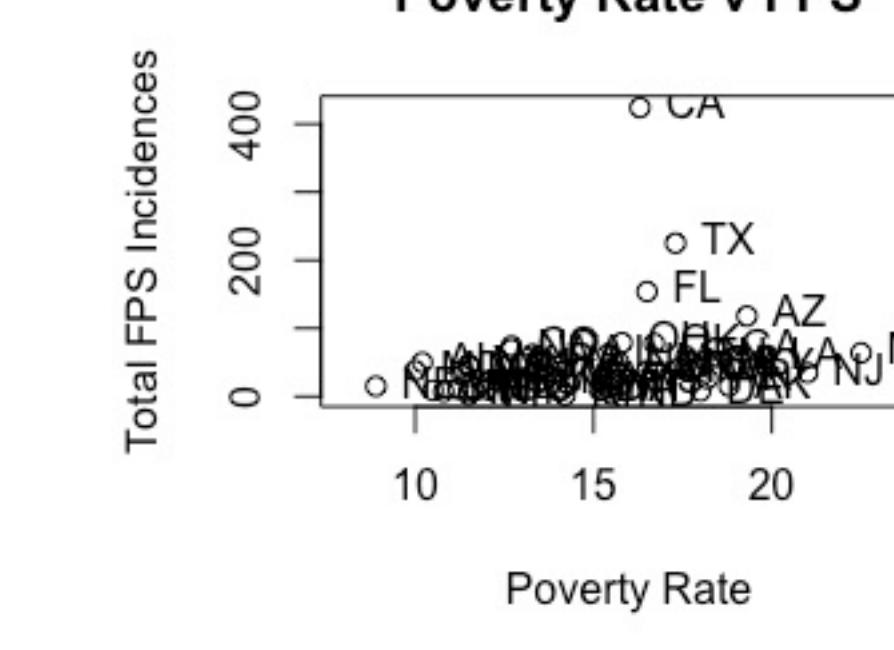
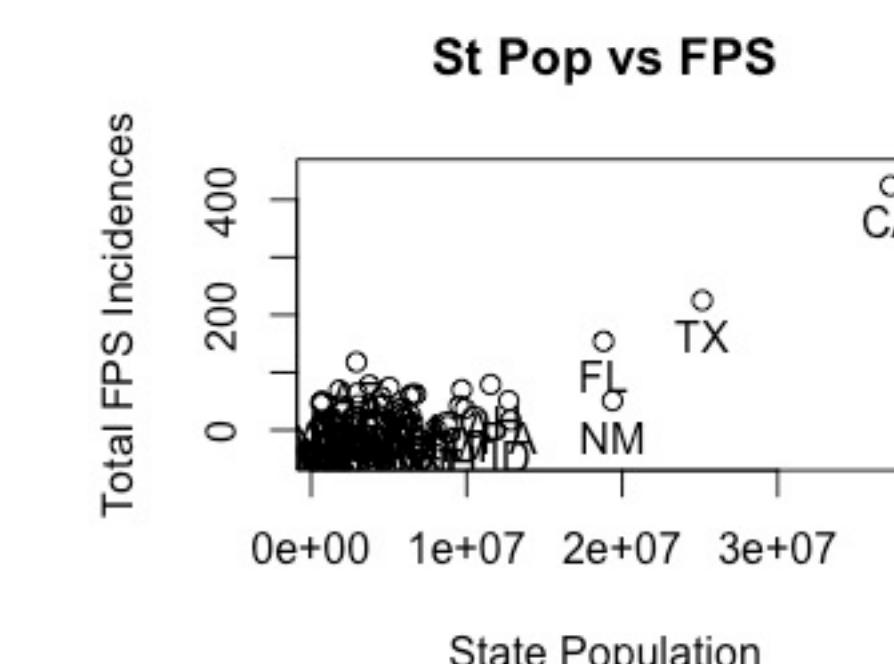
A non-experimental-Math 5395-Experimental Design

By: Lee Panter

Project Data Sources

- Washington Post Police Shooting Database
- US Census (2010 Census and 2016 American Community Survey)
- DemographicData.org

Data Visualization



U.S. Census & 2016 American Community Survey-Predictors Used

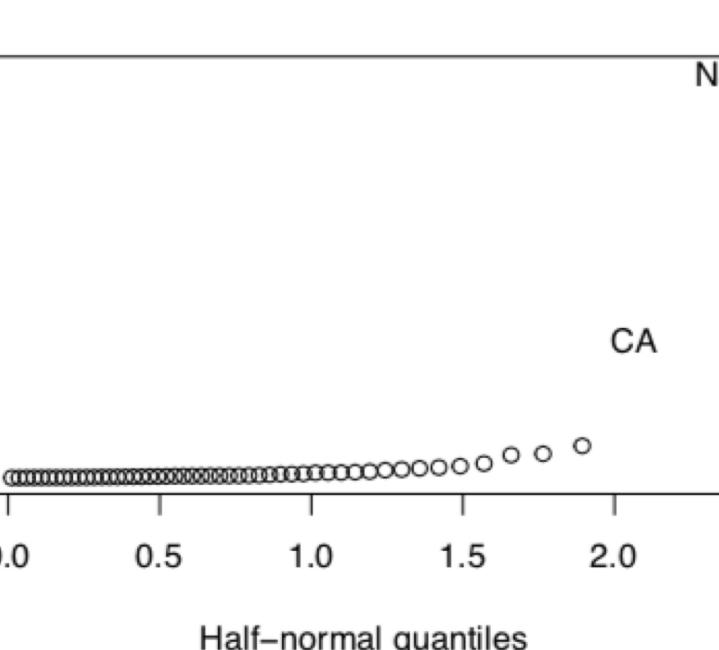
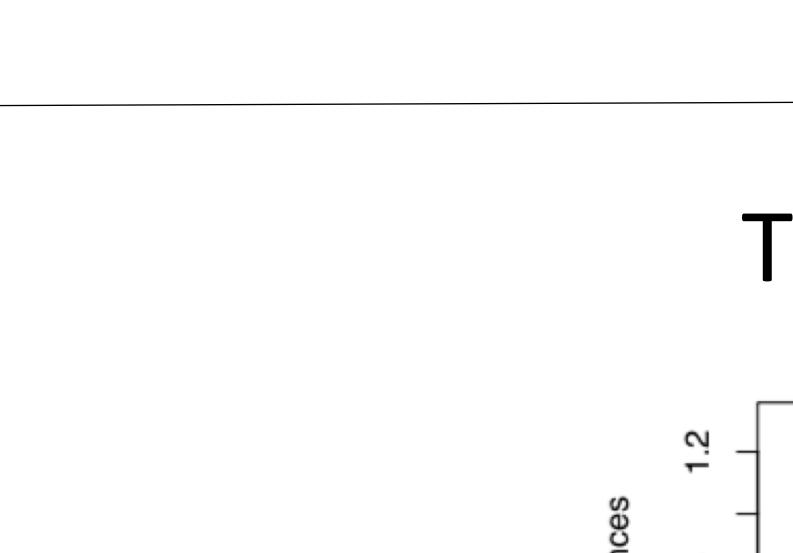
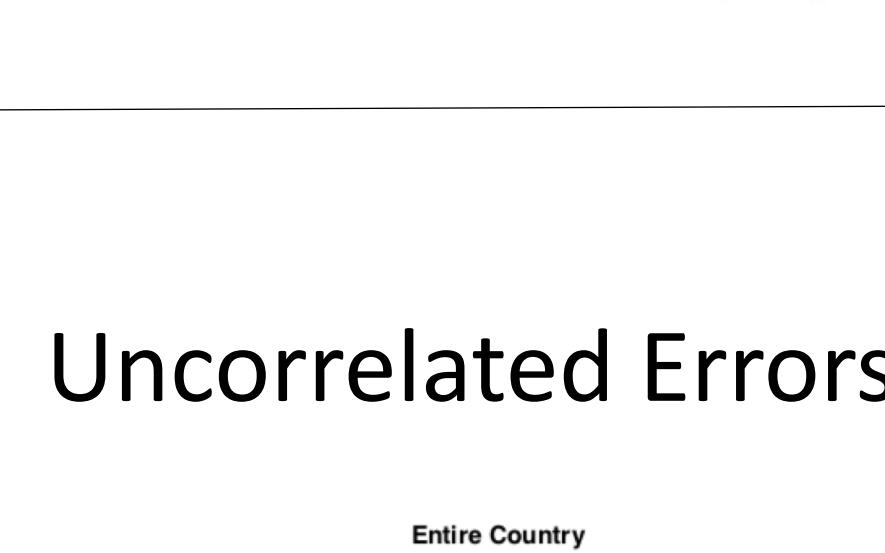
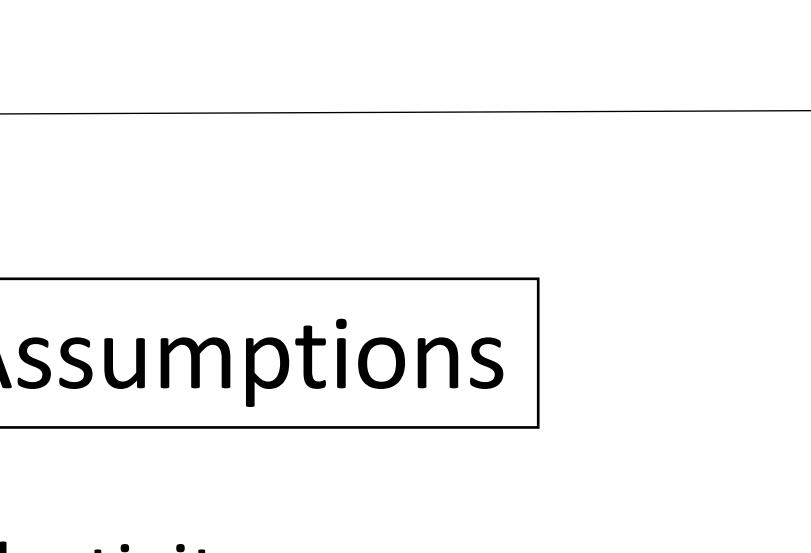
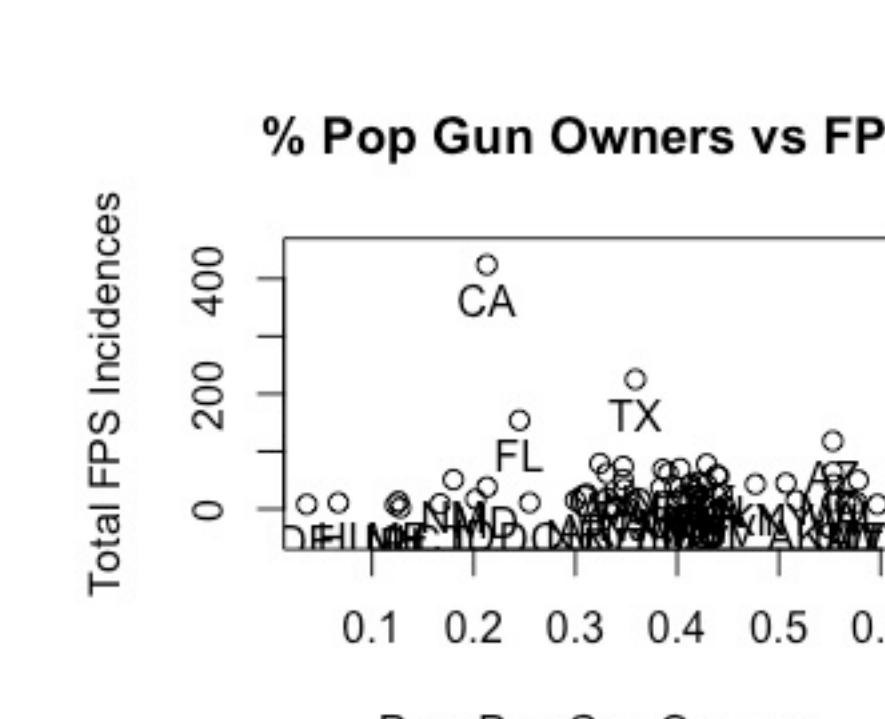
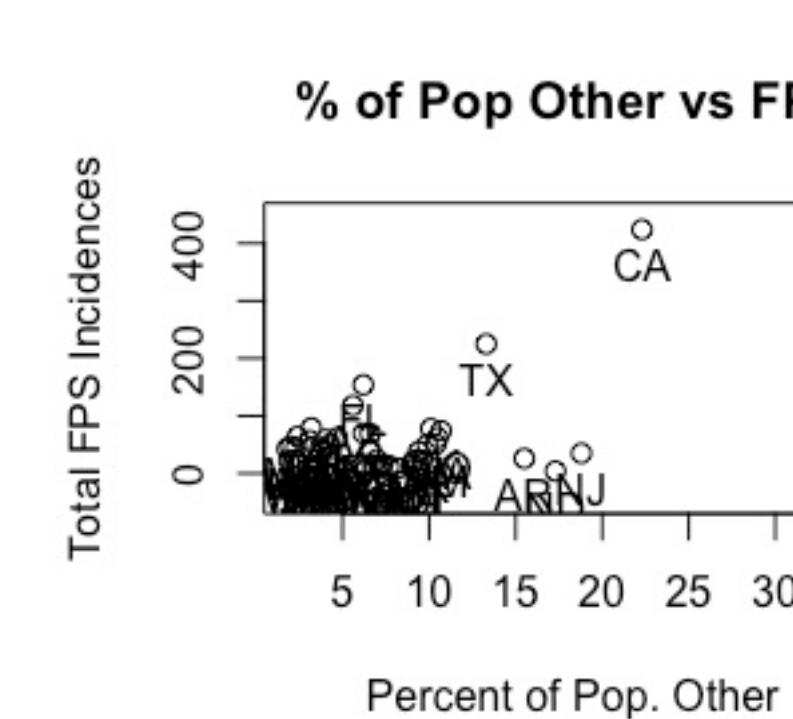
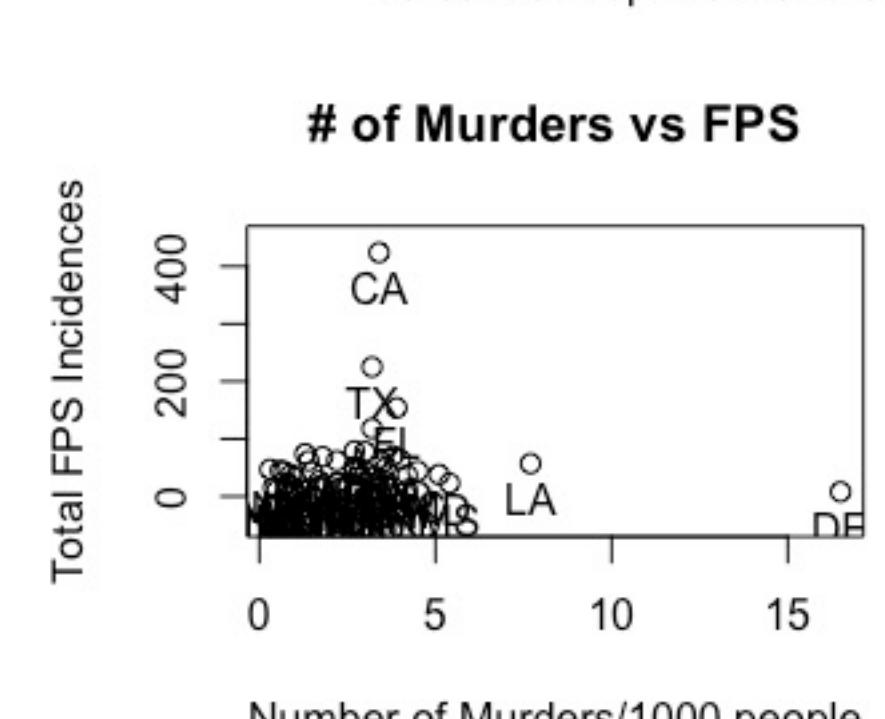
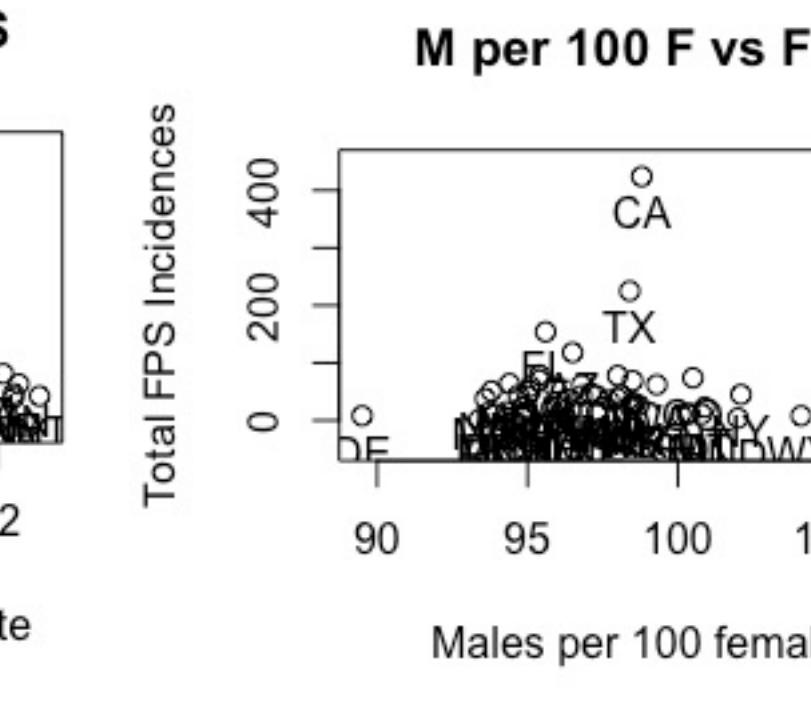
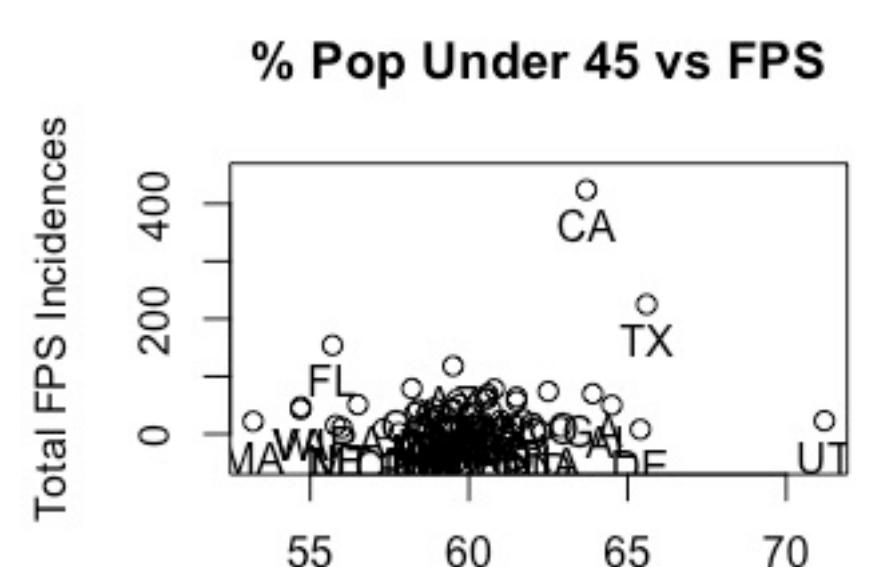
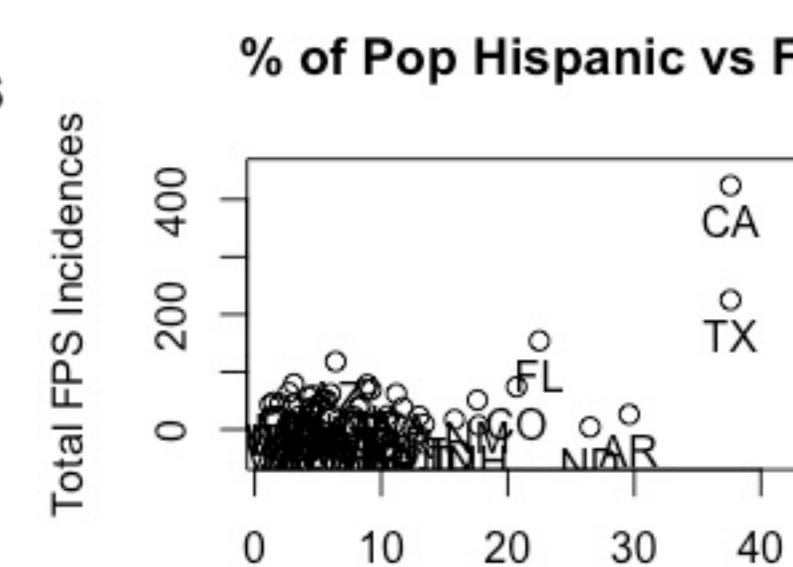
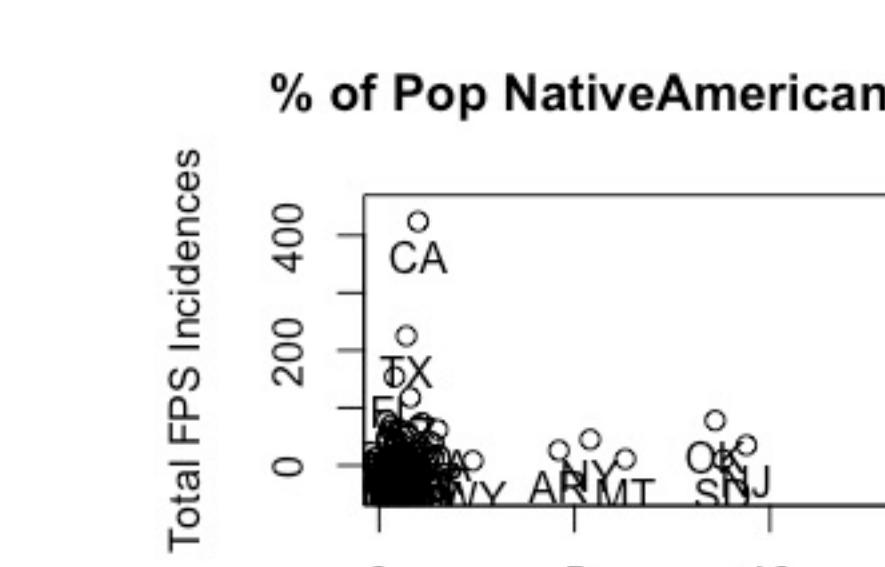
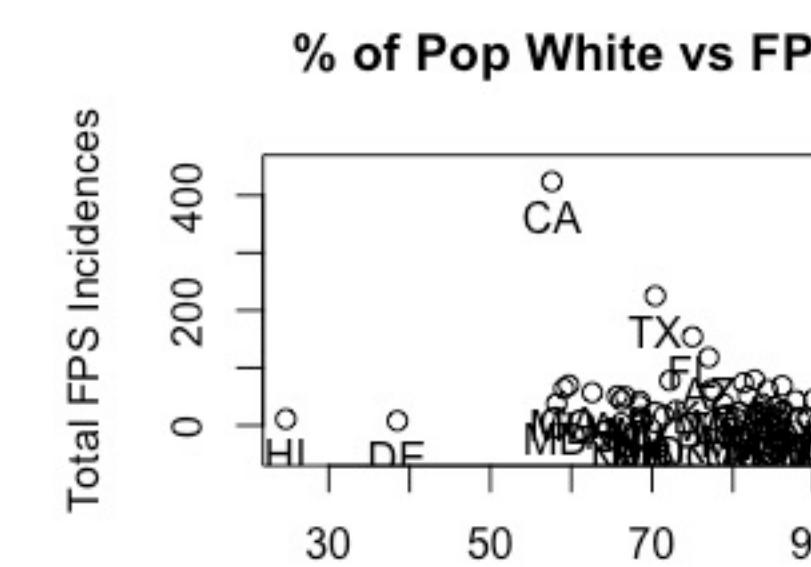
For each U.S. State (Excluding Puerto Rico and Guam)

- Population
- Poverty Level
- High School Graduation Rate
- Percent of Population Under 45
- Percent of Race/Ethnicity Composition: White/Black/Asian/Native American/Hispanic/Other
- Number of Males per 100 females

DemographicData.org Data-More Predictors

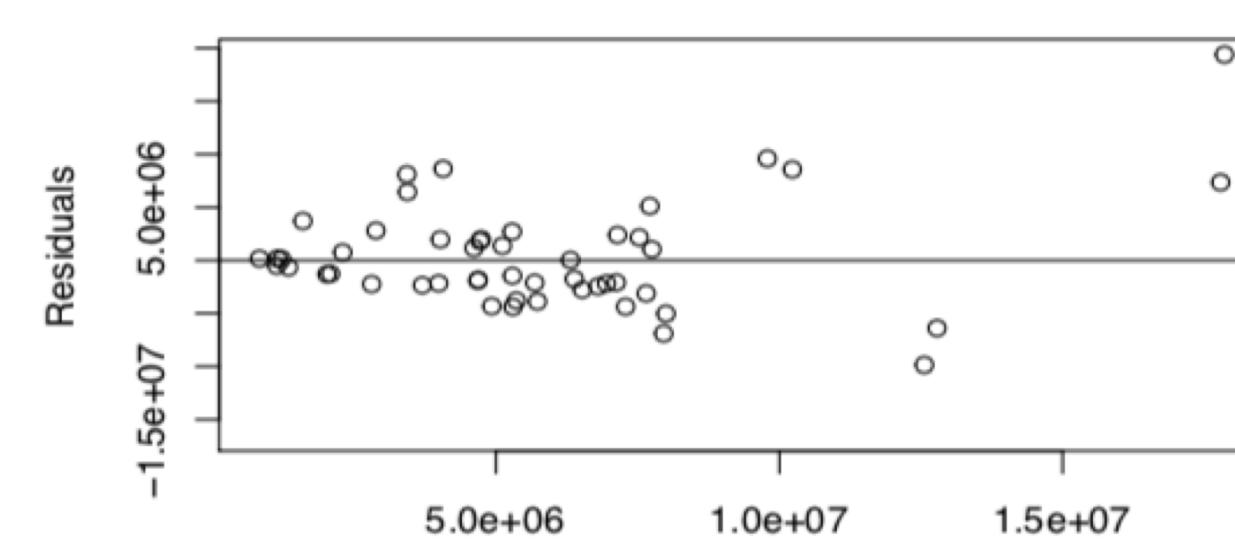
For each U.S. State (Excluding Puerto Rico and Guam)

- Gun Murder Rate (per 100,000 people) in 2010
- Gun ownership (as percentage of population) in 2007

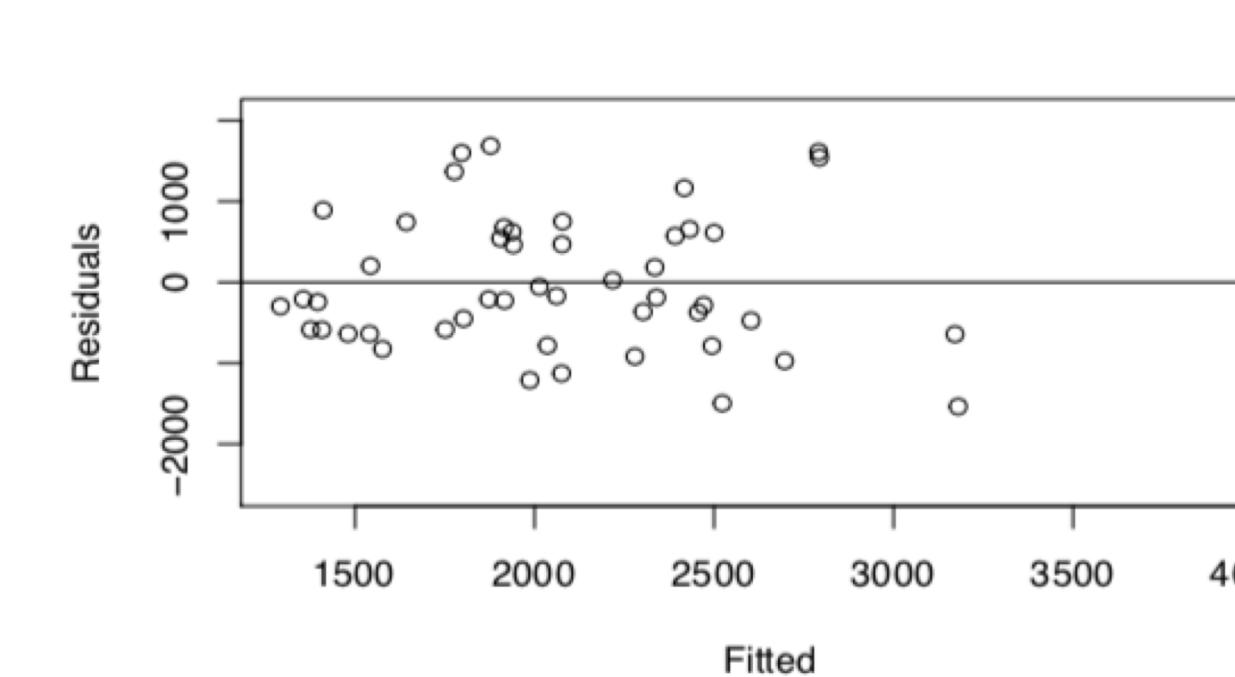


Check Model Assumptions

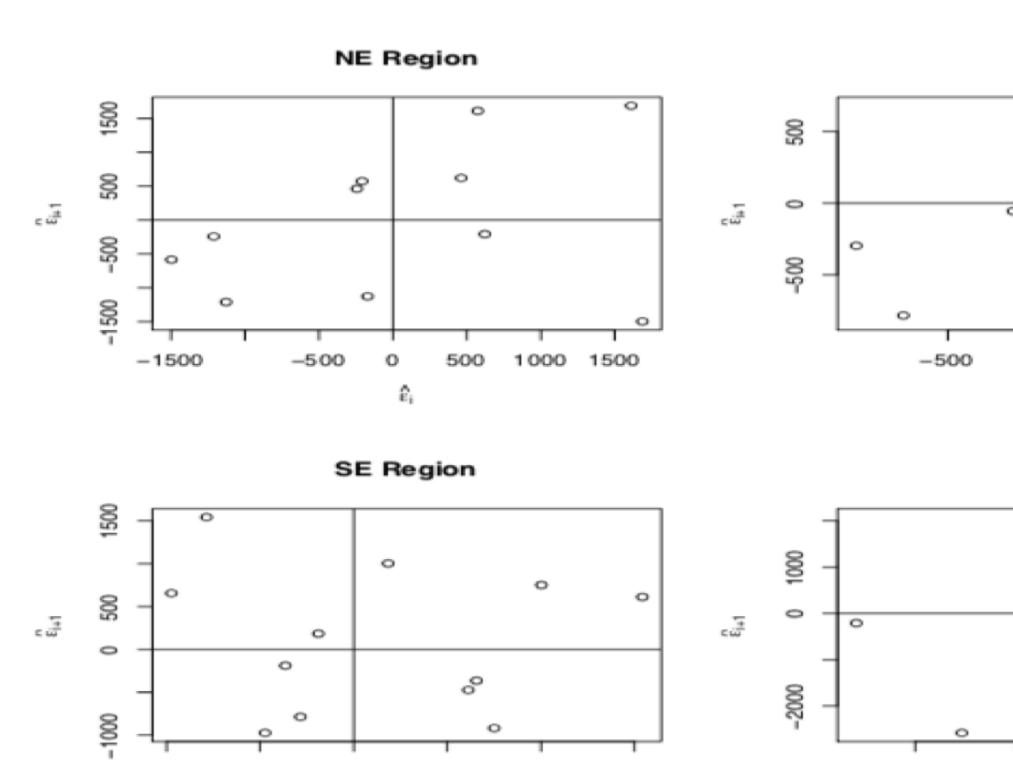
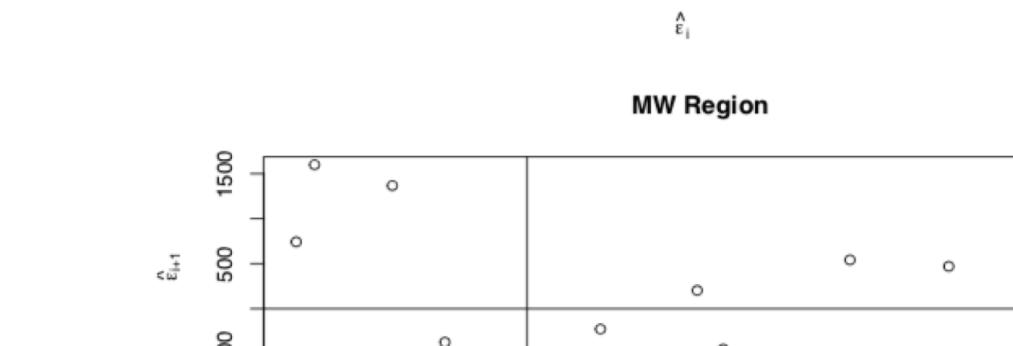
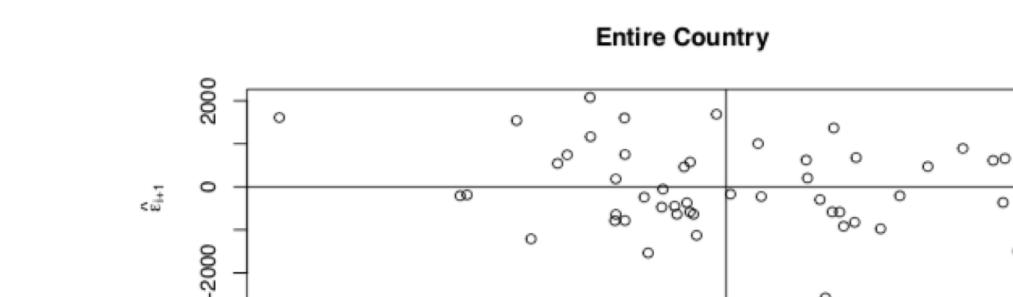
Heteroscedasticity



Square Root Transformation



Uncorrelated Errors



Final Standardized Model Coefficients

Variable	Estimate
Intercept	0.45551
HS.std	-0.07106
Hispanic.ste	0.01069