

# Appendix 2

## (Fall 2016 Update)

# Comprehensive Analysis of BPD Crime Data

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### **Navigation of this Document**

In order to jump to results of interest, display the Table of Contents for this pdf file in the left pane of your pdf viewer. The top level of the Table of Contents contains labeled sections for each outcome, within which subsections are nested for each piece of the analysis. Clicking the items in the pane will take you to the relevant set of results.

## 1 Introduction

For this updated analysis of BPD's crime data, I offer comprehensive results that extend the results summarized in the report:

- Morgan, Stephen L. and Joel A. Pally. 2016. "Ferguson, Gray, and Davis: An Analysis of Recorded Crime Incidents and Arrests in Baltimore City, March 2010 through December 2015." A Report Prepared for the 21st Century Cities Initiative at Johns Hopkins University. Baltimore, MD: Johns Hopkins University, March 15, 2016. (URL: <http://socweb.soc.jhu.edu/faculty/morgan/reports.html>)

The results in the original report were based on crime data through the end of 2015. In this Fall 2016 Update to Appendix 2, I offer models that incorporate data through Sunday, October 30th, 2016.

The basic analysis strategy is the same as in the original report. I first model the prevailing cyclical crime trend from Monday, March 1st, 2010 through Sunday, August 10, 2014. Then, I use that estimated model to predict a counterfactual crime trend, as if the protest events and any changes in police practice from August 11, 2014 onward had not occurred. I then estimate period effects as average differences between observed and counterfactual values from August 11, 2014 onward in distinct time intervals.

Unlike the original report, with the availability of additional data it is reasonable to now divide the interval after Police Commissioner Anthony Batts was fired into (1) a transition period while Kevin Davis was the Interim Police Commissioner and (2) a final period after Kevin Davis was sworn in as Batts' permanent replacement and with a five-year contract as the city's 38th Police Commissioner. For the analysis reported here, the transition period begins with the week of Monday, July 13, 2015 and ends on Sunday, October 18, 2015. The period for Davis as commissioner encompasses the first full year of his term, from the week of Monday, October 19, 2015 (10/19/15 to 10/25/15) through the week of Monday, October 24, 2016 (10/24/16 to 10/30/16).

### **Descriptive Summary of the Data**

The outcomes analyzed in subsequent sections are listed and summarized in Table 2.1 in the Data section, after which a breakdown of totals across all outcomes is provided by police district in Table 2.2. Finally, a five-panel figure displays the distribution of the five variables utilized to represent weather, hours of darkness, and school days for the full time series.

## Results for Each Outcome

For each outcome, I first offer a table with coefficients from four estimated models:

- Model 1 is a naive model with five estimated coefficients for the period indicator variables for the full time series;
- Model 2 is a "pretreatment" model, estimated only for data prior to August 11, 2014, that fits coefficients for weather, hours of darkness, and school days;
- Model 3 is analogous to Model 1 but utilizes an outcome variable for the full time series that has been de-trended using coefficients for weather, hours of darkness, and school days estimated by Model 2 using data from the "pretreatment" period only;
- Model 4 is an alternative to Model 3 that fits coefficients for weather, hours of darkness, and school days simultaneously with coefficients for the five period indicator variables.

The period effects estimated for Model 3 are my preferred estimates, and the period effects estimated for Model 4 are plausible alternatives.

I then offer two figures that depict the fit of Model 2 as well as the variation that generates the period effects estimated for the preferred Model 3. For both figures, the black line is the predicted time series from Model 2 while the red line is an extrapolated cyclical trend, generated by forming the predictions from the coefficients for Model 2 applied to the observed values for weather, hours of darkness, and school days from August 11, 2014 onward. The first figure overlays gray dots for the observed weekly total for each outcome, and the second figure substitutes a light blue line for the three-week moving average of the observed weekly totals. The differences between the gray dots (or the light blue line) and the red line is the source of variation that generates the period effects estimated for the preferred Model 3.

Finally, for each outcome a diagnostic model is also fit to assess the extent to which the least squares estimation of Model 2 adequately represents the underlying time series up through August 10, 2014. For this alternative model, a poisson distribution is assumed for the outcome because it is a weekly count bounded by zero. In general, these alternative models support the decision to utilize the simpler Model 2 to estimate the underlying time series that structures the extrapolated counterfactual trend. In addition to R output for the estimated poission regression, analogous figures are offered to demonstrate the near equivalence of Model 2 and its poisson regression alternative.

## 2 Data

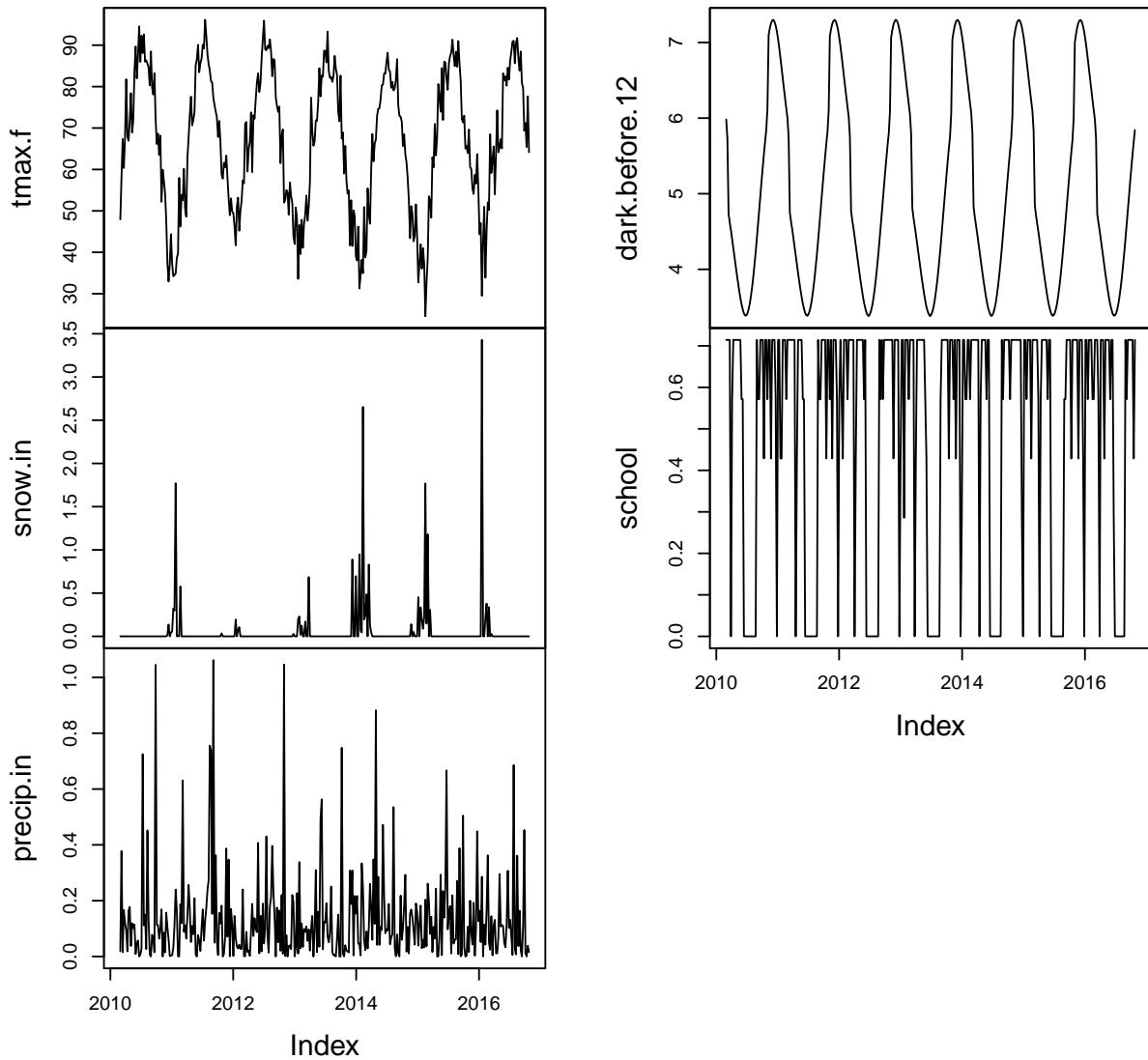
Table 2.1: Descriptive Statistics for Weekly Reported Incidents of Victim-Based Crime, with Breakdown by Type of Crime

| Statistic          | Min | Median | Max   |
|--------------------|-----|--------|-------|
| homicide           | 0   | 4      | 17    |
| shooting           | 0   | 8      | 33    |
| rape               | 0   | 5      | 16    |
| robbery.carjacking | 0   | 3      | 19    |
| robbery.street     | 24  | 52.5   | 102   |
| robbery.commercial | 2   | 12     | 44    |
| robbery.residence  | 1   | 9      | 27    |
| aggravated.assault | 40  | 93     | 161   |
| assault.by.threat  | 1   | 11     | 28    |
| common.assault     | 78  | 157    | 241   |
| burglary           | 74  | 147    | 403   |
| larceny.from.auto  | 52  | 128    | 207   |
| larceny            | 103 | 202    | 302   |
| auto.theft         | 47  | 85     | 182   |
| arson              | 0   | 5      | 33    |
| total              | 558 | 952    | 1,141 |

Table 2.2: Descriptive Statistics for Weekly Reported Incidents of Victim-Based Crime, with Breakdown by District

| Statistic    | Min | Median | Max   |
|--------------|-----|--------|-------|
| northwestern | 56  | 94     | 152   |
| northern     | 55  | 105    | 174   |
| northeastern | 79  | 148.5  | 207   |
| western      | 42  | 77     | 200   |
| central      | 52  | 112    | 193   |
| eastern      | 41  | 78     | 120   |
| southwestern | 42  | 85     | 147   |
| southern     | 54  | 110.5  | 228   |
| southeastern | 62  | 126    | 187   |
| total        | 558 | 952    | 1,141 |

## Adjustment Variables for Subsequent Models



- `tmax.f` is the weekly average of the daily maximum temperature, measured in degrees Fahrenheit
- `snow.in` is the weekly average of total daily snowfall, measured in inches
- `precip.in` is the weekly average of total daily precipitation, measured in inches
- `dark.before.12` is the weekly average of daily hours between sunset and midnight
- `school` is the proportion of days of the week when school was scheduled for Baltimore City Schools

### 3 Results for total

#### 3.1 Summary Values for total

Table 3.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic | N   | Mean    | St. Dev. | Min | Median | Max   |
|-----------|-----|---------|----------|-----|--------|-------|
| total     | 232 | 946.983 | 97.107   | 626 | 960    | 1,119 |

Table 3.2: Descriptives for Outcome After Ferguson Protests Begin

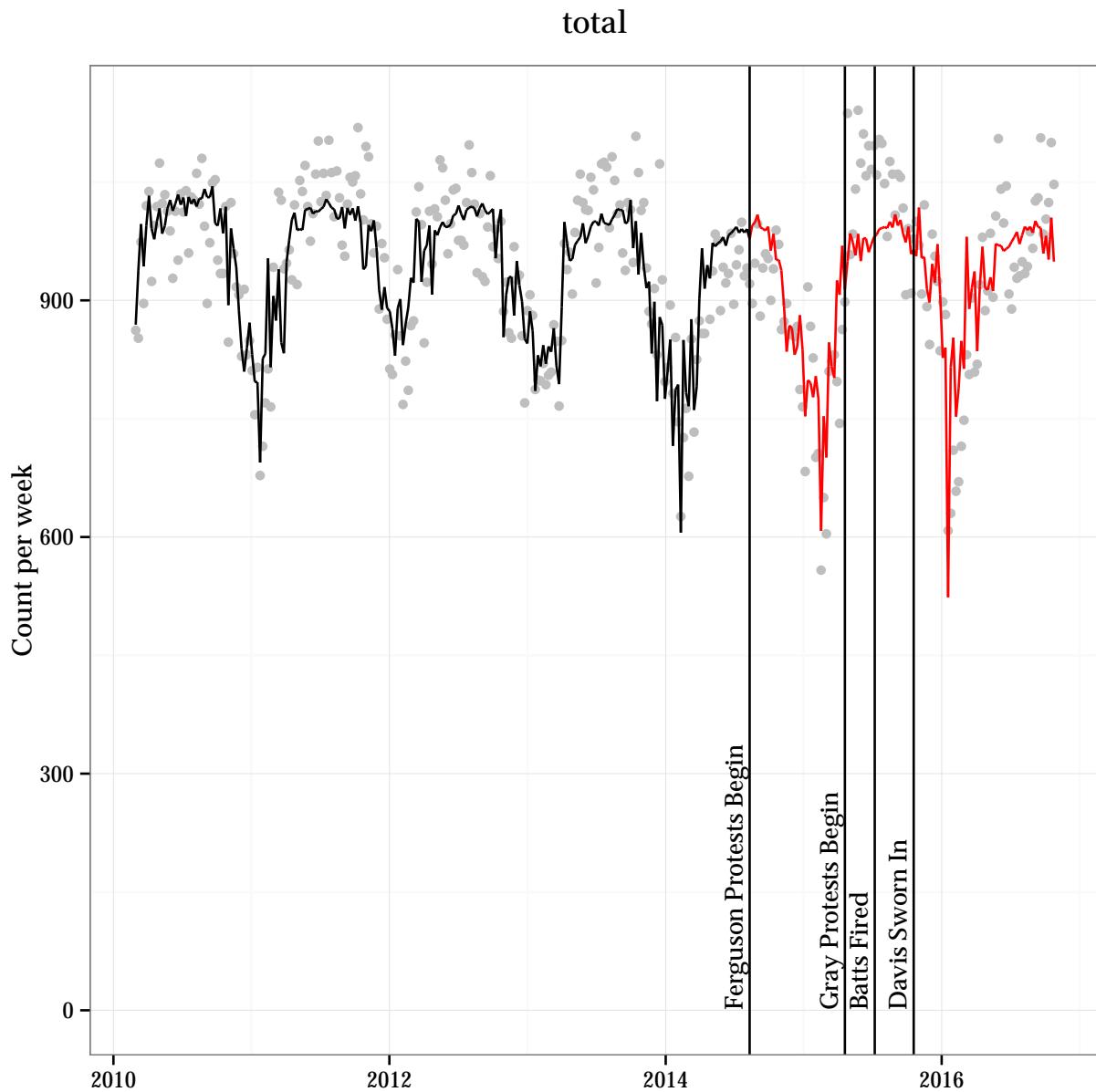
| Statistic | N   | Mean    | St. Dev. | Min | Median | Max   |
|-----------|-----|---------|----------|-----|--------|-------|
| total     | 116 | 920.810 | 127.054  | 558 | 932.5  | 1,141 |

### 3.2 Four Models for total

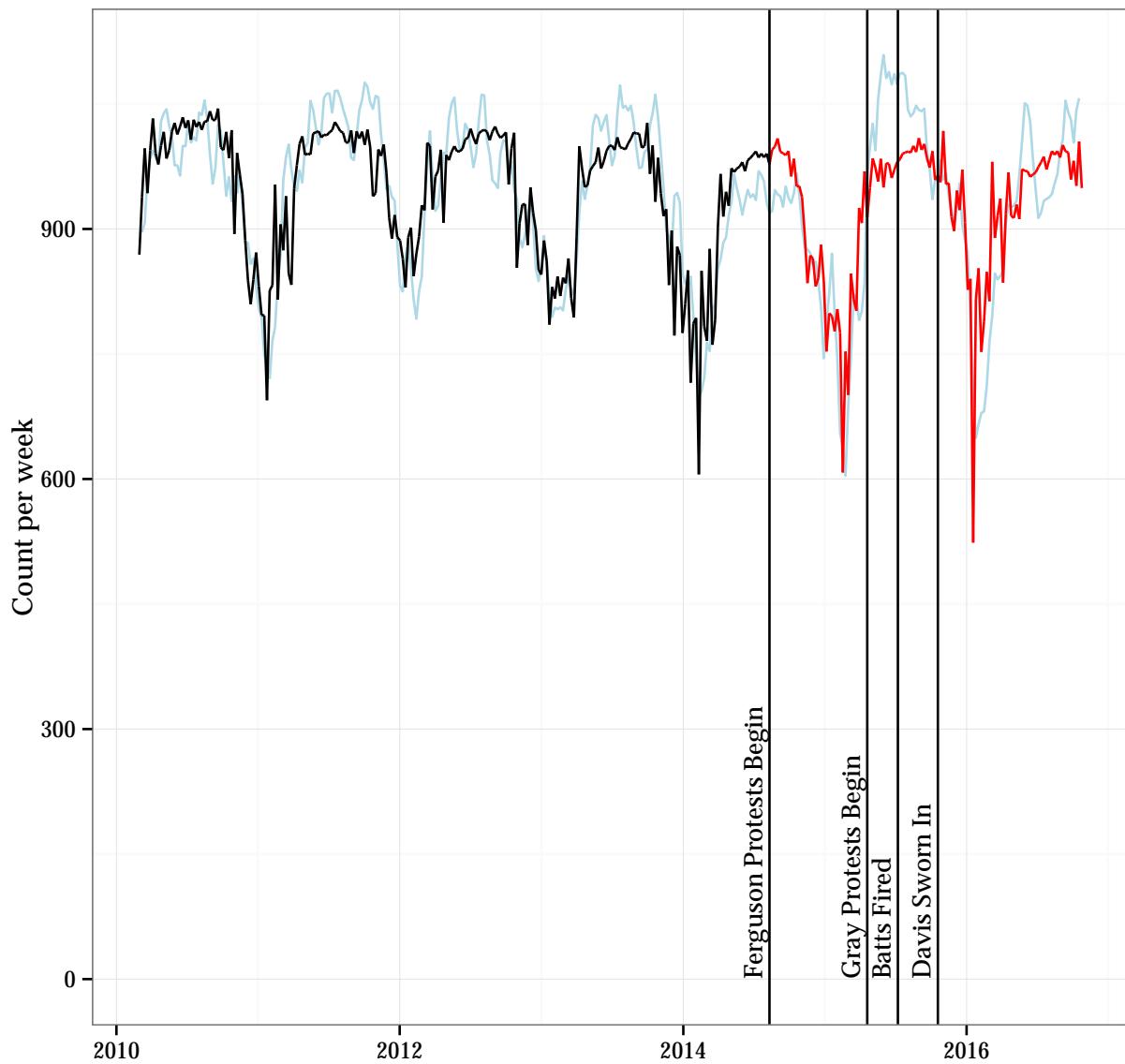
Table 3.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |        |        |        |
|--|-------------------------|--------|--------|--------|
|  | (1)                     | (2)    | (3)    | (4)    |
| Time (counter in weeks)                                | -0.27                   | -0.14  |        | -0.13  |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -68.92                  |        | -36.62 | -38.29 |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 212.57                  |        | 117.57 | 113.97 |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 88.12                   |        | 106.68 | 118.16 |
| After Batts Fired (week of 7/13/15 onward)             | -17.33                  |        | -44.00 | -44.38 |
| After Davis Sworn In (week of 10/19/15 onward)         | -101.22                 |        | -48.00 | -46.68 |
| Average Maximum Temperature to 50 Degrees              |                         | 4.69   |        | 4.65   |
| Plus Degrees in the 50s                                |                         | 4.75   |        | 5.11   |
| Plus Degrees in the 60s                                |                         | -2.69  |        | -3.31  |
| Plus Degrees in the 70s                                |                         | -4.35  |        | -1.50  |
| Plus Degrees Greater Than 80                           |                         | -0.92  |        | -3.23  |
| Snowfall (inches)                                      |                         | -65.84 |        | -57.39 |
| Precipitation (inches)                                 |                         | -25.98 |        | -23.23 |
| Darkness Before Midnight (hours)                       |                         | 20.82  |        | 24.22  |
| School Days (proportion of week)                       |                         | -5.18  |        | 20.77  |
| Observations   | 348                     | 232    | 348    | 348    |
| R <sup>2</sup>   | 0.18                    | 0.67   | 0.13   | 0.71   |

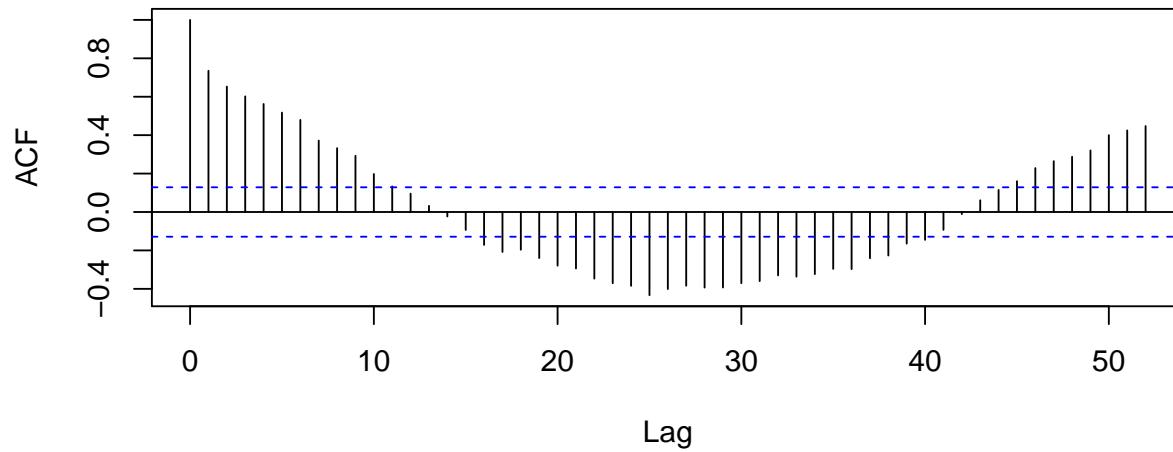
### 3.3 Least Squares Model (2) for total



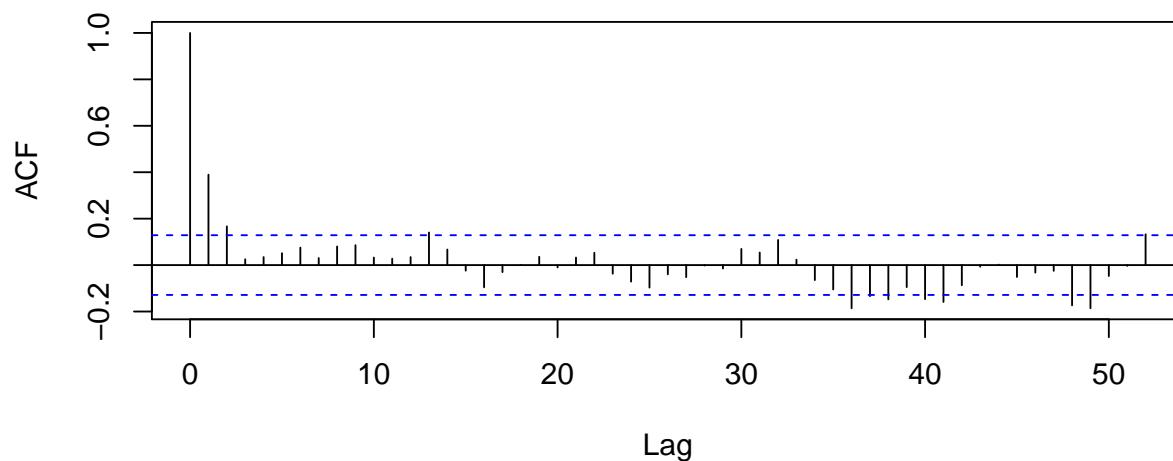
total



Autocorrelation Function for the Observed Outcome for Model (2)

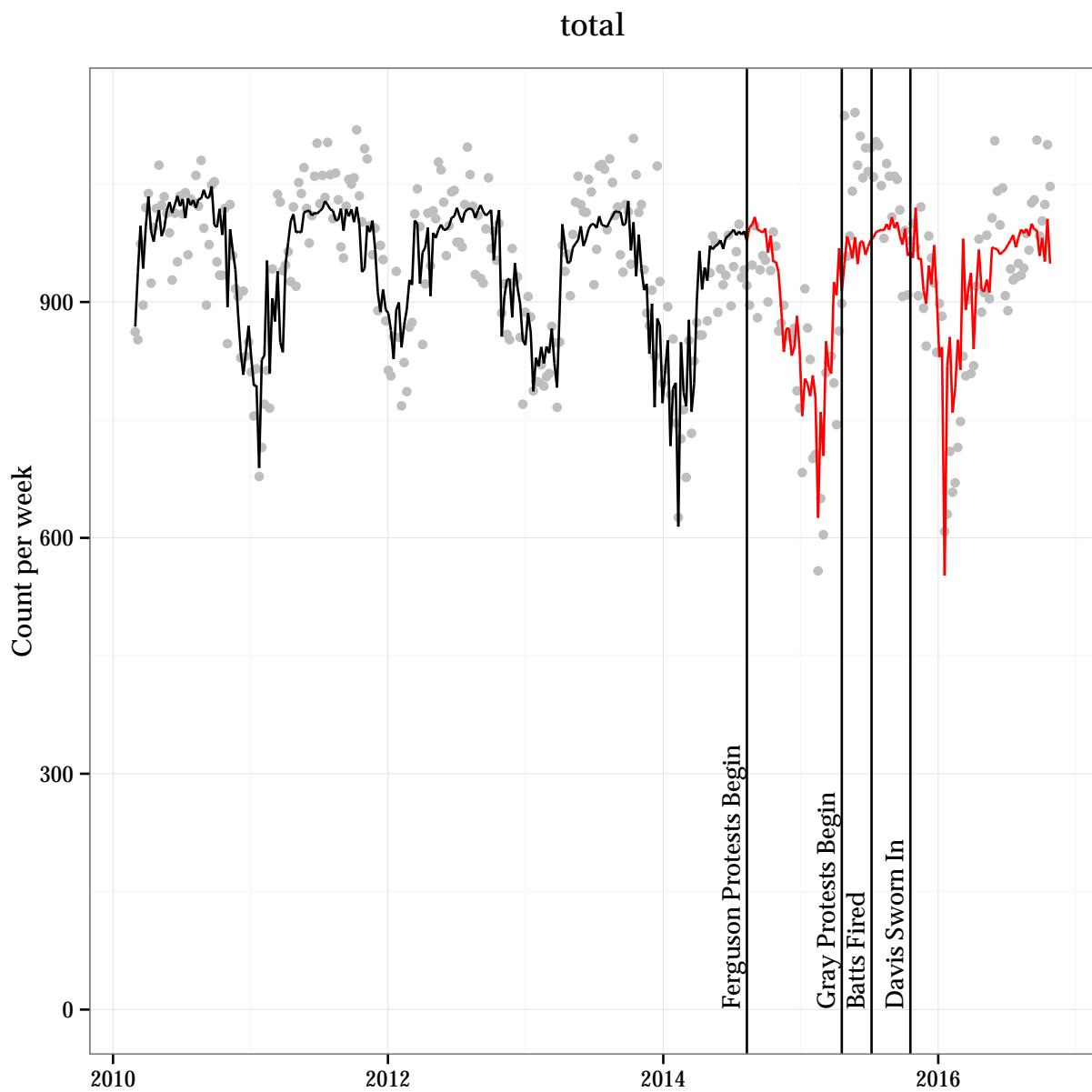


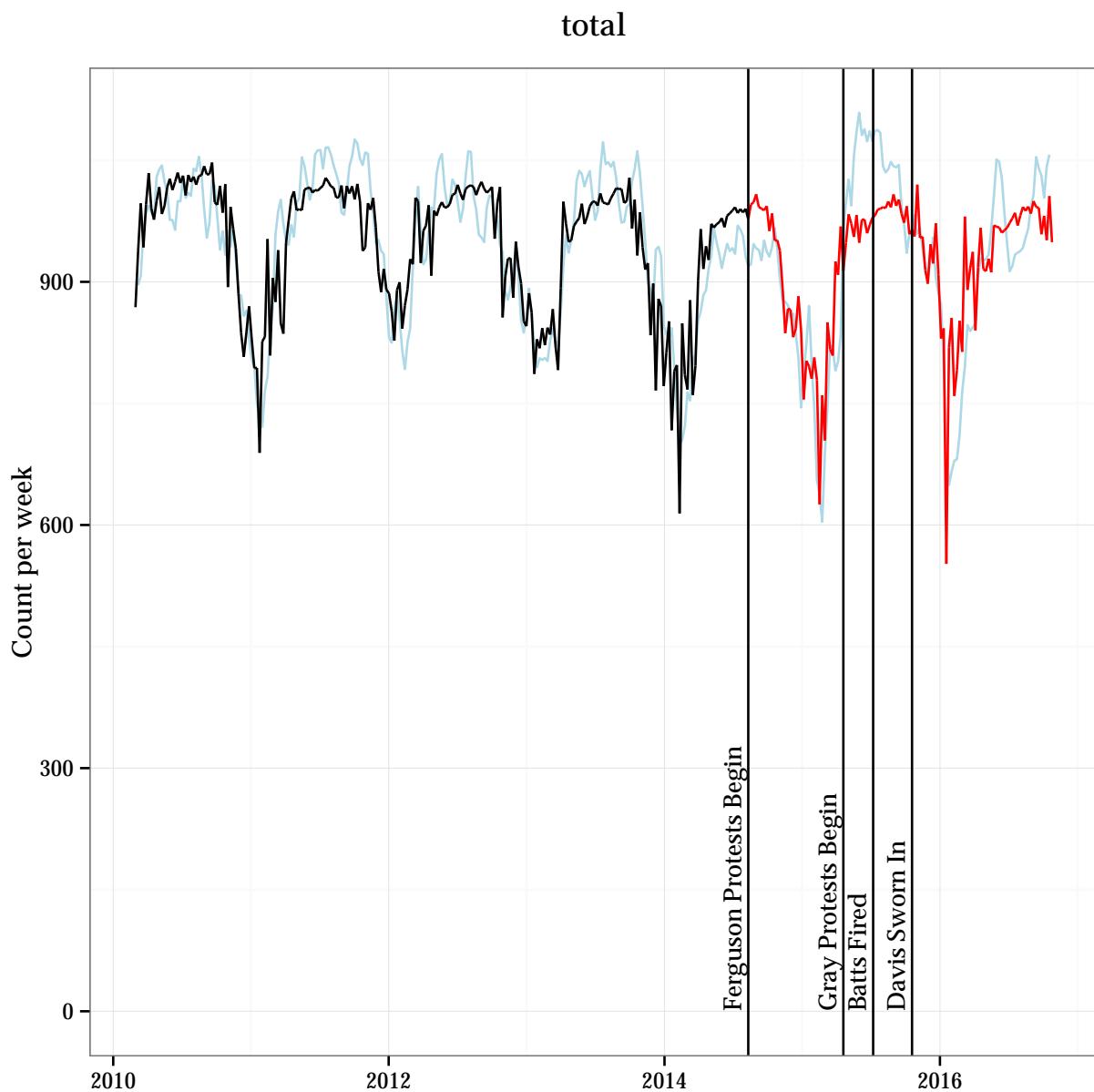
Autocorrelation Function for the Residuals from Model (2)



### 3.4 A Poisson Regression Model as an Alternative to Model (2) for total

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-4.6457 -1.3814  0.0252  1.2298  6.3215  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) 6.377e+00 4.642e-02 137.389 < 2e-16 ***  
t          -1.491e-04 3.294e-05 -4.527 5.98e-06 ***  
tmax.f.spline1 5.464e-03 8.566e-04  6.379 1.78e-10 ***  
tmax.f.spline2 4.803e-03 1.706e-03  2.816  0.00487 **  
tmax.f.spline3 -3.239e-03 2.036e-03 -1.591  0.11164  
tmax.f.spline4 -4.565e-03 1.879e-03 -2.429  0.01514 *  
tmax.f.spline5 -1.035e-03 1.626e-03 -0.636  0.52469  
snow.in       -9.287e-02 1.198e-02 -7.750 9.22e-15 ***  
precip.in      -2.728e-02 1.195e-02 -2.282  0.02251 *  
dark.before.12 2.229e-02 3.139e-03  7.101 1.24e-12 ***  
school        -6.920e-03 9.465e-03 -0.731  0.46469  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 2364.05 on 231 degrees of freedom  
Residual deviance: 758.72 on 221 degrees of freedom  
AIC: 2795.8  
  
Number of Fisher Scoring iterations: 3
```





## 4 Results for homicide

### 4.1 Summary Values for homicide

Table 4.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------|-----|-------|----------|-----|--------|-----|
| homicide  | 232 | 4.203 | 2.164    | 0   | 4      | 11  |

Table 4.2: Descriptives for Outcome After Ferguson Protests Begin

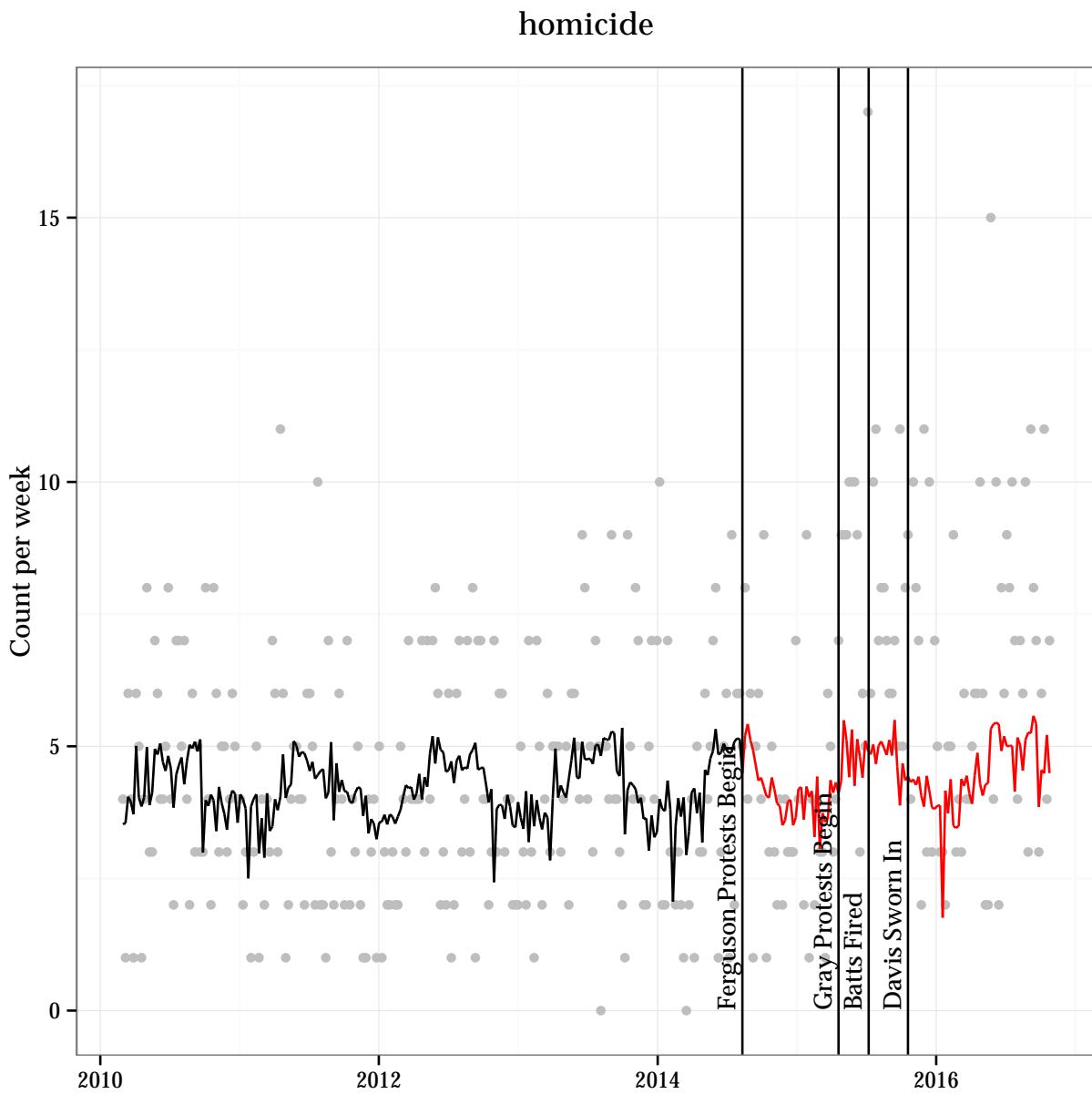
| Statistic | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------|-----|-------|----------|-----|--------|-----|
| homicide  | 116 | 5.905 | 3.067    | 1   | 6      | 17  |

## 4.2 Four Models for homicide

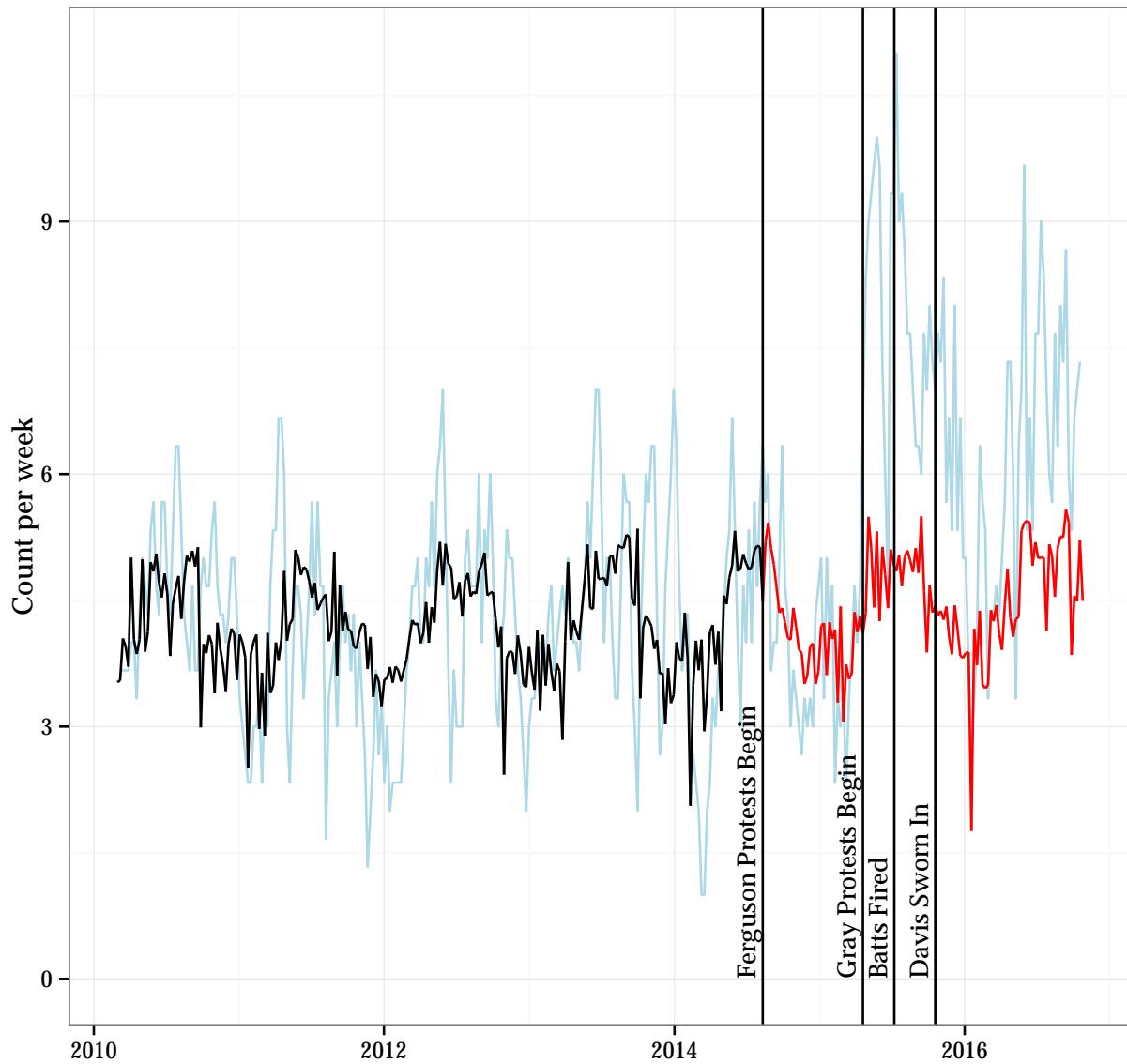
Table 4.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |       |       |       |
|--|-------------------------|-------|-------|-------|
|  | (1)                     | (2)   | (3)   | (4)   |
| Time (counter in weeks)                                | 0.001                   | 0.001 |       | 0.002 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.31                   |       | -0.15 | -0.16 |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 4.65                    |       | 3.96  | 3.98  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 0.37                    |       | 0.84  | 0.80  |
| After Batts Fired (week of 7/13/15 onward)             | -1.14                   |       | -1.13 | -1.38 |
| After Davis Sworn In (week of 10/19/15 onward)         | -1.35                   |       | -0.97 | -0.84 |
| Average Maximum Temperature to 50 Degrees              |                         | -0.05 |       | -0.05 |
| Plus Degrees in the 50s                                |                         | 0.12  |       | 0.14  |
| Plus Degrees in the 60s                                |                         | -0.09 |       | -0.09 |
| Plus Degrees in the 70s                                |                         | 0.13  |       | 0.10  |
| Plus Degrees Greater Than 80                           |                         | -0.15 |       | -0.06 |
| Snowfall (inches)                                      |                         | -0.77 |       | -0.87 |
| Precipitation (inches)                                 |                         | -1.27 |       | -1.26 |
| Darkness Before Midnight (hours)                       |                         | 0.01  |       | 0.08  |
| School Days (proportion of week)                       |                         | 0.27  |       | 0.22  |
| Observations   | 348                     | 232   | 348   | 348   |
| R <sup>2</sup>   | 0.21                    | 0.08  | 0.17  | 0.27  |

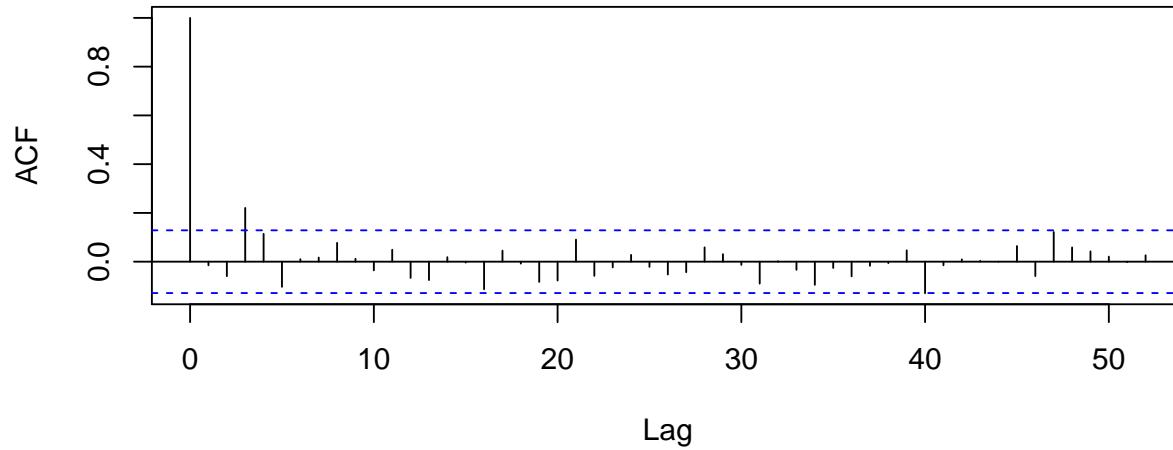
### 4.3 Least Squares Model (2) for homicide



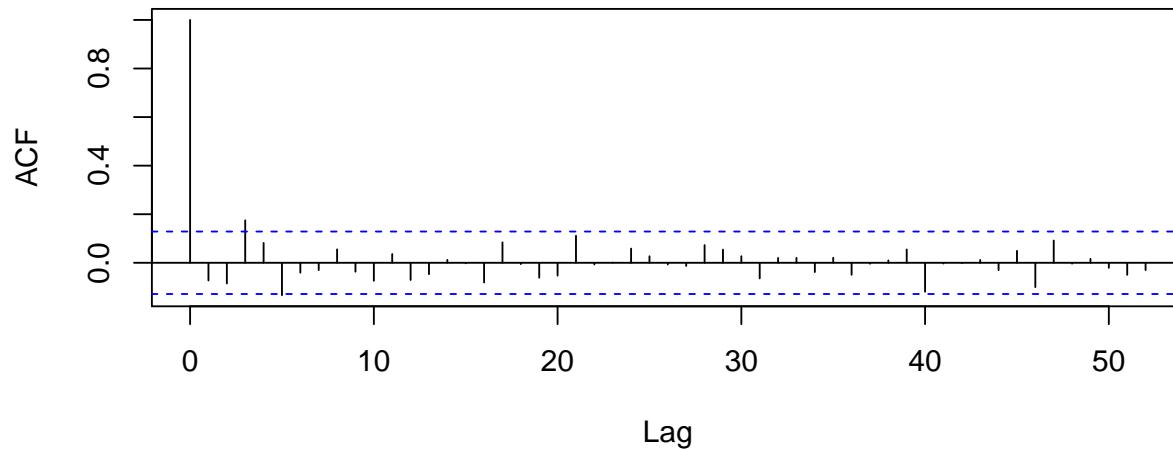
## homicide



Autocorrelation Function for the Observed Outcome for Model (2)



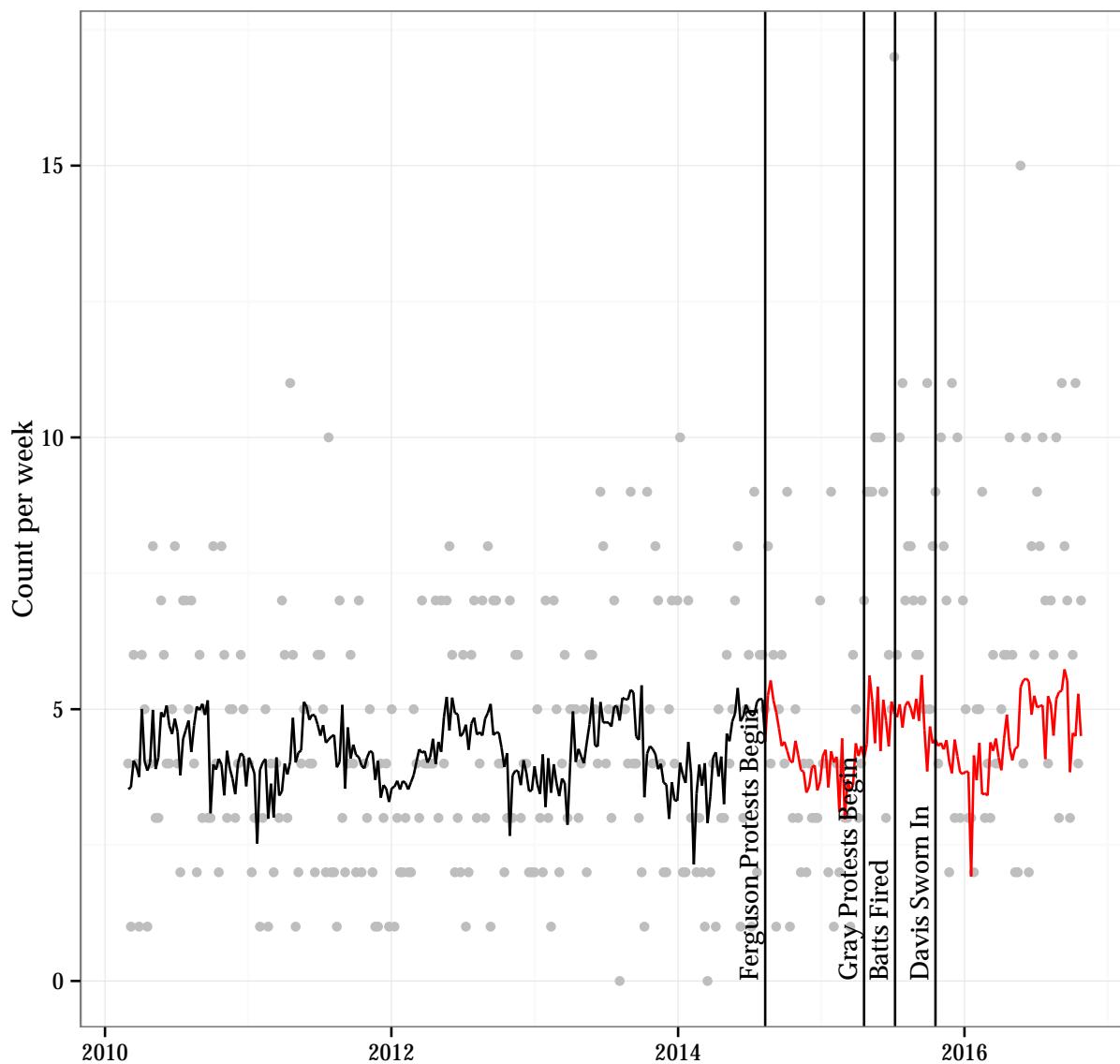
Autocorrelation Function for the Residuals from Model (2)



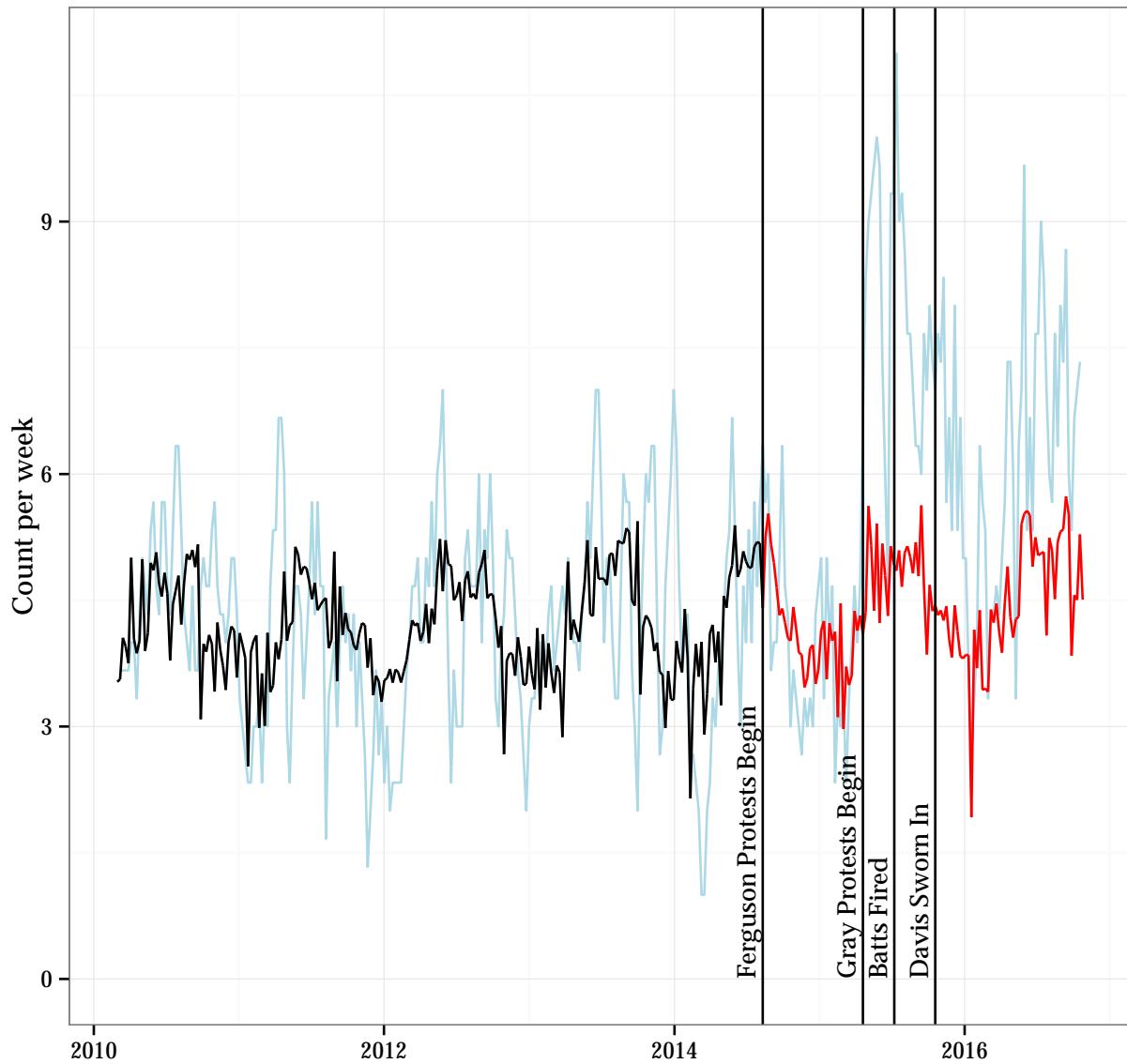
#### 4.4 A Poisson Regression Model as an Alternative to Model (2) for homicide

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-3.09562 -0.87689 -0.06265  0.57269  2.85382  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) 1.8596694  0.6857653  2.712  0.00669 **  
t            0.0002678  0.0004920  0.544  0.58620  
tmax.f.spline1 -0.0136166  0.0126536 -1.076  0.28188  
tmax.f.spline2  0.0328932  0.0260781  1.261  0.20719  
tmax.f.spline3 -0.0226152  0.0312322 -0.724  0.46900  
tmax.f.spline4  0.0299412  0.0286227  1.046  0.29553  
tmax.f.spline5 -0.0338043  0.0240380 -1.406  0.15964  
snow.in       -0.2479227  0.1931382 -1.284  0.19926  
precip.in      -0.3181263  0.1933957 -1.645  0.09998 .  
dark.before.12  0.0029241  0.0480517  0.061  0.95148  
school         0.0597310  0.1408388  0.424  0.67149  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 268.52 on 231 degrees of freedom  
Residual deviance: 247.66 on 221 degrees of freedom  
AIC: 1002.9  
  
Number of Fisher Scoring iterations: 5
```

## homicide



## homicide



## 5 Results for shooting

### 5.1 Summary Values for shooting

Table 5.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------|-----|-------|----------|-----|--------|-----|
| shooting  | 232 | 7.534 | 3.620    | 0   | 7      | 22  |

Table 5.2: Descriptives for Outcome After Ferguson Protests Begin

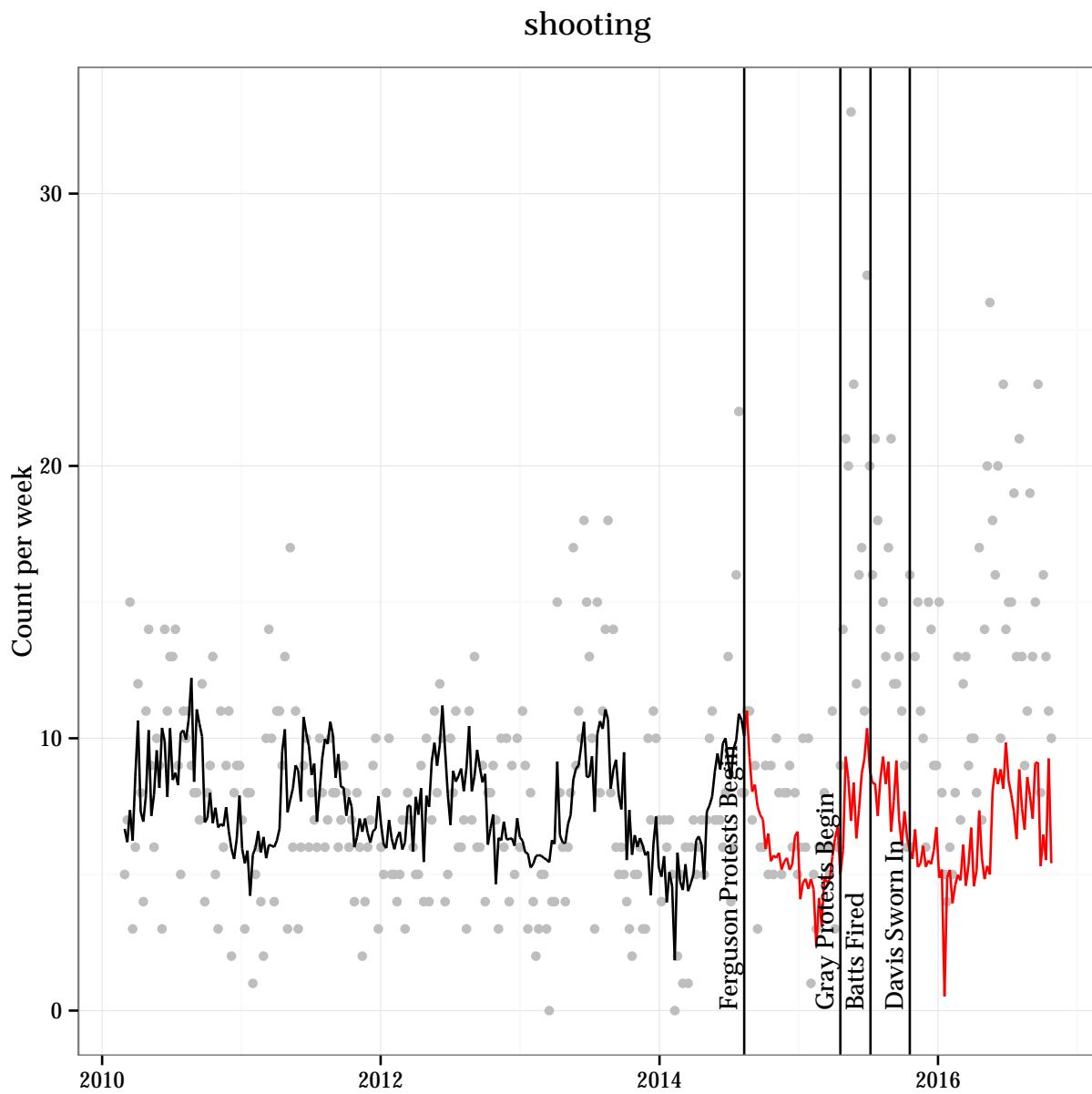
| Statistic | N   | Mean   | St. Dev. | Min | Median | Max |
|-----------|-----|--------|----------|-----|--------|-----|
| shooting  | 116 | 11.681 | 5.796    | 1   | 11     | 33  |

## 5.2 Four Models for shooting

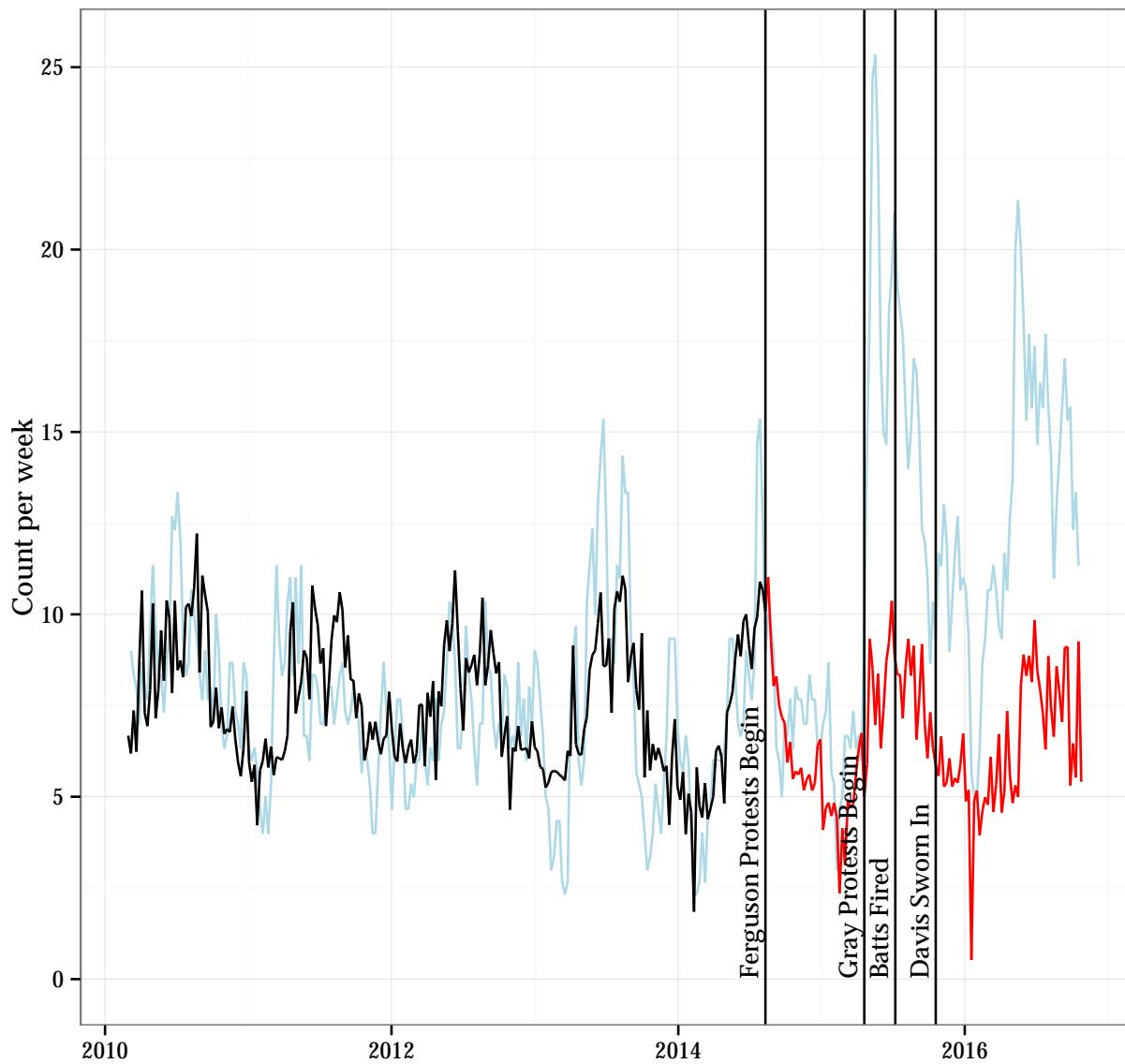
Table 5.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |       |       |        |
|--|-------------------------|-------|-------|--------|
|  | (1)                     | (2)   | (3)   | (4)    |
| Time (counter in weeks)                                | −0.004                  | −0.01 |       | −0.004 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | −0.13                   |       | 0.96  | 0.91   |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 12.21                   |       | 9.94  | 9.54   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | −5.02                   |       | −2.80 | −2.74  |
| After Batts Fired (week of 7/13/15 onward)             | −4.81                   |       | −4.56 | −4.45  |
| After Davis Sworn In (week of 10/19/15 onward)         | −1.31                   |       | 0.04  | 0.11   |
| Average Maximum Temperature to 50 Degrees              |                         | 0.07  |       | 0.04   |
| Plus Degrees in the 50s                                |                         | −0.07 |       | −0.03  |
| Plus Degrees in the 60s                                |                         | 0.13  |       | 0.06   |
| Plus Degrees in the 70s                                |                         | 0.21  |       | 0.31   |
| Plus Degrees Greater Than 80                           |                         | −0.64 |       | −0.60  |
| Snowfall (inches)                                      |                         | −0.99 |       | −1.24  |
| Precipitation (inches)                                 |                         | −1.41 |       | −1.80  |
| Darkness Before Midnight (hours)                       |                         | 0.24  |       | 0.01   |
| School Days (proportion of week)                       |                         | −2.00 |       | −0.61  |
| Observations   | 348                     | 232   | 348   | 348    |
| R <sup>2</sup>   | 0.35                    | 0.24  | 0.43  | 0.49   |

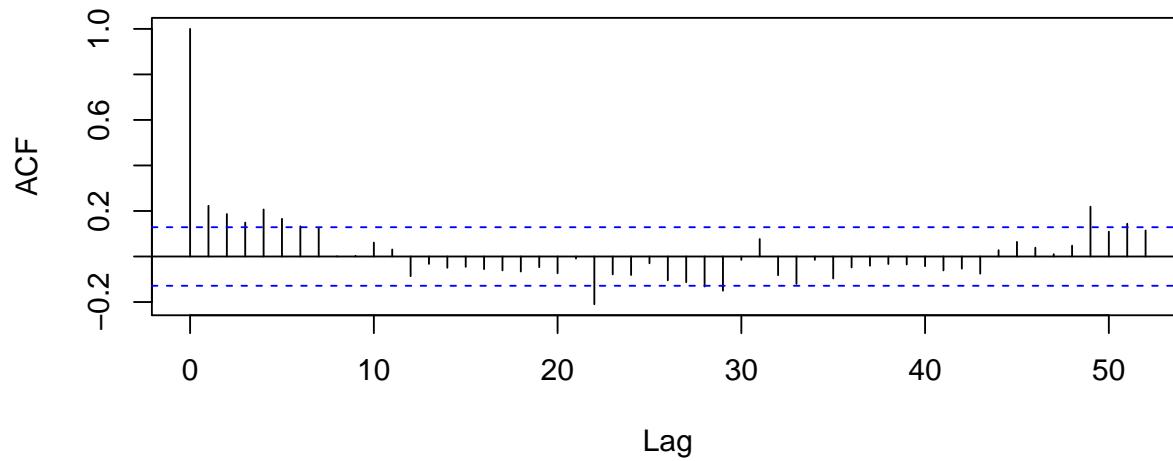
### 5.3 Least Squares Model (2) for shooting



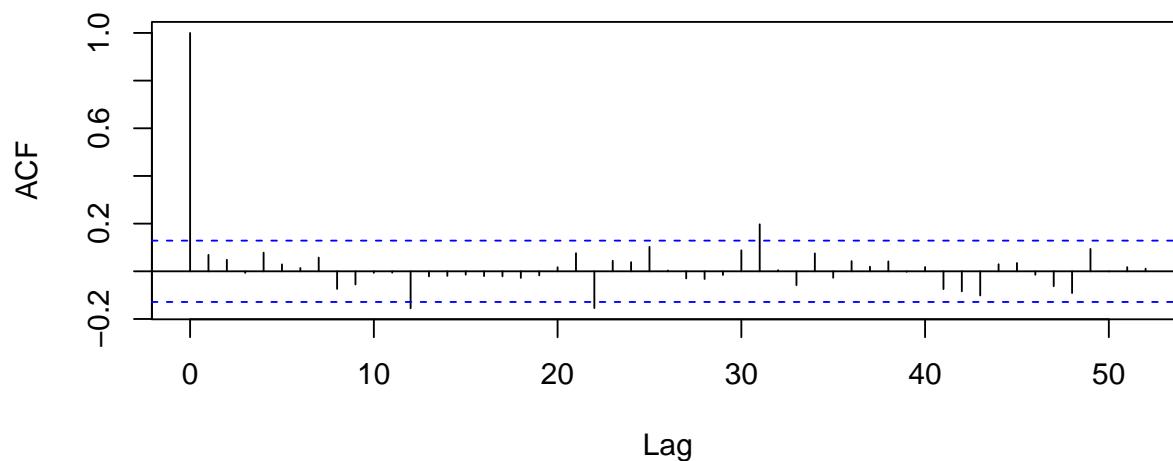
## shooting



Autocorrelation Function for the Observed Outcome for Model (2)



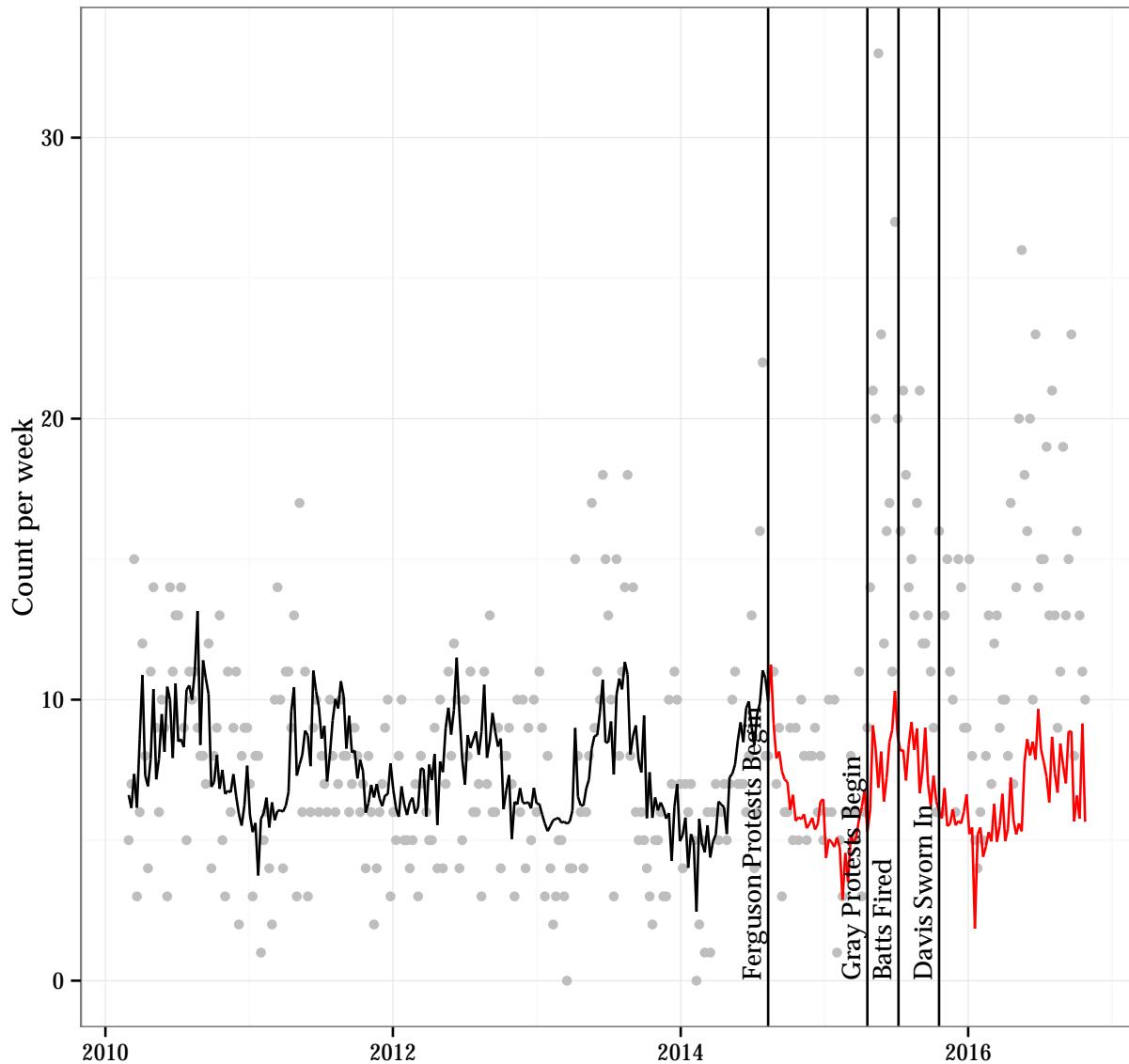
Autocorrelation Function for the Residuals from Model (2)



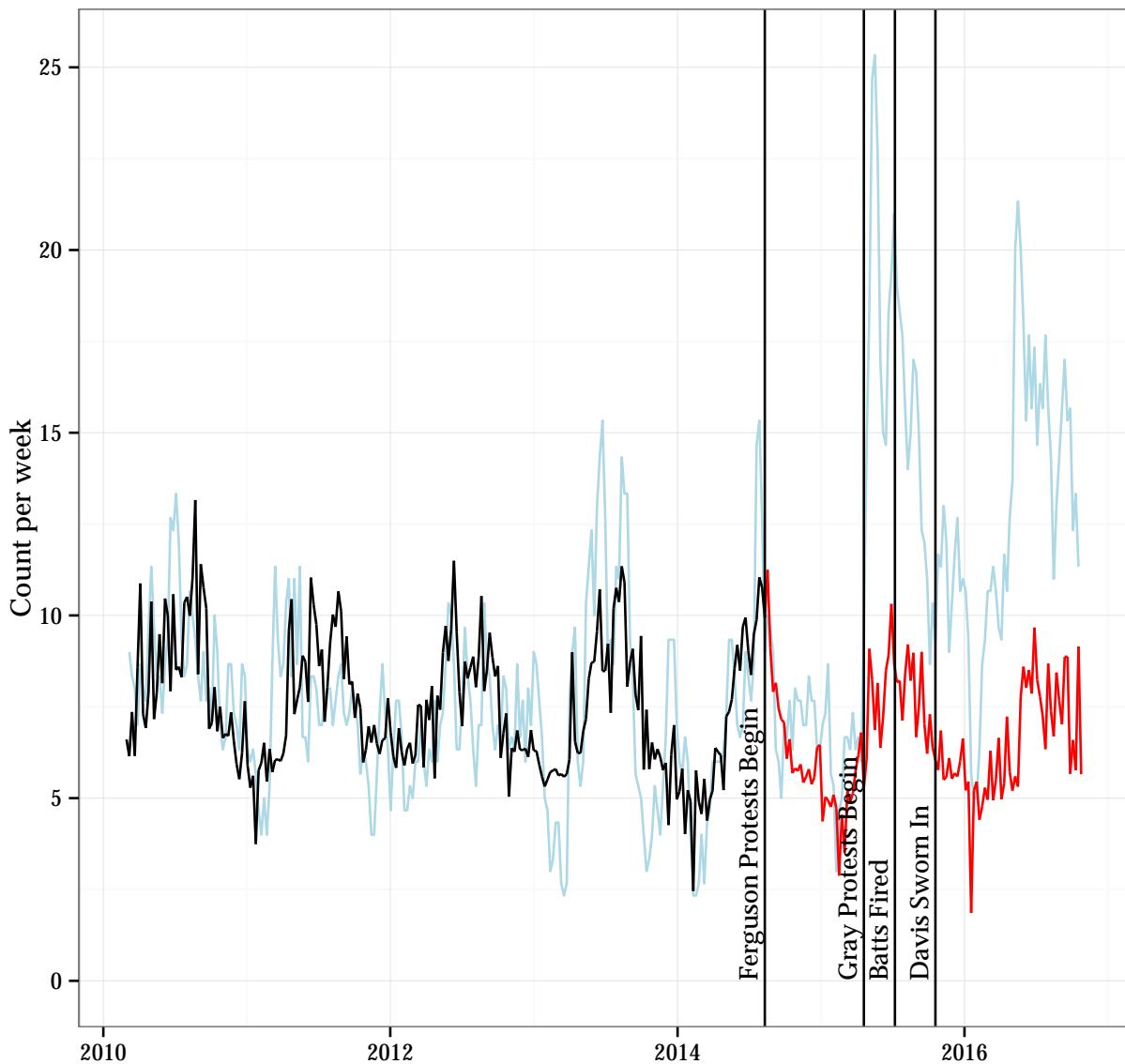
## 5.4 A Poisson Regression Model as an Alternative to Model (2) for shooting

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-3.3420 -0.9140 -0.1548  0.7434  2.8998  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) 1.3528871 0.5566616 2.430  0.0151 *  
t           -0.0006893 0.0003657 -1.885  0.0594 .  
tmax.f.spline1 0.0103792 0.0103464 1.003  0.3158  
tmax.f.spline2 -0.0122373 0.0205737 -0.595  0.5520  
tmax.f.spline3 0.0225001 0.0246063 0.914  0.3605  
tmax.f.spline4 0.0183431 0.0217054 0.845  0.3981  
tmax.f.spline5 -0.0728578 0.0175203 -4.158 3.2e-05 ***  
snow.in       -0.2566309 0.1658629 -1.547  0.1218  
precip.in      -0.1912046 0.1362160 -1.404  0.1604  
dark.before.12 0.0369308 0.0369819 0.999  0.3180  
school        -0.2506422 0.1015206 -2.469  0.0136 *  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 409.56 on 231 degrees of freedom  
Residual deviance: 310.95 on 221 degrees of freedom  
AIC: 1200.8  
  
Number of Fisher Scoring iterations: 5
```

## shooting



## shooting



## 6 Results for rape

### 6.1 Summary Values for rape

Table 6.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------|-----|-------|----------|-----|--------|-----|
| rape      | 232 | 5.638 | 2.582    | 0   | 5      | 16  |

Table 6.2: Descriptives for Outcome After Ferguson Protests Begin

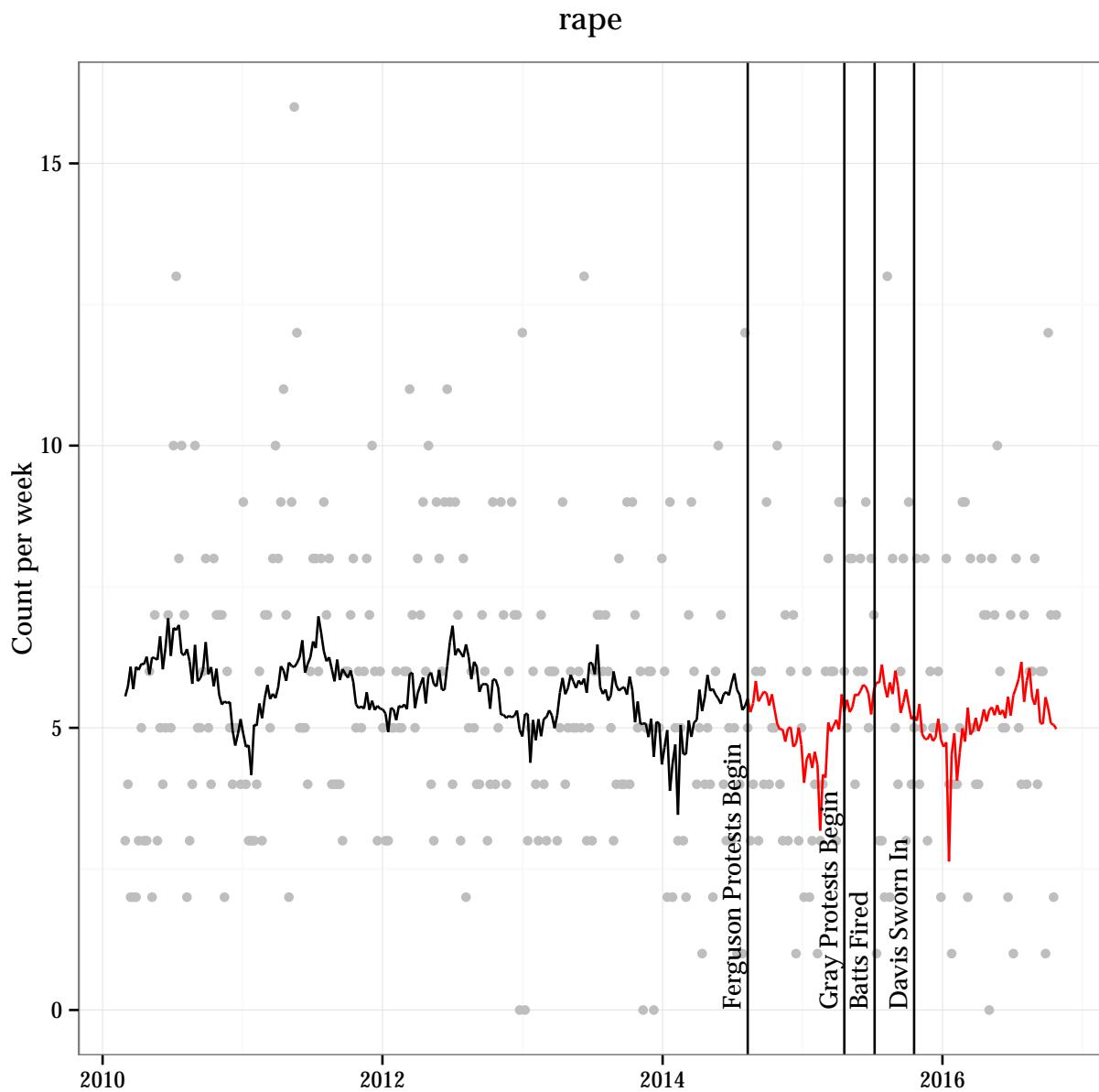
| Statistic | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------|-----|-------|----------|-----|--------|-----|
| rape      | 116 | 5.353 | 2.489    | 0   | 5      | 13  |

## 6.2 Four Models for rape

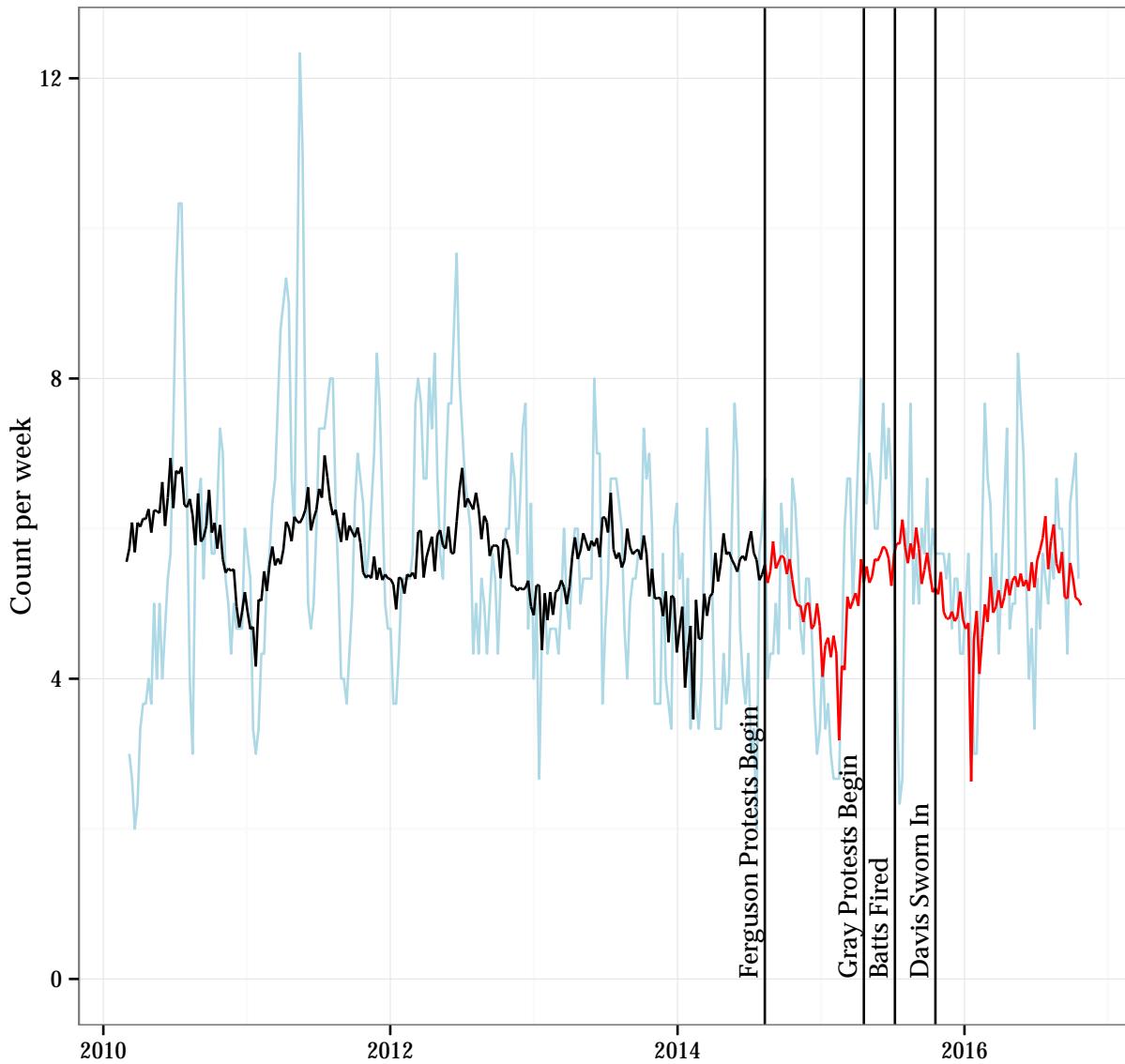
Table 6.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |        |       |        |
|--|-------------------------|--------|-------|--------|
|  | (1)                     | (2)    | (3)   | (4)    |
| Time (counter in weeks)                                | -0.003                  | -0.002 |       | -0.003 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.36                   |        | -0.08 | -0.08  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 2.03                    |        | 1.38  | 1.34   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -1.83                   |        | -1.79 | -2.00  |
| After Batts Fired (week of 7/13/15 onward)             | -1.71                   |        | -1.88 | -1.65  |
| After Davis Sworn In (week of 10/19/15 onward)         | 0.50                    |        | 0.92  | 0.71   |
| Average Maximum Temperature to 50 Degrees              | 0.05                    |        | 0.07  |        |
| Plus Degrees in the 50s                                | -0.06                   |        | -0.07 |        |
| Plus Degrees in the 60s                                | 0.08                    |        | 0.02  |        |
| Plus Degrees in the 70s                                | -0.11                   |        | -0.05 |        |
| Plus Degrees Greater Than 80                           | 0.12                    |        | 0.05  |        |
| Snowfall (inches)                                      | -0.41                   |        | -0.03 |        |
| Precipitation (inches)                                 | 0.42                    |        | -0.30 |        |
| Darkness Before Midnight (hours)                       | -0.04                   |        | -0.15 |        |
| School Days (proportion of week)                       | 0.09                    |        | 0.29  |        |
| Observations   | 348                     | 232    | 348   | 348    |
| R <sup>2</sup>   | 0.02                    | 0.05   | 0.01  | 0.06   |

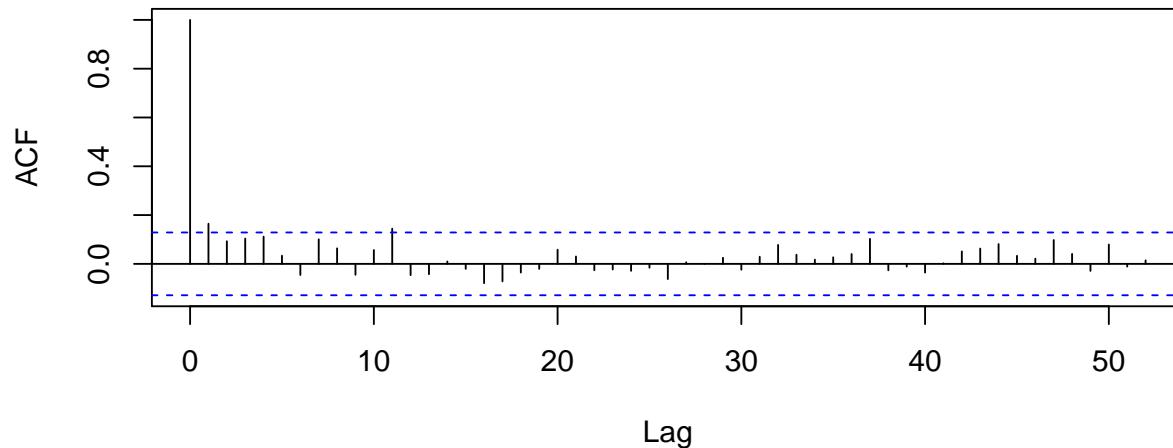
### 6.3 Least Squares Model (2) for rape



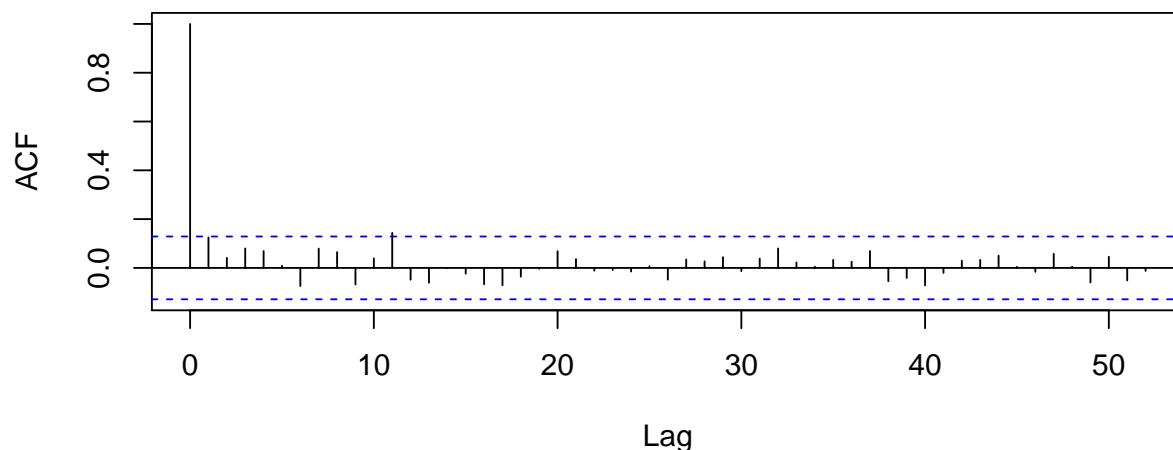
## rape



Autocorrelation Function for the Observed Outcome for Model (2)



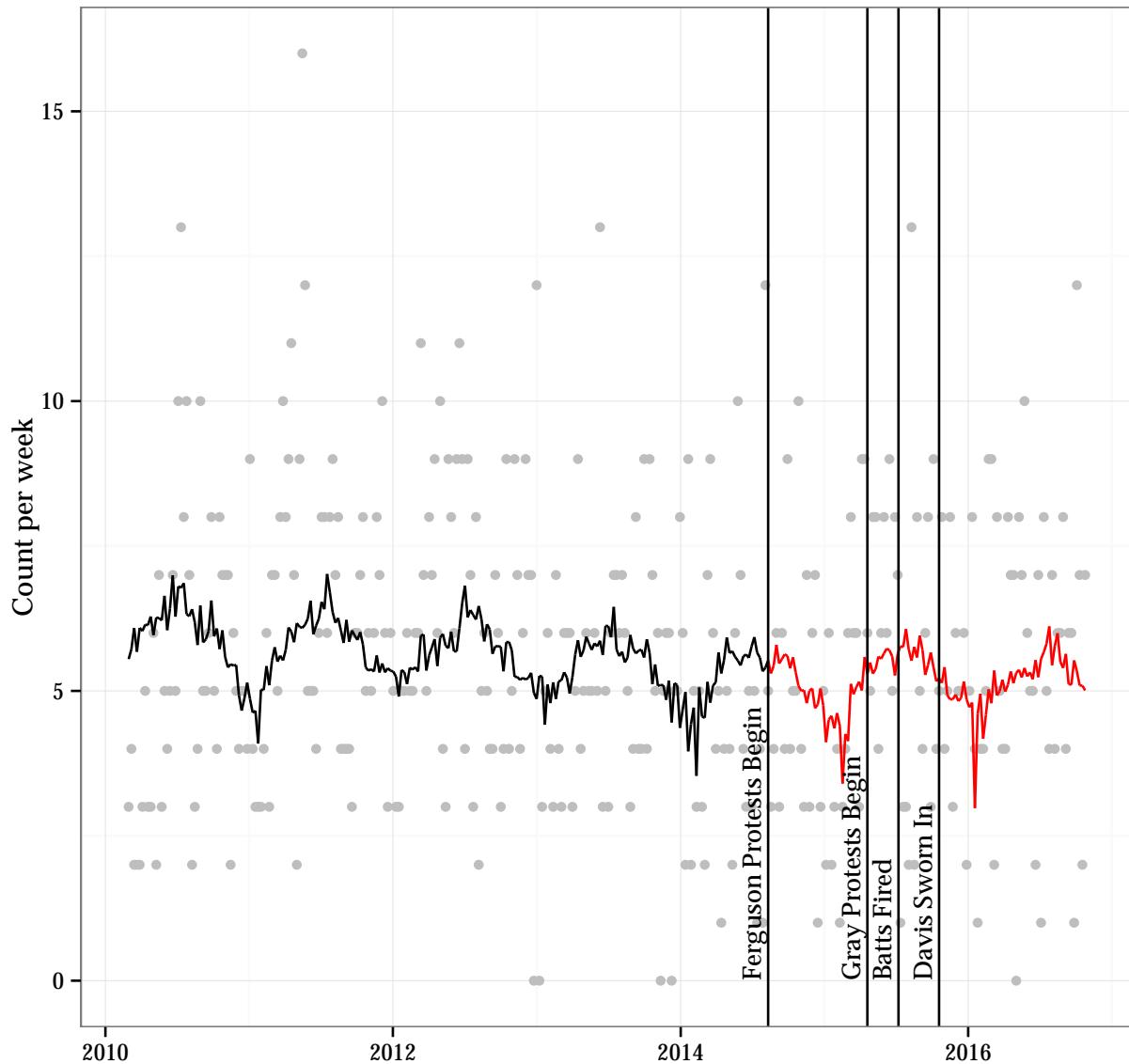
Autocorrelation Function for the Residuals from Model (2)



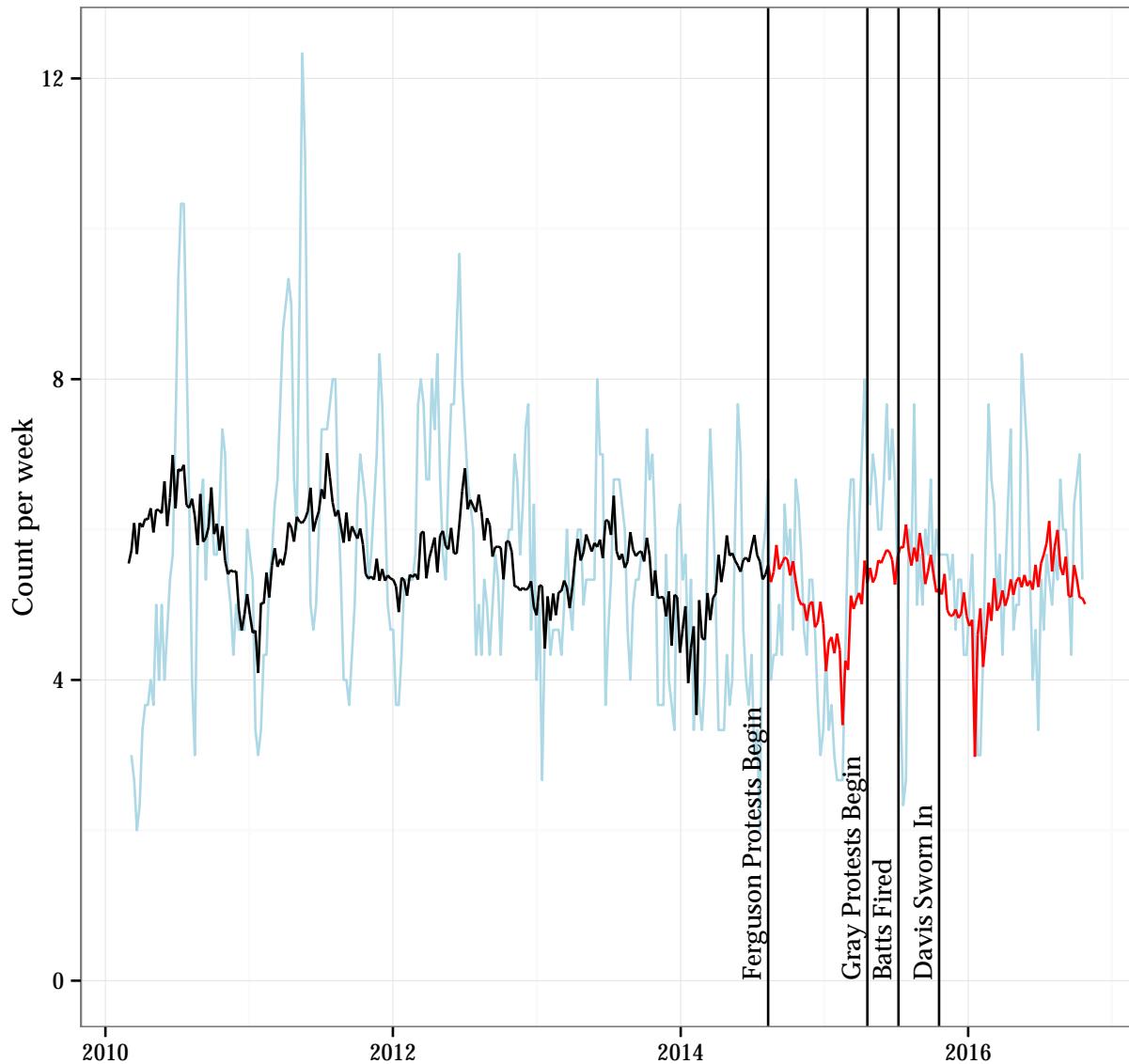
## 6.4 A Poisson Regression Model as an Alternative to Model (2) for rape

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-3.2428 -0.7690 -0.0789  0.5461  3.3316  
  
Coefficients:  
             Estimate Std. Error z value Pr(>|z|)  
(Intercept) 1.3096601  0.6075365  2.156   0.0311 *  
t            -0.0004330  0.0004271 -1.014   0.3106  
tmax.f.spline1 0.0091335  0.0111683  0.818   0.4135  
tmax.f.spline2 -0.0111209  0.0221531 -0.502   0.6157  
tmax.f.spline3  0.0135718  0.0266630  0.509   0.6107  
tmax.f.spline4 -0.0182326  0.0244718 -0.745   0.4562  
tmax.f.spline5  0.0191591  0.0209616  0.914   0.3607  
snow.in       -0.0967201  0.1563694 -0.619   0.5362  
precip.in      0.0711936  0.1514479  0.470   0.6383  
dark.before.12 -0.0075881  0.0407851 -0.186   0.8524  
school         0.0147669  0.1230912  0.120   0.9045  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 287.55 on 231 degrees of freedom  
Residual deviance: 274.45 on 221 degrees of freedom  
AIC: 1099  
  
Number of Fisher Scoring iterations: 4
```

## rape



## rape



## 7 Results for robbery.carjacking

### 7.1 Summary Values for robbery.carjacking

Table 7.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic          | N   | Mean  | St. Dev. | Min | Median | Max |
|--------------------|-----|-------|----------|-----|--------|-----|
| robbery.carjacking | 232 | 3.155 | 2.071    | 0   | 3      | 11  |

Table 7.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic          | N   | Mean  | St. Dev. | Min | Median | Max |
|--------------------|-----|-------|----------|-----|--------|-----|
| robbery.carjacking | 116 | 5.845 | 3.366    | 0   | 5.5    | 19  |

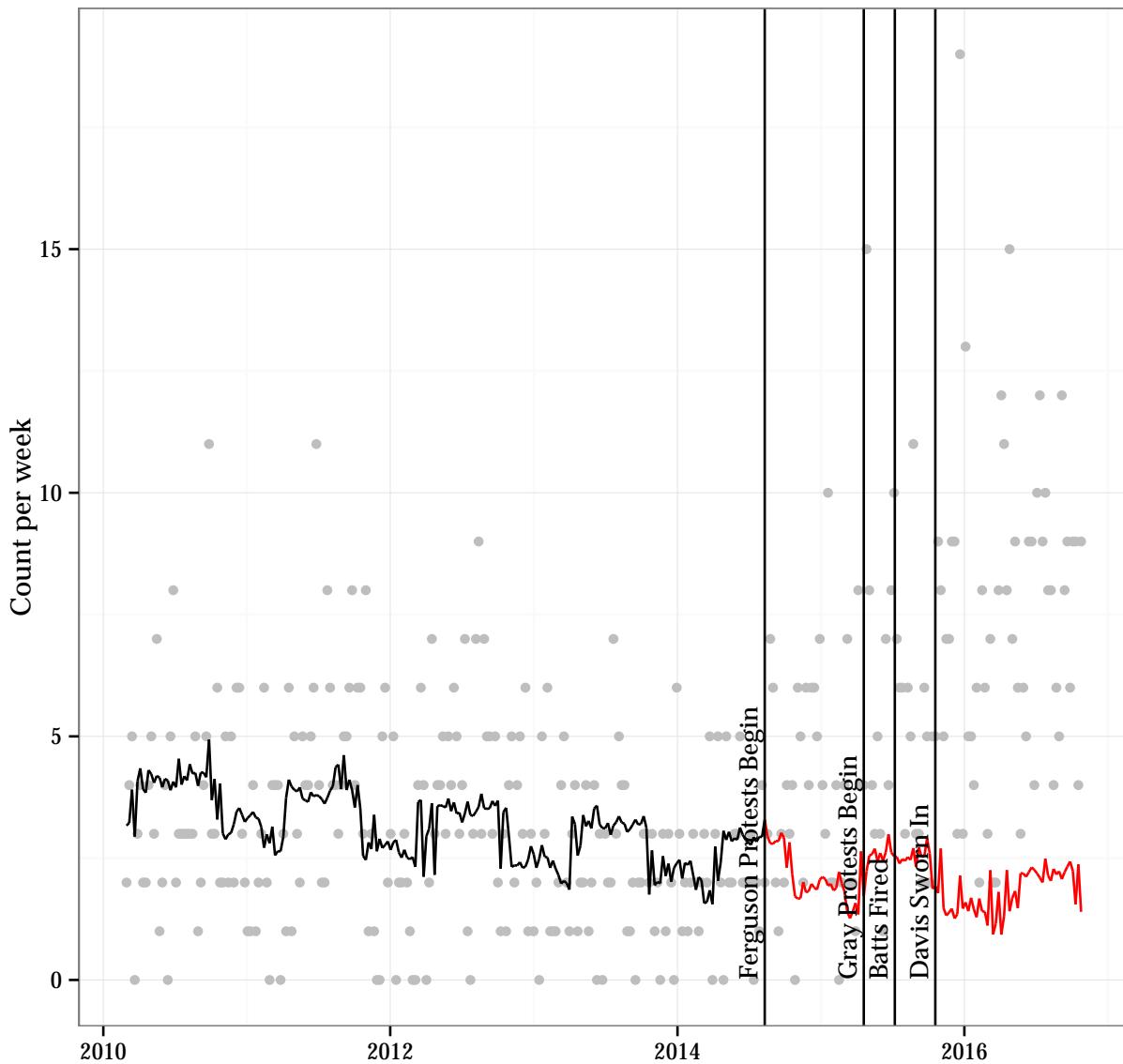
## 7.2 Four Models for robbery.carjacking

Table 7.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

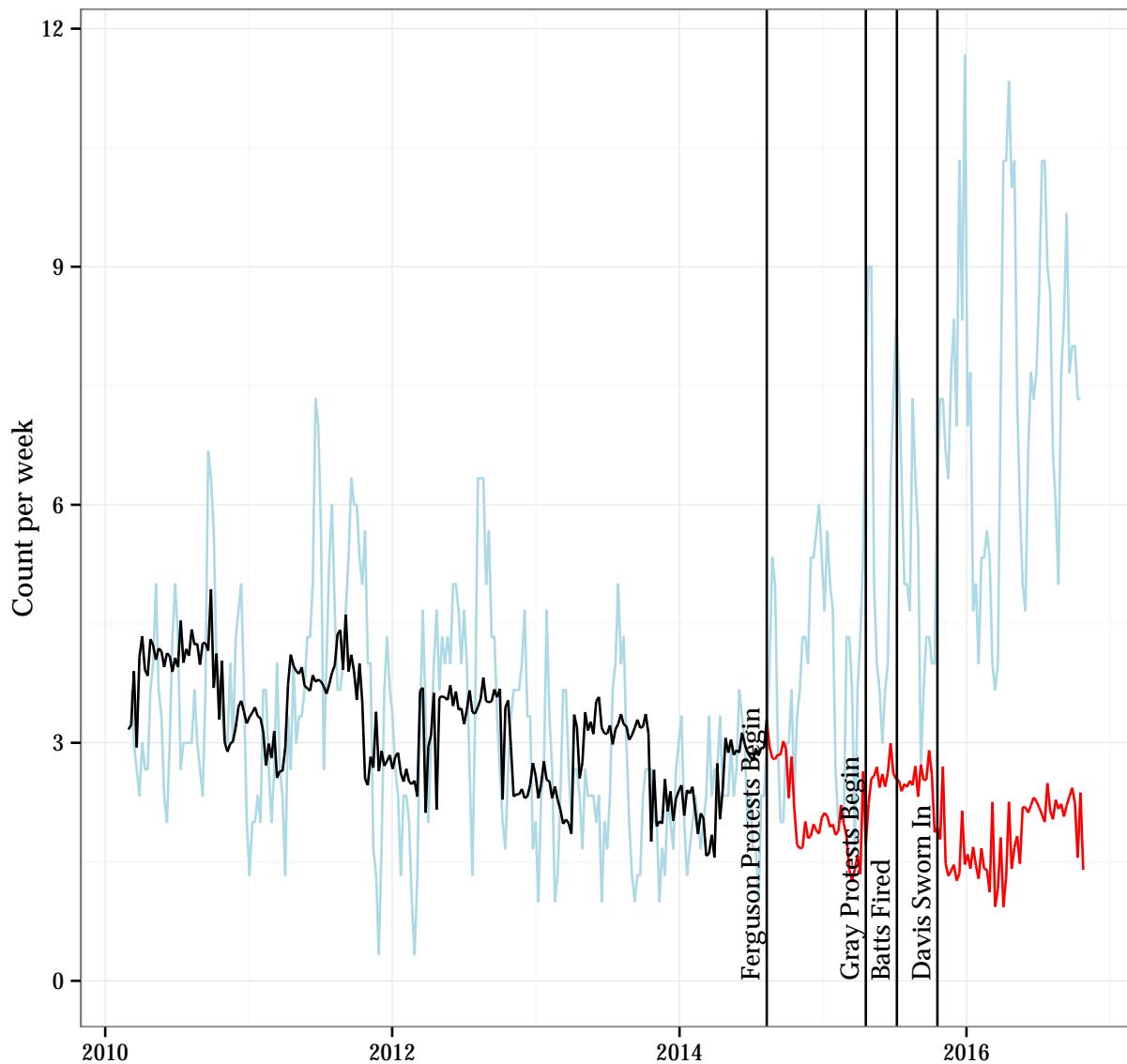
|  | Outcome: Count Per Week |       |       |       |
|--|-------------------------|-------|-------|-------|
|  | (1)                     | (2)   | (3)   | (4)   |
| Time (counter in weeks)                                | -0.01                   | -0.01 |       | -0.01 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | 1.54                    |       | 1.73  | 1.76  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 1.47                    |       | 0.92  | 0.97  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 9.79                    |       | 10.11 | 10.17 |
| After Batts Fired (week of 7/13/15 onward)             | -0.10                   |       | -0.15 | -0.32 |
| After Davis Sworn In (week of 10/19/15 onward)         | 2.56                    |       | 3.04  | 3.04  |
| Average Maximum Temperature to 50 Degrees              |                         | -0.03 |       | 0.01  |
| Plus Degrees in the 50s                                |                         | 0.02  |       | -0.02 |
| Plus Degrees in the 60s                                |                         | 0.16  |       | 0.12  |
| Plus Degrees in the 70s                                |                         | -0.14 |       | -0.13 |
| Plus Degrees Greater Than 80                           |                         | -0.03 |       | 0.02  |
| Snowfall (inches)                                      |                         | -0.12 |       | -0.47 |
| Precipitation (inches)                                 |                         | 0.72  |       | 1.01  |
| Darkness Before Midnight (hours)                       |                         | 0.13  |       | 0.16  |
| School Days (proportion of week)                       |                         | -0.15 |       | -0.94 |
| Observations   | 348                     | 232   | 348   | 348   |
| R <sup>2</sup>   | 0.34                    | 0.11  | 0.46  | 0.37  |

### 7.3 Least Squares Model (2) for robbery.carjacking

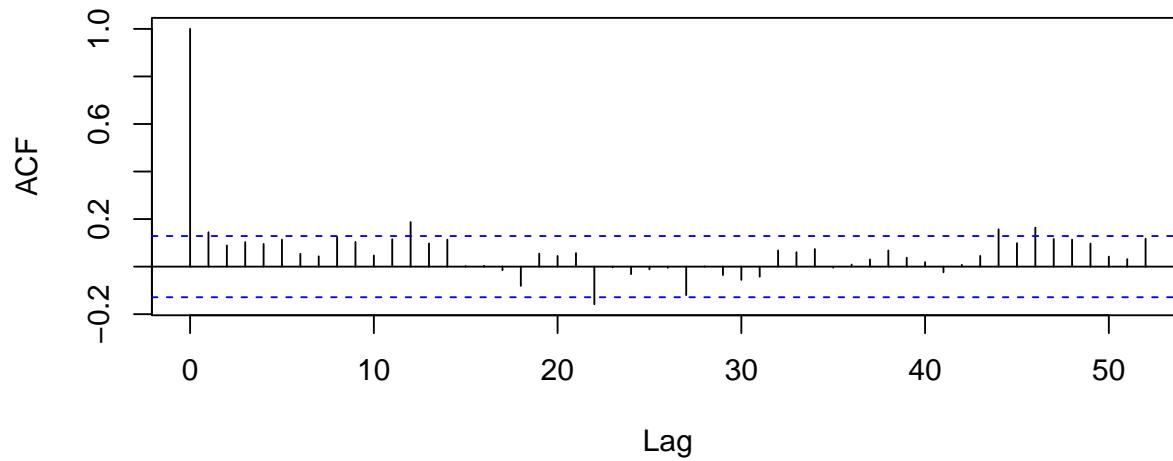
robbery.carjacking



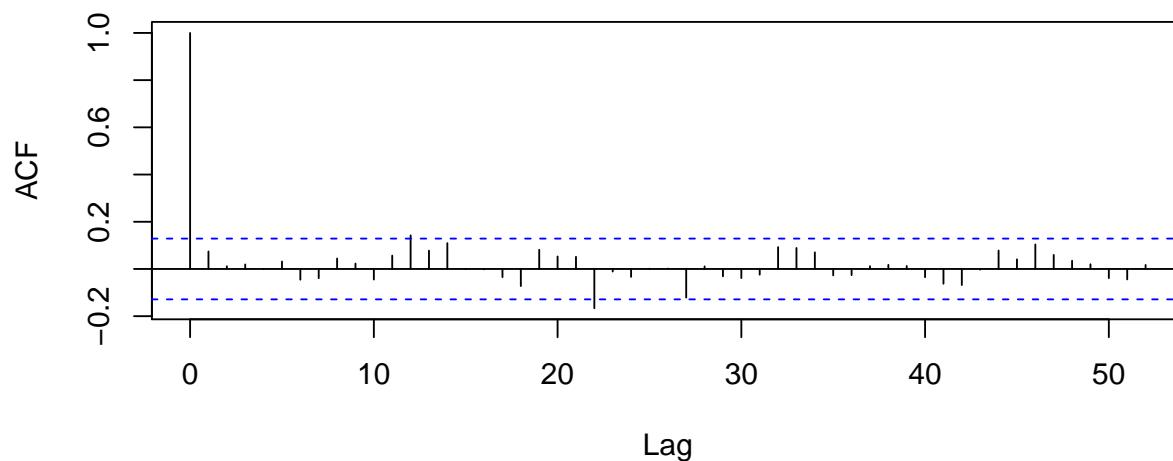
## robbery.carjacking



Autocorrelation Function for the Observed Outcome for Model (2)



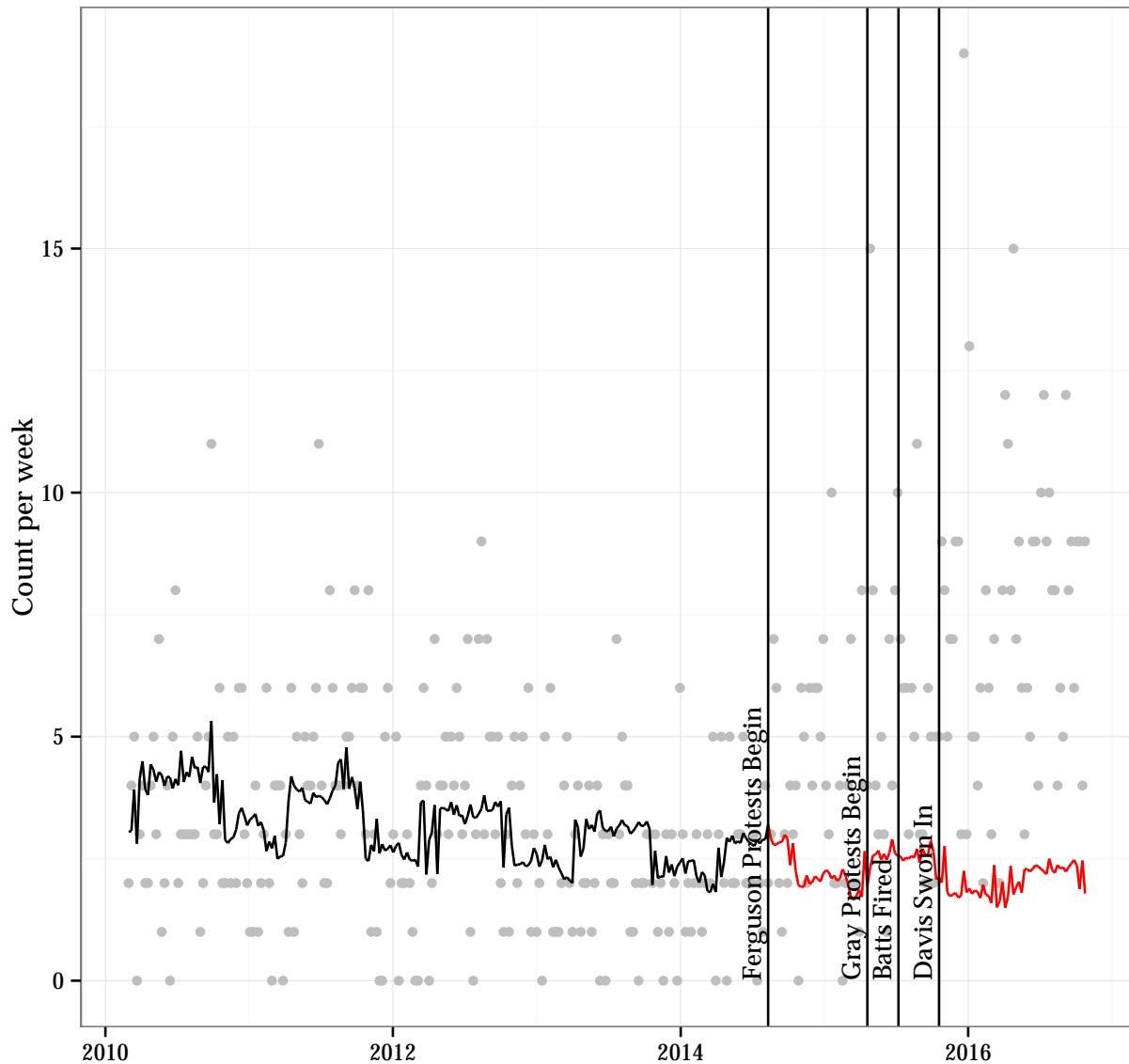
Autocorrelation Function for the Residuals from Model (2)



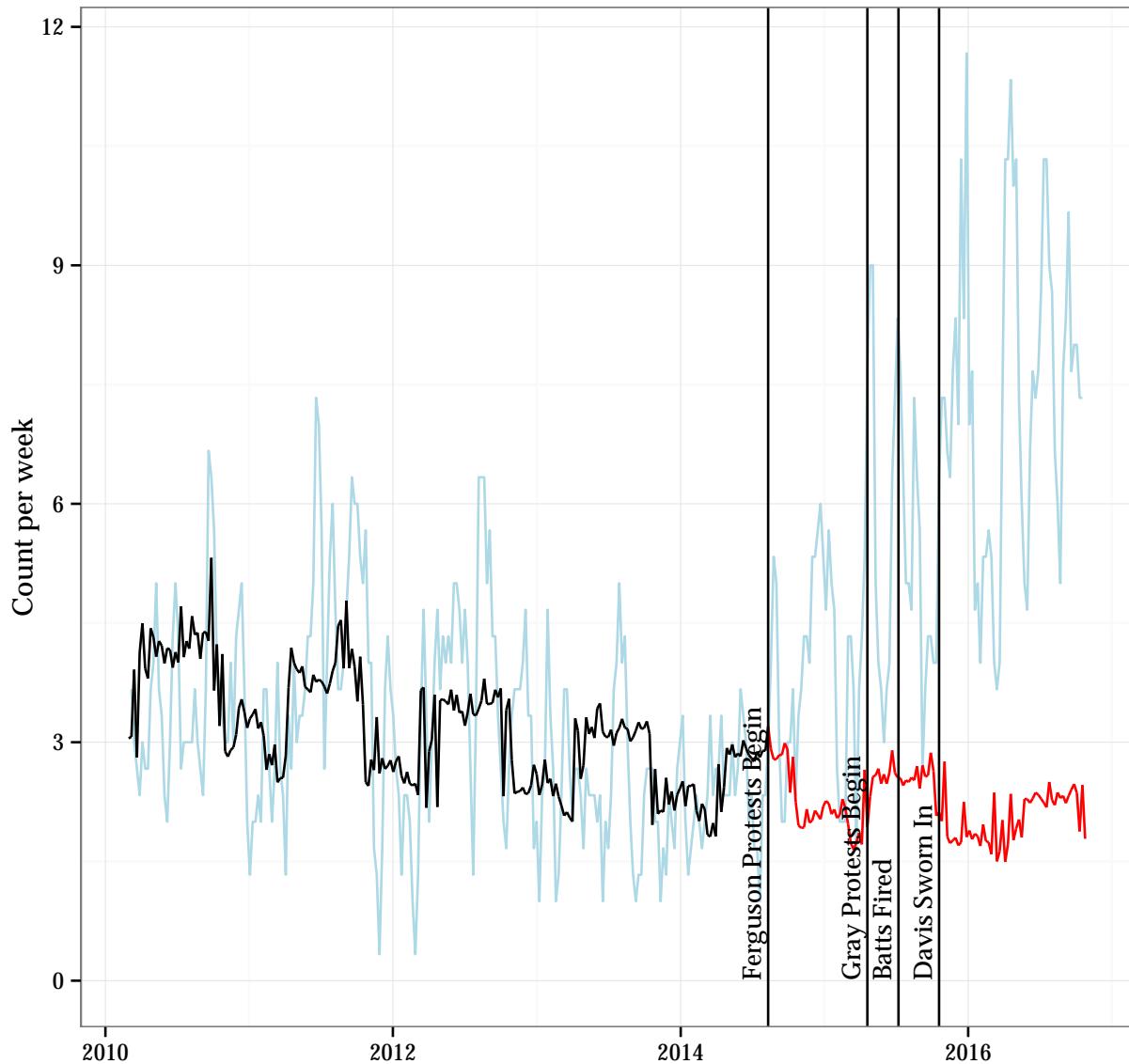
## 7.4 A Poisson Regression Model as an Alternative to Model (2) for robbery.carjacking

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-2.8859 -0.8446 -0.1236  0.5623  3.0046  
  
Coefficients:  
             Estimate Std. Error z value Pr(>|z|)  
(Intercept) 1.3982542  0.8108040  1.725 0.084613 .  
t            -0.0019587  0.0005686 -3.445 0.000572 ***  
tmax.f.spline1 -0.0111690  0.0148900 -0.750 0.453194  
tmax.f.spline2  0.0076692  0.0313239  0.245 0.806583  
tmax.f.spline3  0.0541631  0.0383133  1.414 0.157453  
tmax.f.spline4 -0.0492818  0.0328721 -1.499 0.133822  
tmax.f.spline5 -0.0071229  0.0272833 -0.261 0.794036  
snow.in        -0.0593475  0.2011582 -0.295 0.767972  
precip.in       0.1979733  0.1921123  1.031 0.302772  
dark.before.12  0.0479398  0.0572685  0.837 0.402533  
school         -0.0511976  0.1621547 -0.316 0.752205  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 346.44 on 231 degrees of freedom  
Residual deviance: 310.61 on 221 degrees of freedom  
AIC: 965.16  
  
Number of Fisher Scoring iterations: 5
```

## robbery.carjacking



## robbery.carjacking



## 8 Results for robbery.street

### 8.1 Summary Values for robbery.street

Table 8.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic      | N   | Mean   | St. Dev. | Min | Median | Max |
|----------------|-----|--------|----------|-----|--------|-----|
| robbery.street | 232 | 50.621 | 12.474   | 24  | 50     | 97  |

Table 8.2: Descriptives for Outcome After Ferguson Protests Begin

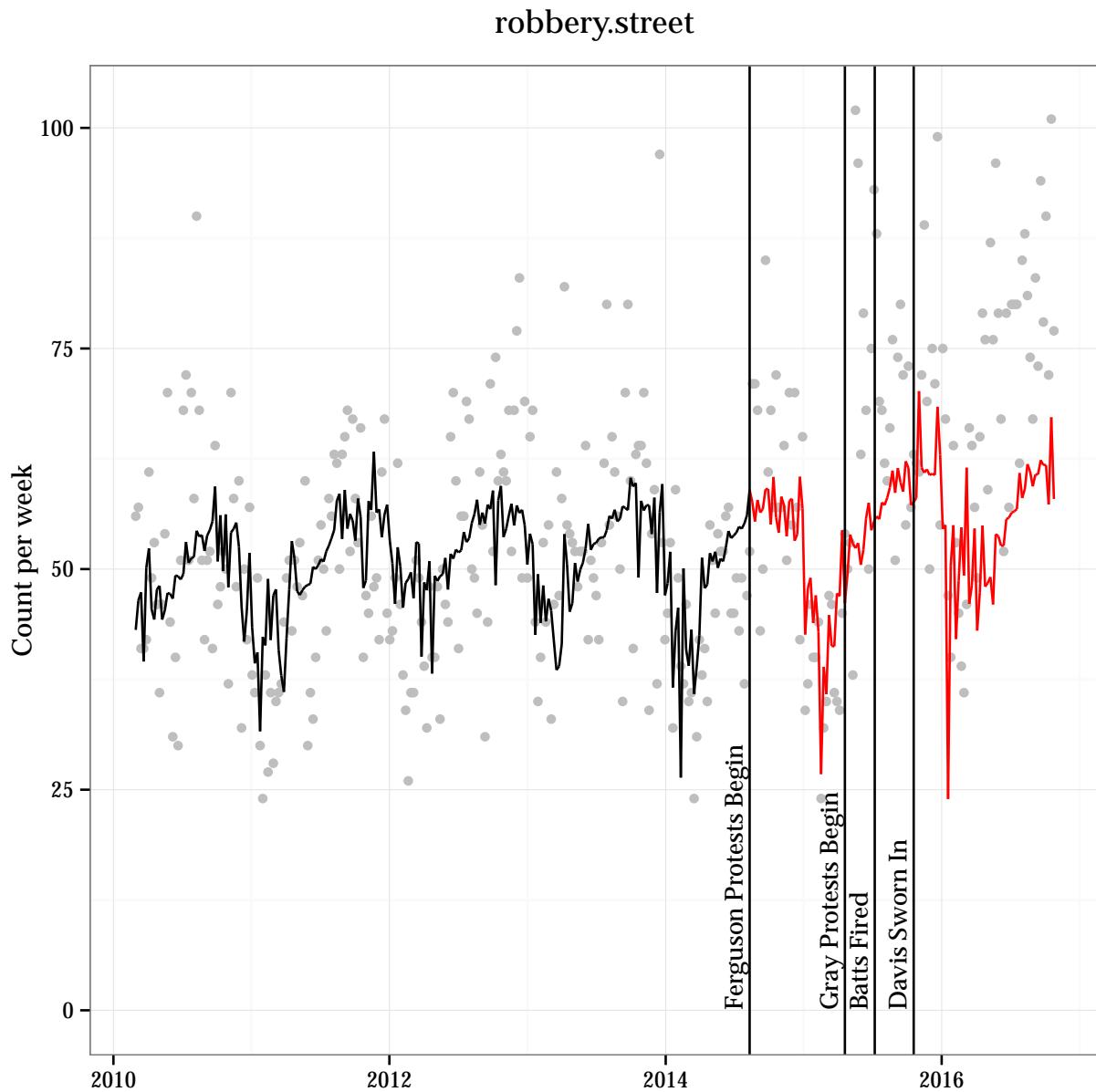
| Statistic      | N   | Mean   | St. Dev. | Min | Median | Max |
|----------------|-----|--------|----------|-----|--------|-----|
| robbery.street | 116 | 63.655 | 17.211   | 24  | 64.5   | 102 |

## 8.2 Four Models for robbery.street

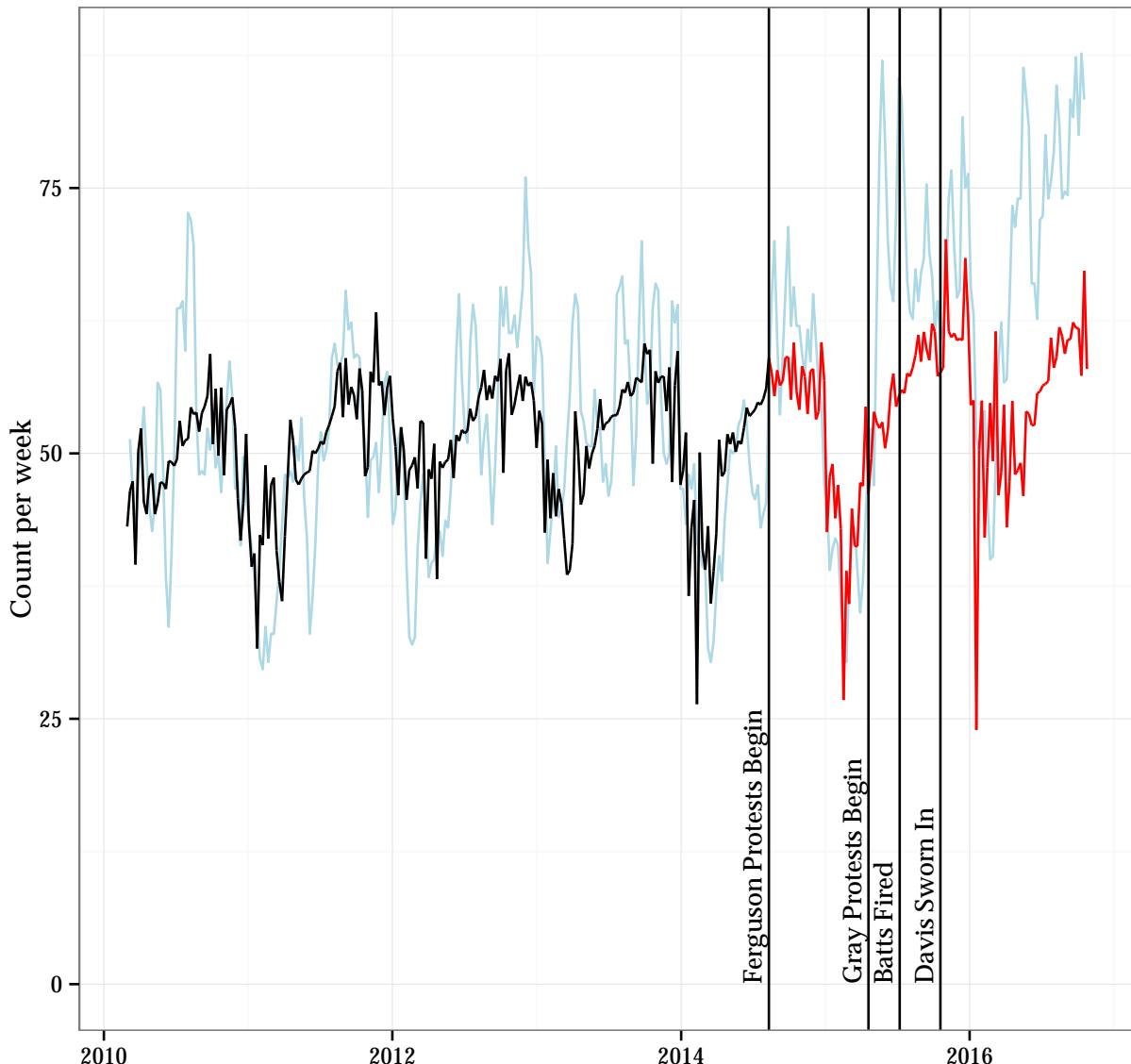
Table 8.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |       |        |        |
|--|-------------------------|-------|--------|--------|
|  | (1)                     | (2)   | (3)    | (4)    |
| Time (counter in weeks)                                | 0.01                    | 0.02  |        | 0.03   |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.67                   |       | 0.40   | 0.44   |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 18.08                   |       | 16.60  | 14.80  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -20.03                  |       | -16.56 | -15.81 |
| After Batts Fired (week of 7/13/15 onward)             | -2.33                   |       | -7.97  | -8.19  |
| After Davis Sworn In (week of 10/19/15 onward)         | 1.09                    |       | 4.72   | 5.42   |
| Average Maximum Temperature to 50 Degrees              |                         | 0.63  |        | 0.60   |
| Plus Degrees in the 50s                                |                         | -0.41 |        | -0.11  |
| Plus Degrees in the 60s                                |                         | 0.91  |        | 0.57   |
| Plus Degrees in the 70s                                |                         | -0.85 |        | -0.57  |
| Plus Degrees Greater Than 80                           |                         | -0.23 |        | -0.32  |
| Snowfall (inches)                                      |                         | -6.12 |        | -4.67  |
| Precipitation (inches)                                 |                         | 5.01  |        | 3.14   |
| Darkness Before Midnight (hours)                       |                         | 6.12  |        | 6.09   |
| School Days (proportion of week)                       |                         | -4.61 |        | -2.22  |
| Observations   | 348                     | 232   | 348    | 348    |
| R <sup>2</sup>   | 0.25                    | 0.21  | 0.19   | 0.43   |

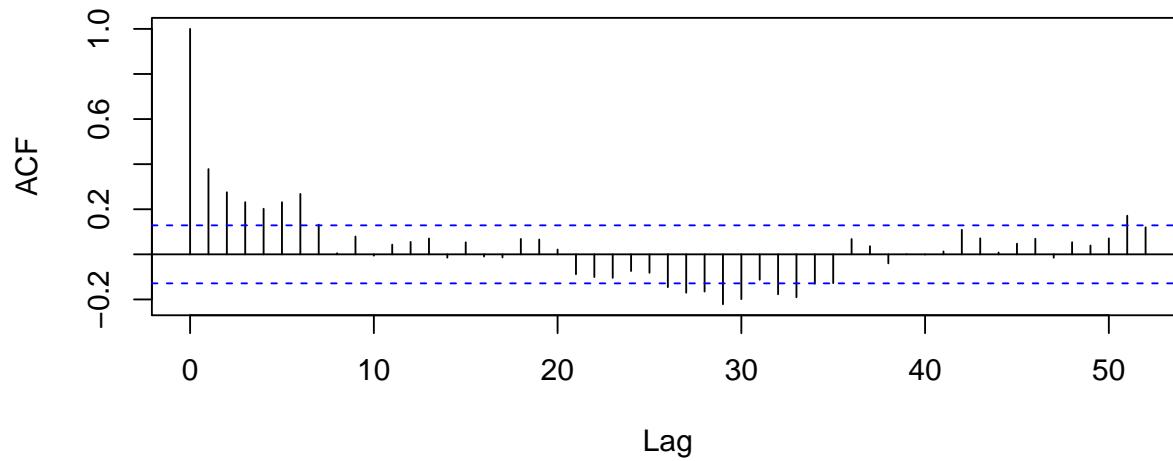
### 8.3 Least Squares Model (2) for robbery.street



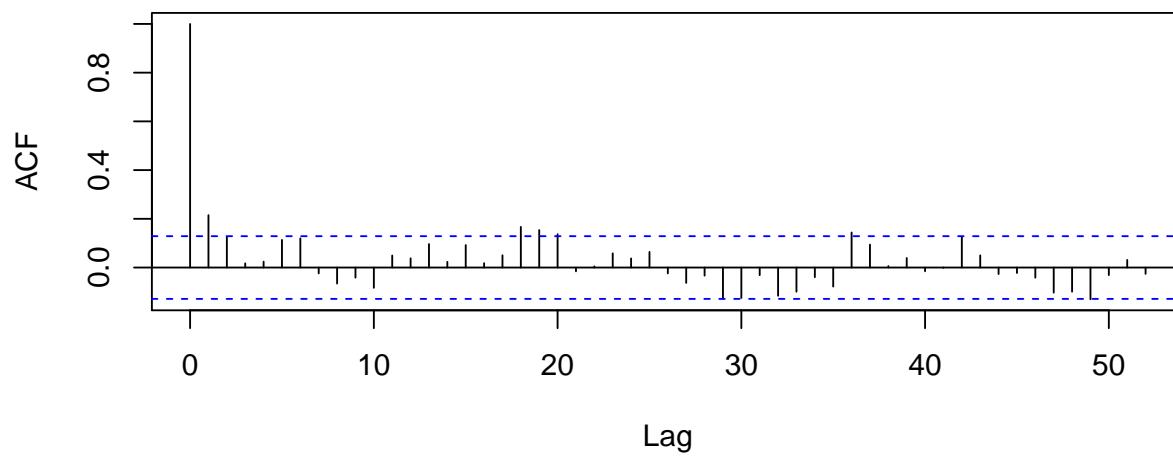
## robbery.street



Autocorrelation Function for the Observed Outcome for Model (2)



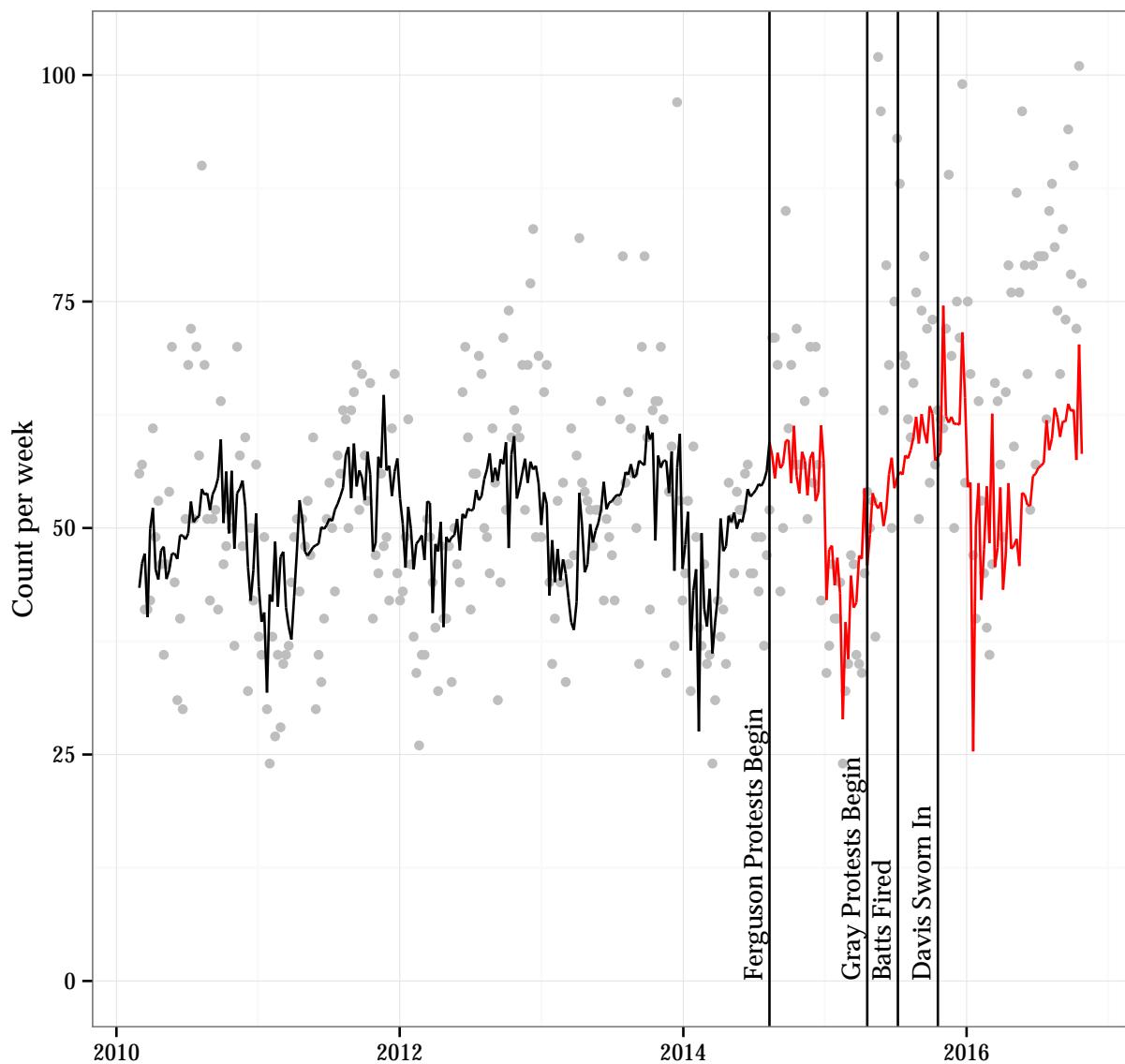
Autocorrelation Function for the Residuals from Model (2)



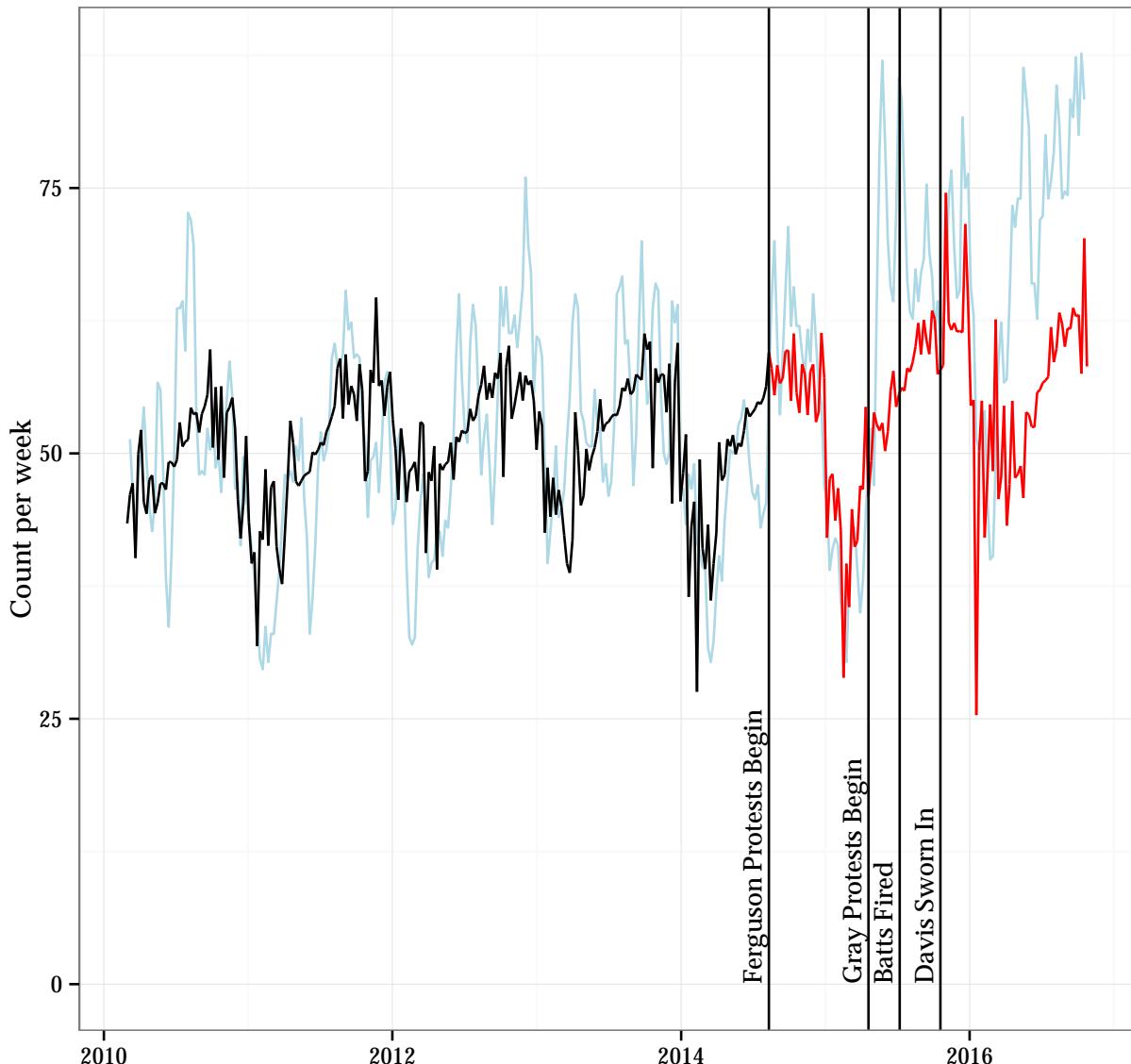
## 8.4 A Poisson Regression Model as an Alternative to Model (2) for robbery.street

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-3.5648 -1.1086 -0.0602  0.9894  4.8631  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) 2.4938087 0.1991196 12.524 < 2e-16 ***  
t            0.0004288 0.0001437  2.985 0.002840 **  
tmax.f.spline1 0.0126913 0.0036727  3.456 0.000549 ***  
tmax.f.spline2 -0.0087399 0.0073473 -1.190 0.234229  
tmax.f.spline3 0.0192579 0.0089215  2.159 0.030881 *  
tmax.f.spline4 -0.0175956 0.0082267 -2.139 0.032449 *  
tmax.f.spline5 -0.0044547 0.0071131 -0.626 0.531137  
snow.in       -0.1668873 0.0544354 -3.066 0.002171 **  
precip.in      0.0957153 0.0500479  1.912 0.055815 .  
dark.before.12 0.1225102 0.0136504  8.975 < 2e-16 ***  
school        -0.0936187 0.0407435 -2.298 0.021576 *  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 703.34 on 231 degrees of freedom  
Residual deviance: 545.36 on 221 degrees of freedom  
AIC: 1897.9  
  
Number of Fisher Scoring iterations: 4
```

## robbery.street



## robbery.street



## 9 Results for robbery.commercial

### 9.1 Summary Values for robbery.commercial

Table 9.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic          | N   | Mean   | St. Dev. | Min | Median | Max |
|--------------------|-----|--------|----------|-----|--------|-----|
| robbery.commercial | 232 | 10.569 | 4.376    | 2   | 10     | 25  |

Table 9.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic          | N   | Mean   | St. Dev. | Min | Median | Max |
|--------------------|-----|--------|----------|-----|--------|-----|
| robbery.commercial | 116 | 15.828 | 5.634    | 4   | 15     | 44  |

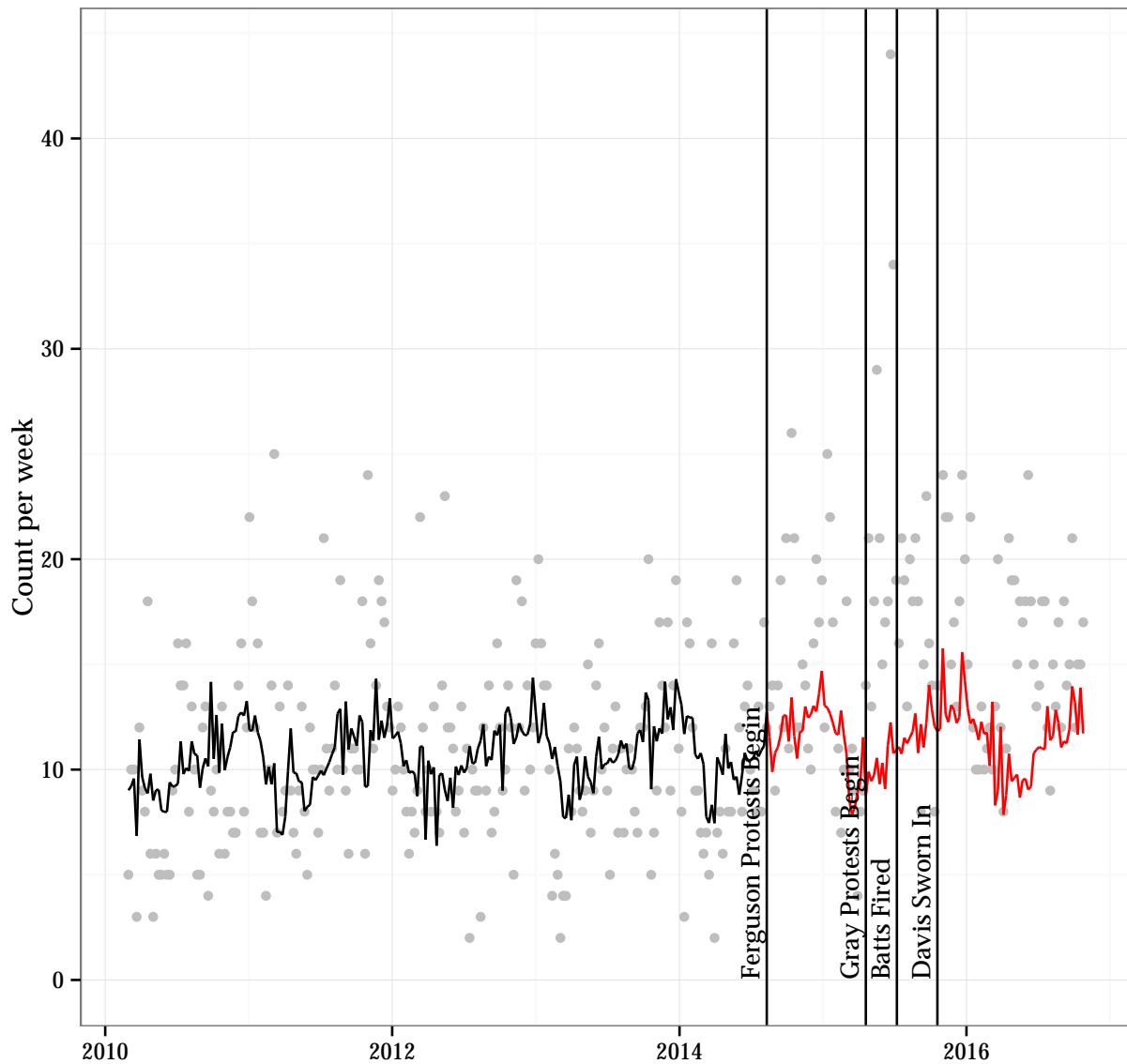
## 9.2 Four Models for robbery.commercial

Table 9.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

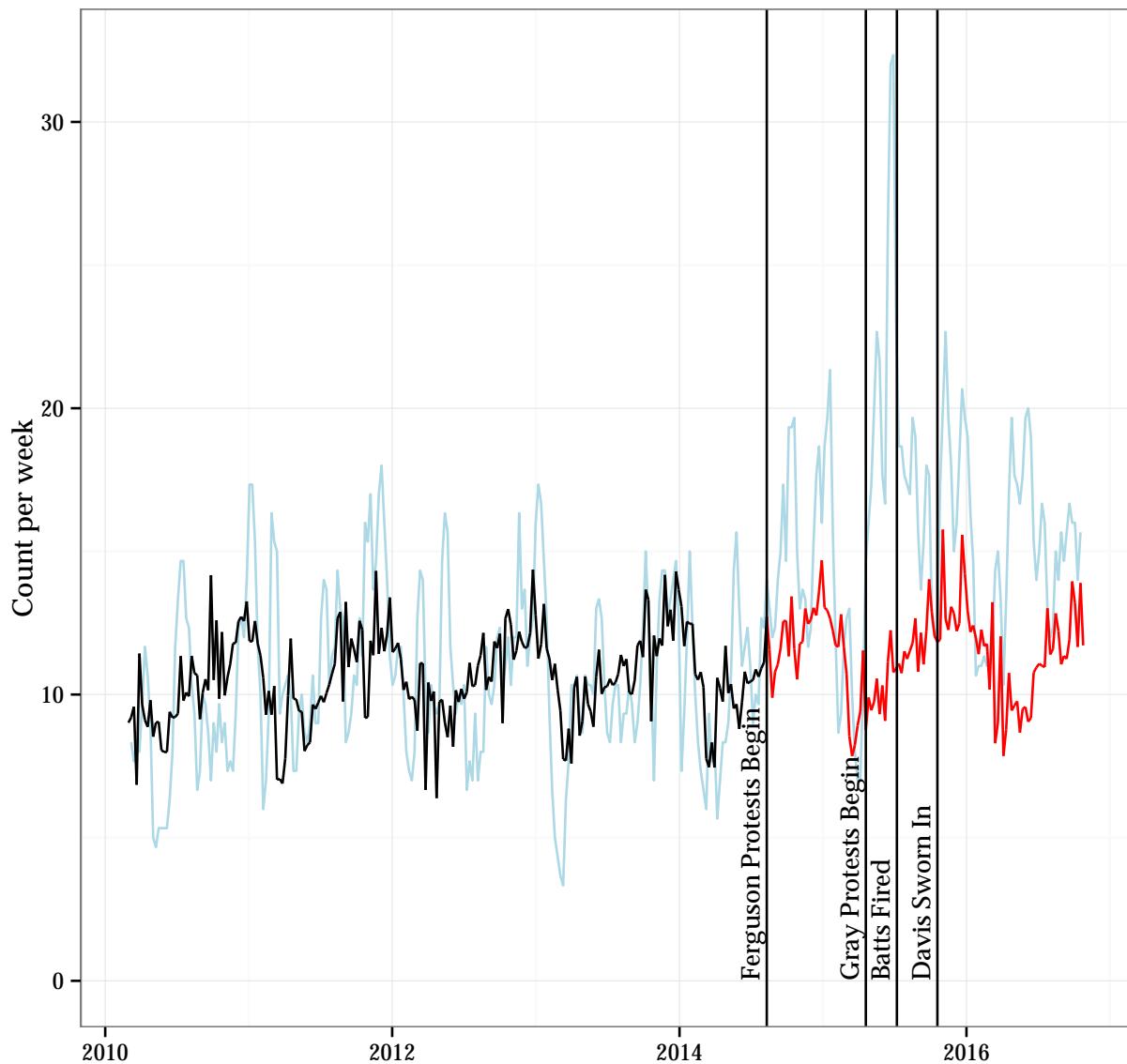
|  | Outcome: Count Per Week |       |       |       |
|--|-------------------------|-------|-------|-------|
|  | (1)                     | (2)   | (3)   | (4)   |
| Time (counter in weeks)                                | 0.003                   | 0.005 |       | 0.004 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | 2.89                    |       | 2.21  | 2.40  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 8.07                    |       | 9.58  | 9.20  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -0.99                   |       | -0.69 | -0.38 |
| After Batts Fired (week of 7/13/15 onward)             | -5.61                   |       | -7.20 | -7.03 |
| After Davis Sworn In (week of 10/19/15 onward)         | -0.90                   |       | -0.48 | -0.37 |
| Average Maximum Temperature to 50 Degrees              |                         | -0.09 |       | -0.08 |
| Plus Degrees in the 50s                                |                         | 0.06  |       | 0.09  |
| Plus Degrees in the 60s                                |                         | 0.45  |       | 0.42  |
| Plus Degrees in the 70s                                |                         | -0.53 |       | -0.49 |
| Plus Degrees Greater Than 80                           |                         | 0.11  |       | 0.004 |
| Snowfall (inches)                                      |                         | -0.60 |       | -1.40 |
| Precipitation (inches)                                 |                         | 2.75  |       | 3.35  |
| Darkness Before Midnight (hours)                       |                         | 1.69  |       | 1.72  |
| School Days (proportion of week)                       |                         | -2.56 |       | -2.90 |
| Observations   | 348                     | 232   | 348   | 348   |
| R <sup>2</sup>   | 0.27                    | 0.13  | 0.26  | 0.36  |

### 9.3 Least Squares Model (2) for robbery.commercial

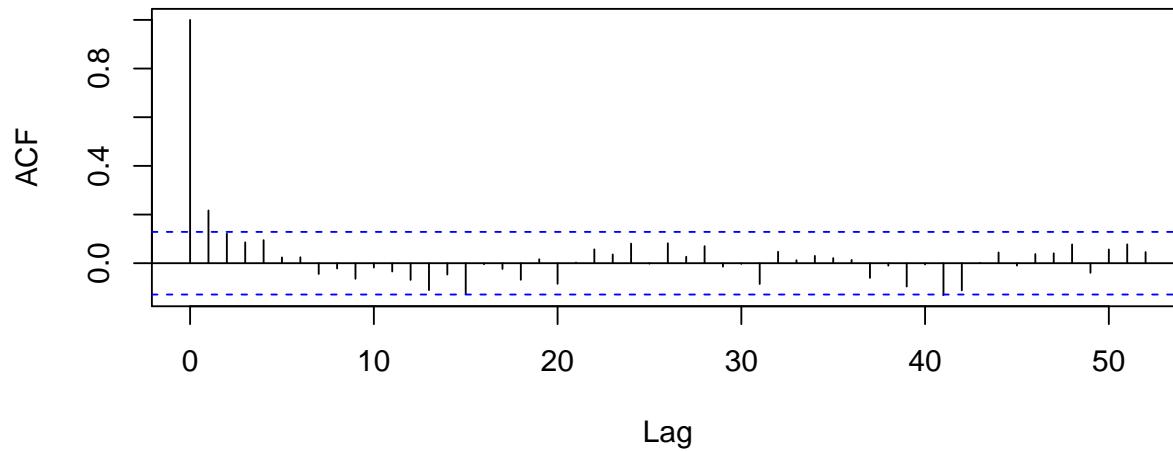
robbery.commercial



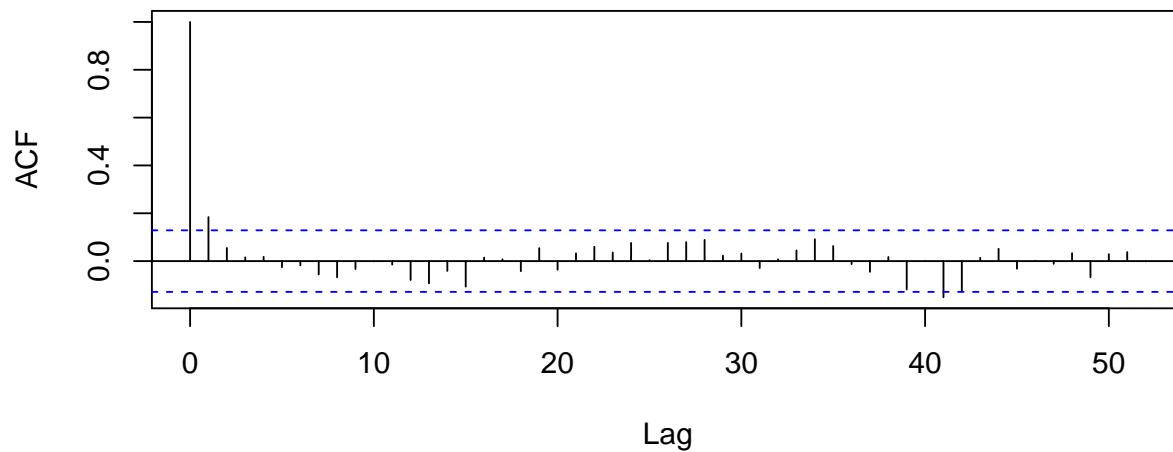
## robbery.commercial



Autocorrelation Function for the Observed Outcome for Model (2)



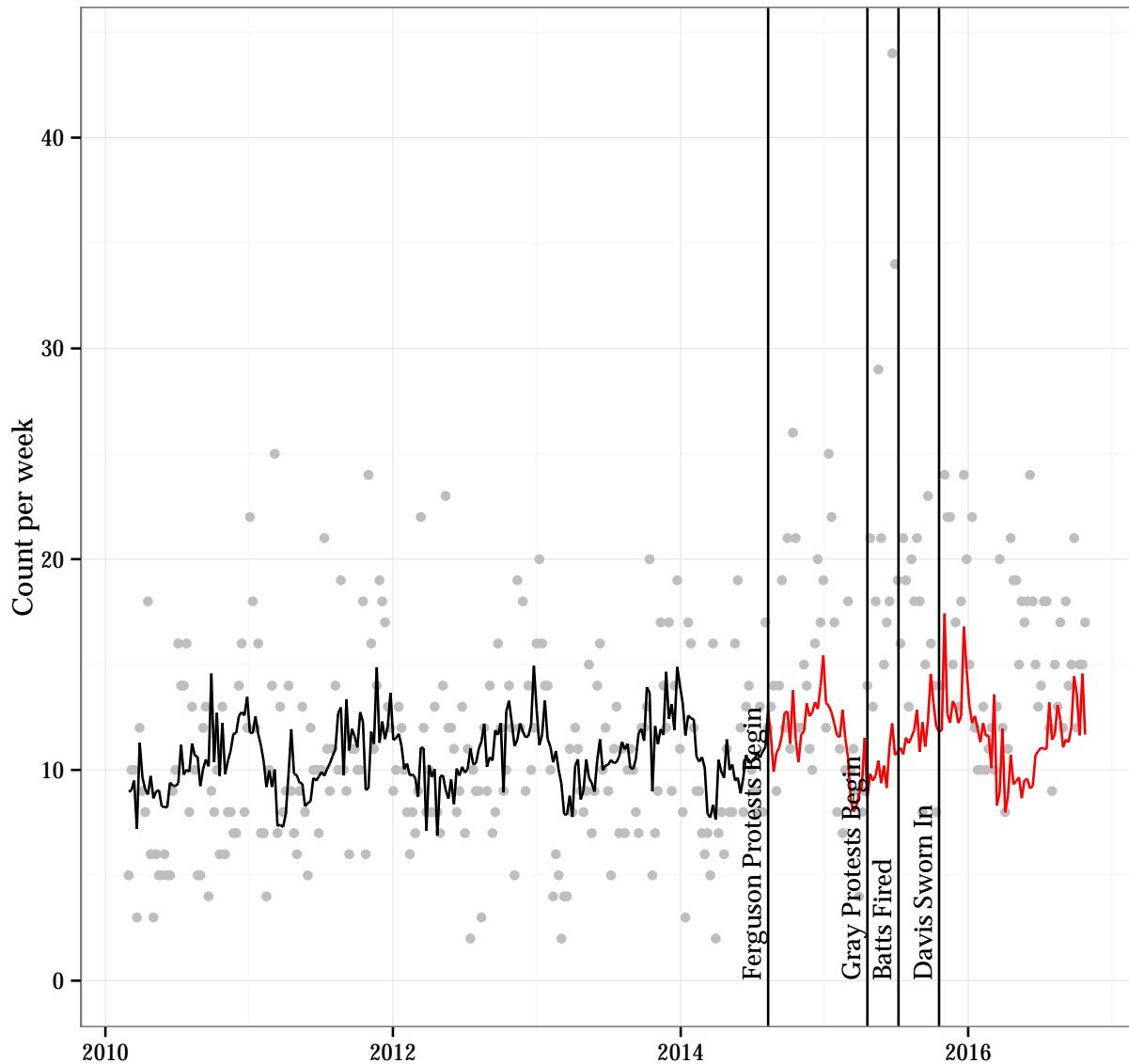
Autocorrelation Function for the Residuals from Model (2)



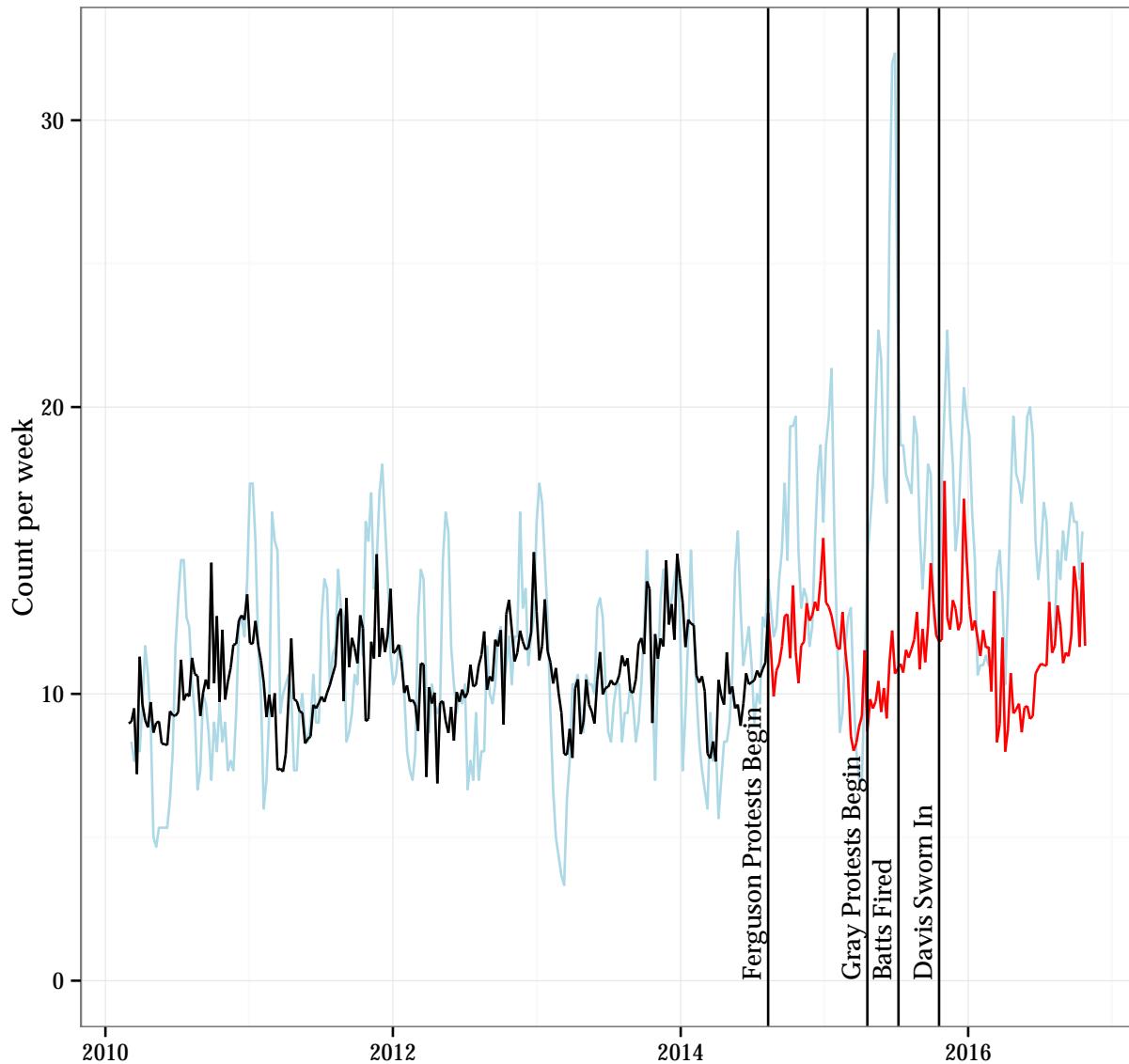
## 9.4 A Poisson Regression Model as an Alternative to Model (2) for robbery.commercial

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-3.3481 -0.9092 -0.1272  0.7183  4.0851  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) 1.7397756  0.4027665  4.320 1.56e-05 ***  
t            0.0004580  0.0003147  1.456  0.14547  
tmax.f.spline1 -0.0076588  0.0072386 -1.058  0.29003  
tmax.f.spline2  0.0046290  0.0155889  0.297  0.76651  
tmax.f.spline3  0.0451916  0.0199440  2.266  0.02346 *  
tmax.f.spline4 -0.0518994  0.0183232 -2.832  0.00462 **  
tmax.f.spline5  0.0101545  0.0160573  0.632  0.52713  
snow.in       -0.0517243  0.0952641 -0.543  0.58716  
precip.in      0.2449823  0.1067537  2.295  0.02174 *  
dark.before.12 0.1653790  0.0302018  5.476 4.36e-08 ***  
school        -0.2422098  0.0891908 -2.716  0.00661 **  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 415.77 on 231 degrees of freedom  
Residual deviance: 362.02 on 221 degrees of freedom  
AIC: 1340.4  
  
Number of Fisher Scoring iterations: 4
```

## robbery.commercial



## robbery.commercial



## 10 Results for robbery.residence

### 10.1 Summary Values for robbery.residence

Table 10.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic         | N   | Mean   | St. Dev. | Min | Median | Max |
|-------------------|-----|--------|----------|-----|--------|-----|
| robbery.residence | 232 | 10.276 | 4.052    | 1   | 10     | 27  |

Table 10.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic         | N   | Mean  | St. Dev. | Min | Median | Max |
|-------------------|-----|-------|----------|-----|--------|-----|
| robbery.residence | 116 | 8.871 | 3.348    | 1   | 9      | 19  |

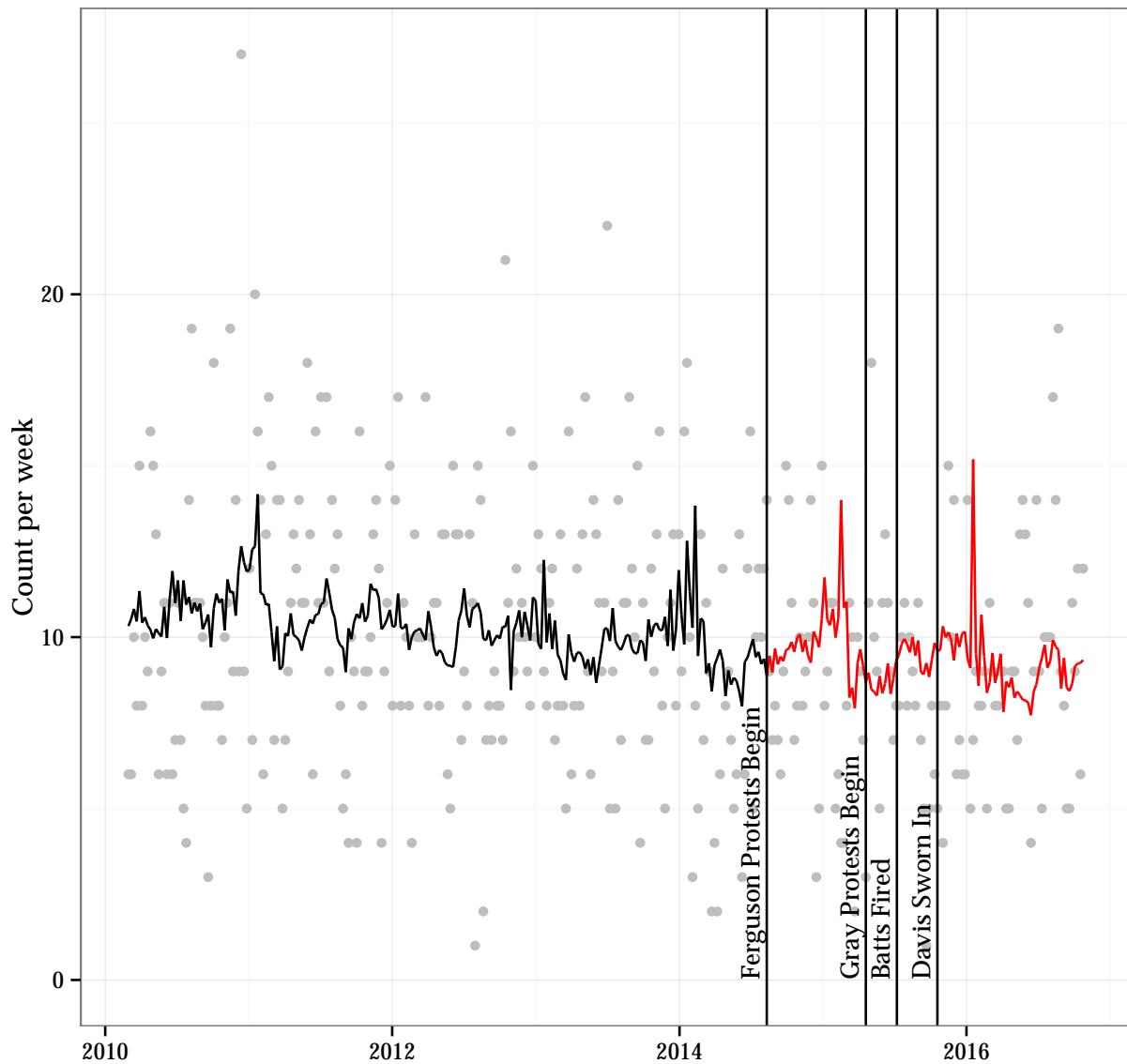
## 10.2 Four Models for robbery.residence

Table 10.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

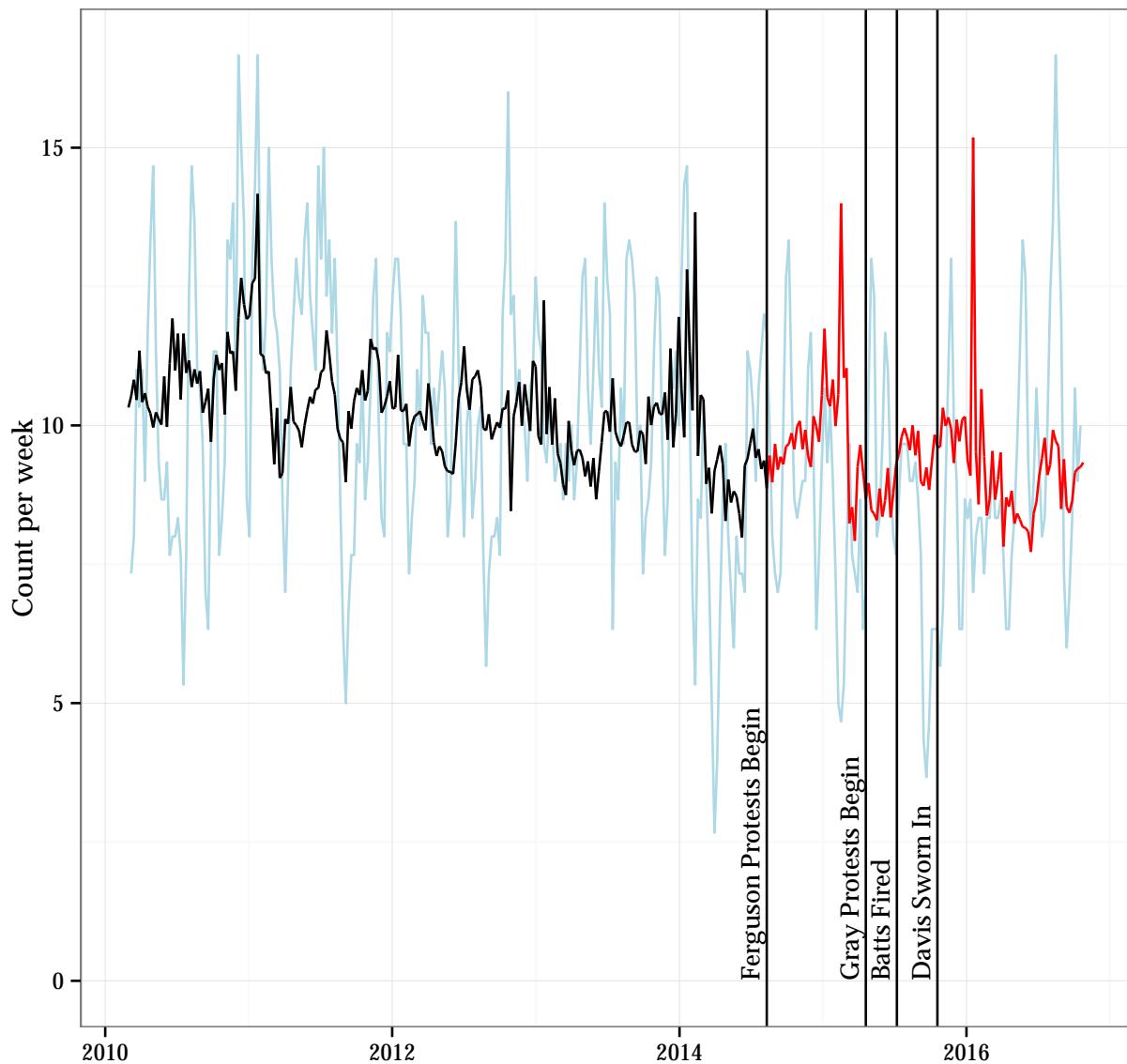
|  | Outcome: Count Per Week |       |       |        |
|--|-------------------------|-------|-------|--------|
|  | (1)                     | (2)   | (3)   | (4)    |
| Time (counter in weeks)                                | -0.01                   | -0.01 |       | -0.005 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.74                   |       | -1.11 | -0.87  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 0.85                    |       | 1.89  | 1.29   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 1.52                    |       | 1.25  | 1.64   |
| After Batts Fired (week of 7/13/15 onward)             | -1.74                   |       | -2.65 | -2.68  |
| After Davis Sworn In (week of 10/19/15 onward)         | 1.67                    |       | 1.73  | 2.03   |
| Average Maximum Temperature to 50 Degrees              |                         | -0.12 |       | -0.03  |
| Plus Degrees in the 50s                                |                         | 0.24  |       | 0.08   |
| Plus Degrees in the 60s                                |                         | -0.10 |       | -0.03  |
| Plus Degrees in the 70s                                |                         | -0.07 |       | -0.05  |
| Plus Degrees Greater Than 80                           |                         | 0.16  |       | 0.18   |
| Snowfall (inches)                                      |                         | 1.21  |       | 0.13   |
| Precipitation (inches)                                 |                         | -1.08 |       | -0.77  |
| Darkness Before Midnight (hours)                       |                         | 0.50  |       | 0.40   |
| School Days (proportion of week)                       |                         | -1.05 |       | -1.11  |
| Observations   | 348                     | 232   | 348   | 348    |
| R <sup>2</sup>   | 0.04                    | 0.05  | 0.02  | 0.07   |

### 10.3 Least Squares Model (2) for robbery.residence

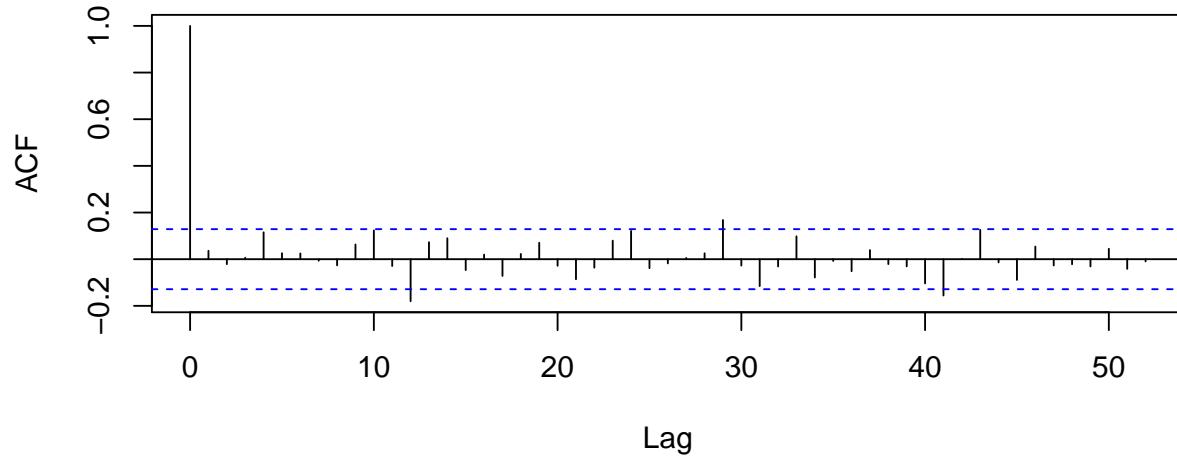
robbery.residence



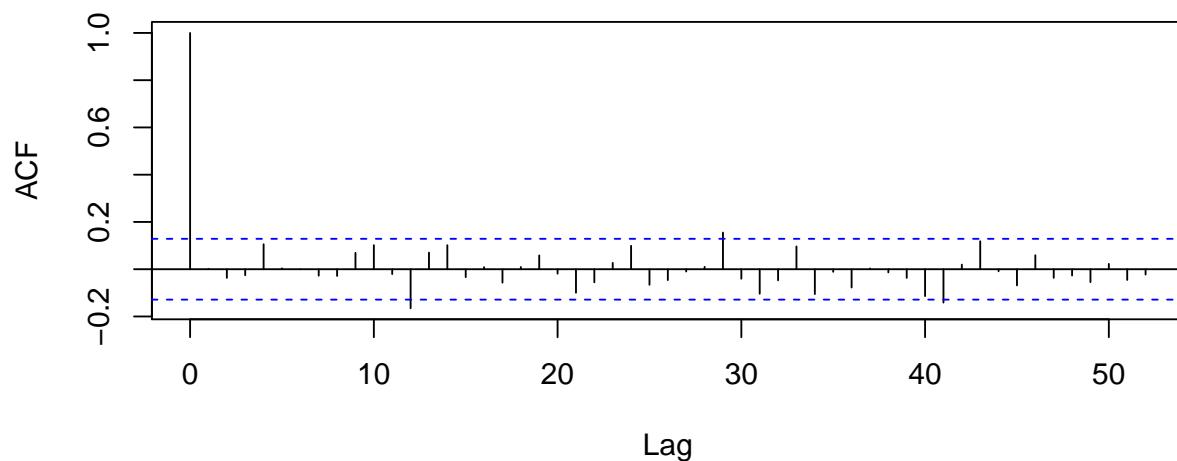
## robbery.residence



Autocorrelation Function for the Observed Outcome for Model (2)



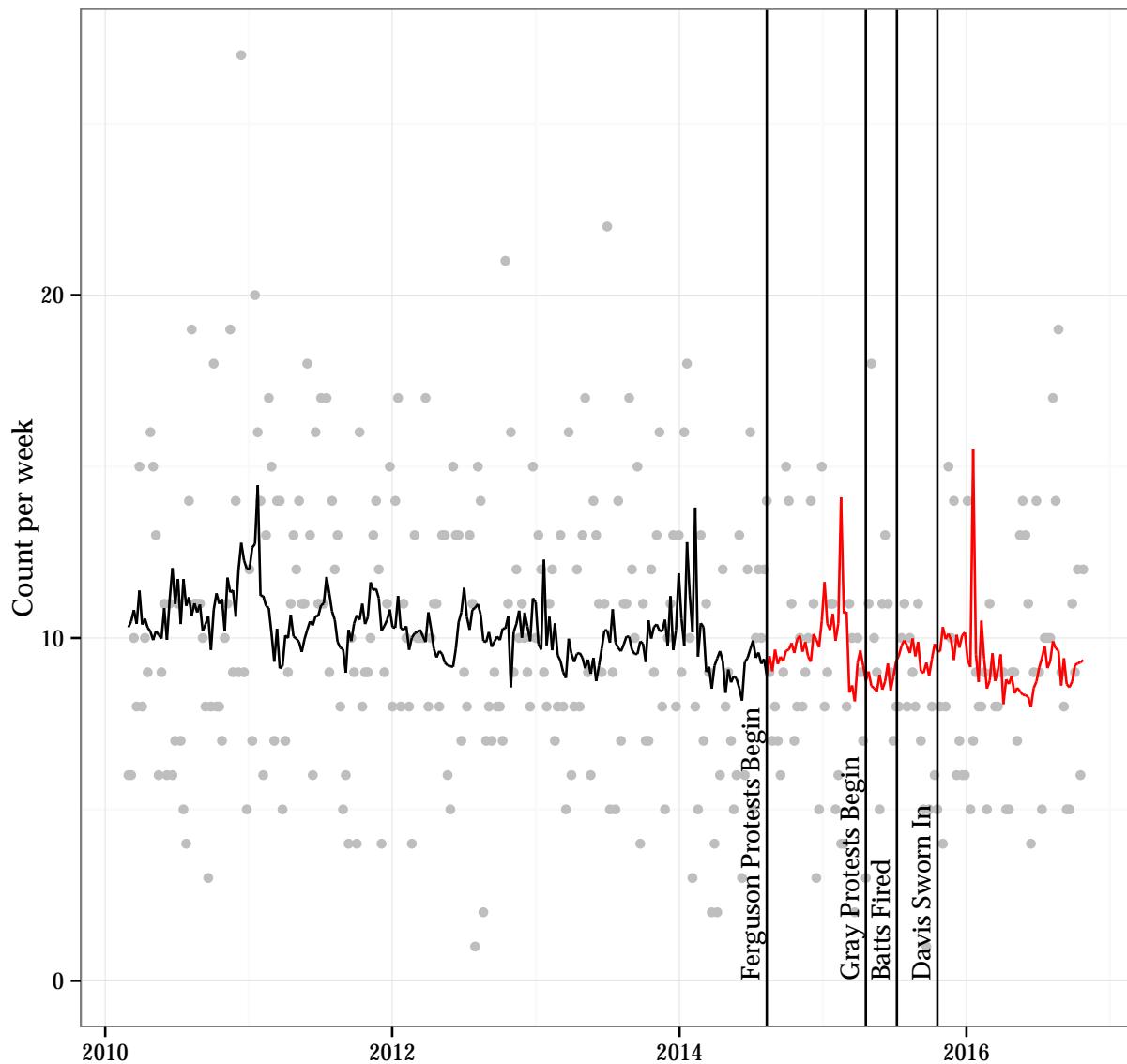
Autocorrelation Function for the Residuals from Model (2)



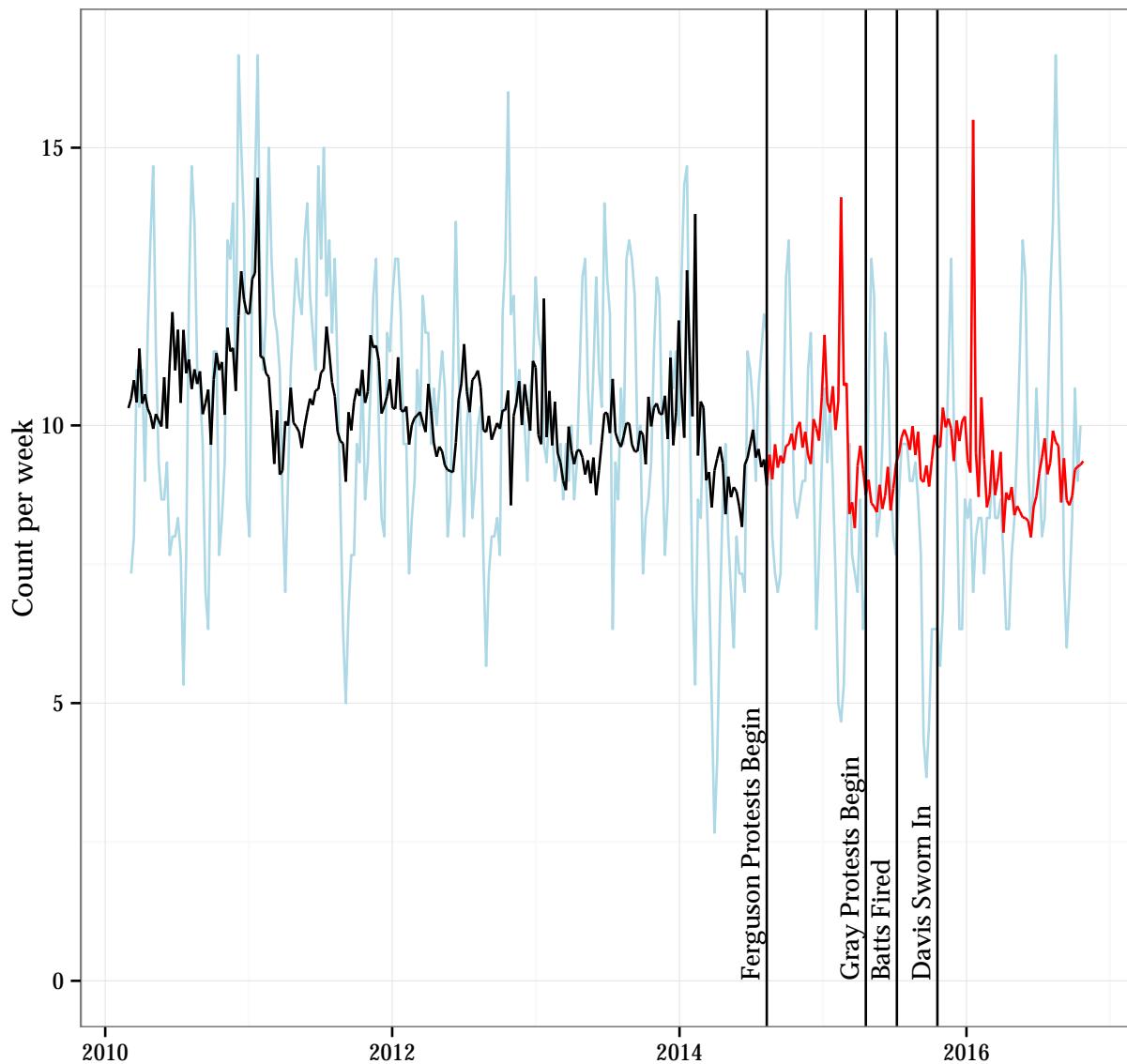
## 10.4 A Poisson Regression Model as an Alternative to Model (2) for robbery.residence

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-3.8712 -0.9062 -0.0710  0.8086  3.4583  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) 2.6356167  0.4106356  6.418 1.38e-10 ***  
t          -0.0005600  0.0003171 -1.766  0.0774 .  
tmax.f.spline1 -0.0109176  0.0073918 -1.477  0.1397  
tmax.f.spline2  0.0226700  0.0155726  1.456  0.1455  
tmax.f.spline3 -0.0096253  0.0194205 -0.496  0.6202  
tmax.f.spline4 -0.0073328  0.0184310 -0.398  0.6907  
tmax.f.spline5  0.0156800  0.0161003  0.974  0.3301  
snow.in        0.1030275  0.0887610  1.161  0.2458  
precip.in      -0.1110084  0.1197258 -0.927  0.3538  
dark.before.12  0.0498115  0.0301261  1.653  0.0982 .  
school         -0.1041550  0.0914435 -1.139  0.2547  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 377.06 on 231 degrees of freedom  
Residual deviance: 358.53 on 221 degrees of freedom  
AIC: 1331.1  
  
Number of Fisher Scoring iterations: 4
```

## robbery.residence



## robbery.residence



## 11 Results for aggravated.assault

### 11.1 Summary Values for aggravated.assault

Table 11.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic          | N   | Mean   | St. Dev. | Min | Median | Max |
|--------------------|-----|--------|----------|-----|--------|-----|
| aggravated.assault | 232 | 95.315 | 19.169   | 47  | 94     | 150 |

Table 11.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic          | N   | Mean   | St. Dev. | Min | Median | Max |
|--------------------|-----|--------|----------|-----|--------|-----|
| aggravated.assault | 116 | 91.233 | 21.059   | 40  | 88     | 161 |

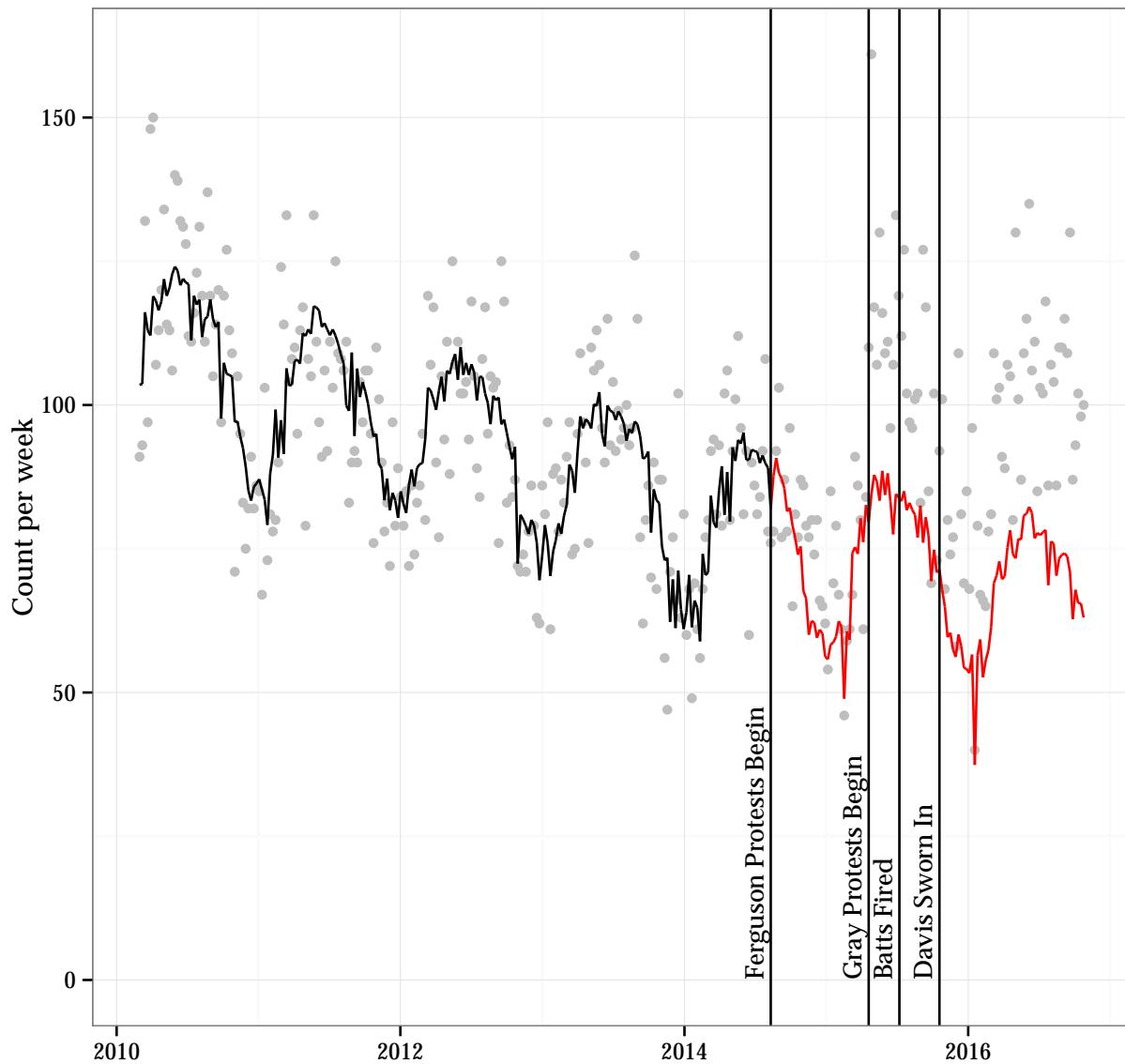
## 11.2 Four Models for aggravated assault

Table 11.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

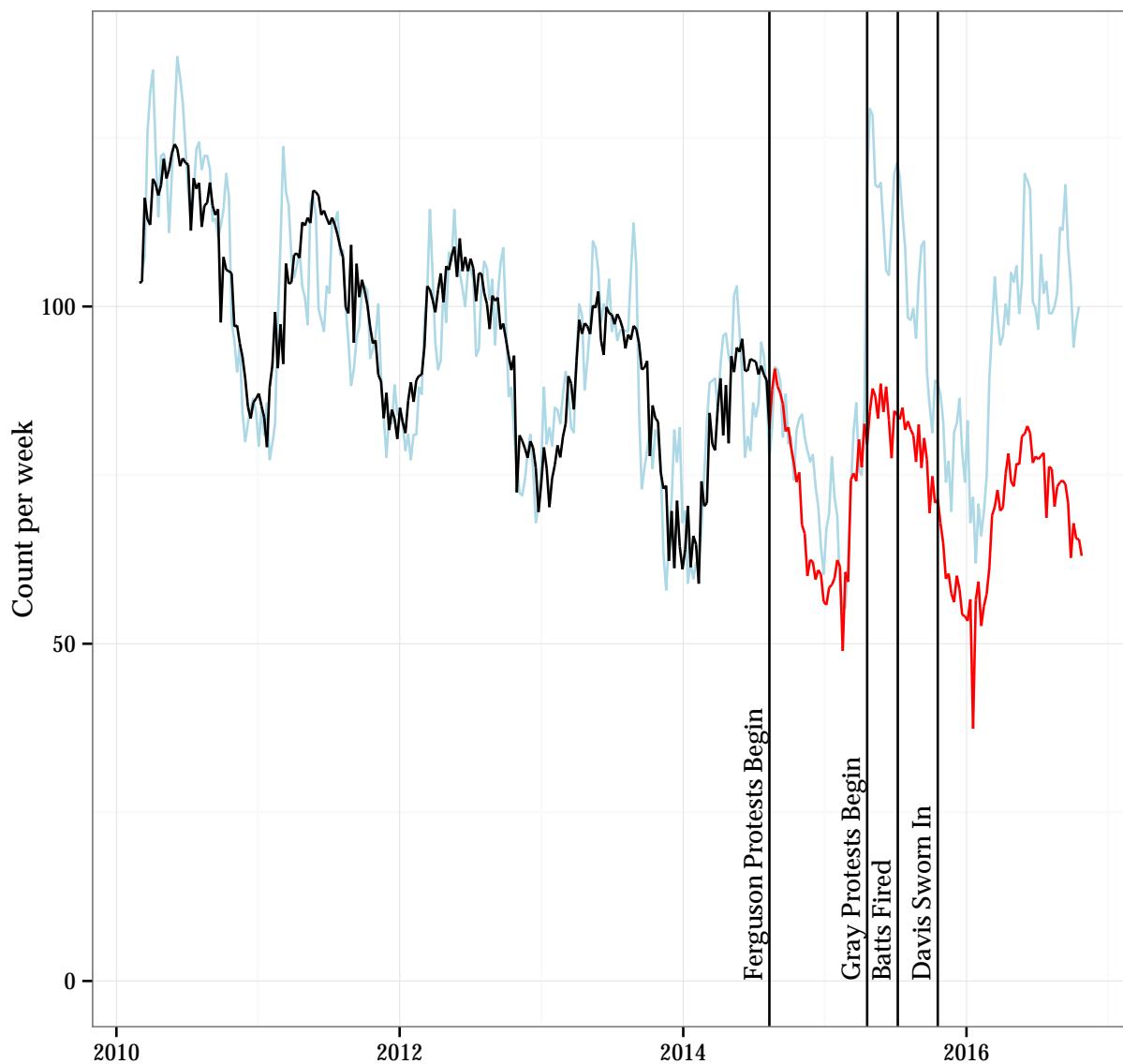
|  | Outcome: Count Per Week |        |       |        |
|--|-------------------------|--------|-------|--------|
|  | (1)                     | (2)    | (3)   | (4)    |
| Time (counter in weeks)                                | -0.14                   | -0.13  |       | -0.13  |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -1.74                   |        | 5.07  | 4.65   |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 41.95                   |        | 24.68 | 23.66  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 46.24                   |        | 46.81 | 48.74  |
| After Batts Fired (week of 7/13/15 onward)             | -12.89                  |        | -9.12 | -9.01  |
| After Davis Sworn In (week of 10/19/15 onward)         | -1.23                   |        | 5.33  | 5.66   |
| Average Maximum Temperature to 50 Degrees              |                         | 0.45   |       | 0.44   |
| Plus Degrees in the 50s                                |                         | -0.11  |       | -0.17  |
| Plus Degrees in the 60s                                |                         | -0.10  |       | -0.15  |
| Plus Degrees in the 70s                                |                         | 0.005  |       | 0.59   |
| Plus Degrees Greater Than 80                           |                         | -0.19  |       | -0.65  |
| Snowfall (inches)                                      |                         | -2.34  |       | -5.97  |
| Precipitation (inches)                                 |                         | -13.13 |       | -14.56 |
| Darkness Before Midnight (hours)                       |                         | -5.41  |       | -5.18  |
| School Days (proportion of week)                       |                         | 5.04   |       | 8.79   |
| Observations   | 348                     | 232    | 348   | 348    |
| R <sup>2</sup>   | 0.30                    | 0.59   | 0.46  | 0.63   |

### 11.3 Least Squares Model (2) for aggravated.assault

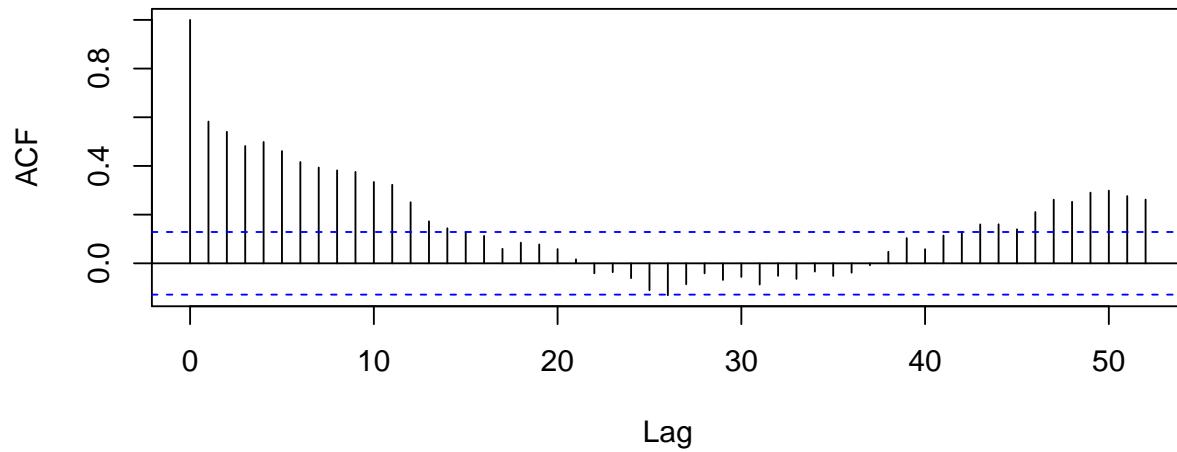
aggravated.assault



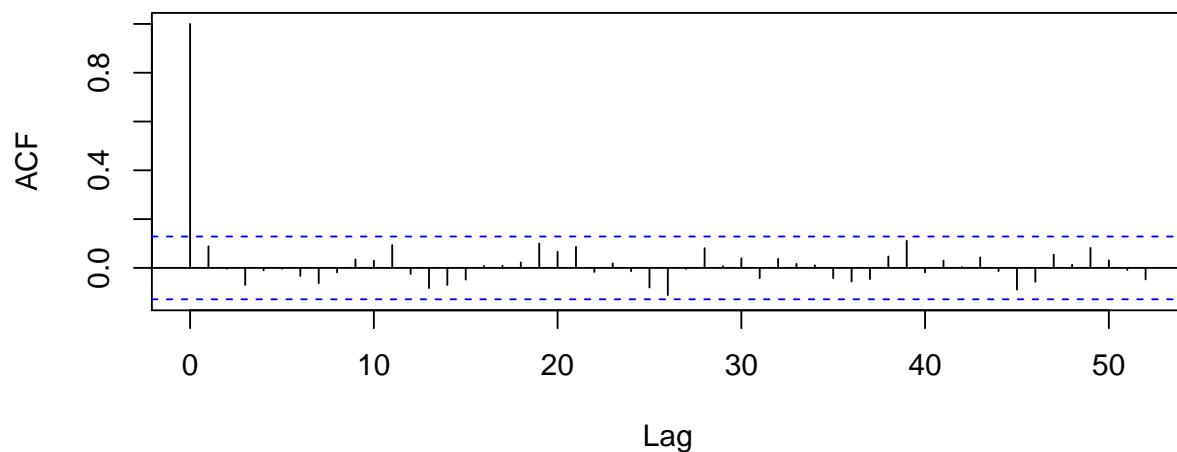
## aggravated.assault



Autocorrelation Function for the Observed Outcome for Model (2)



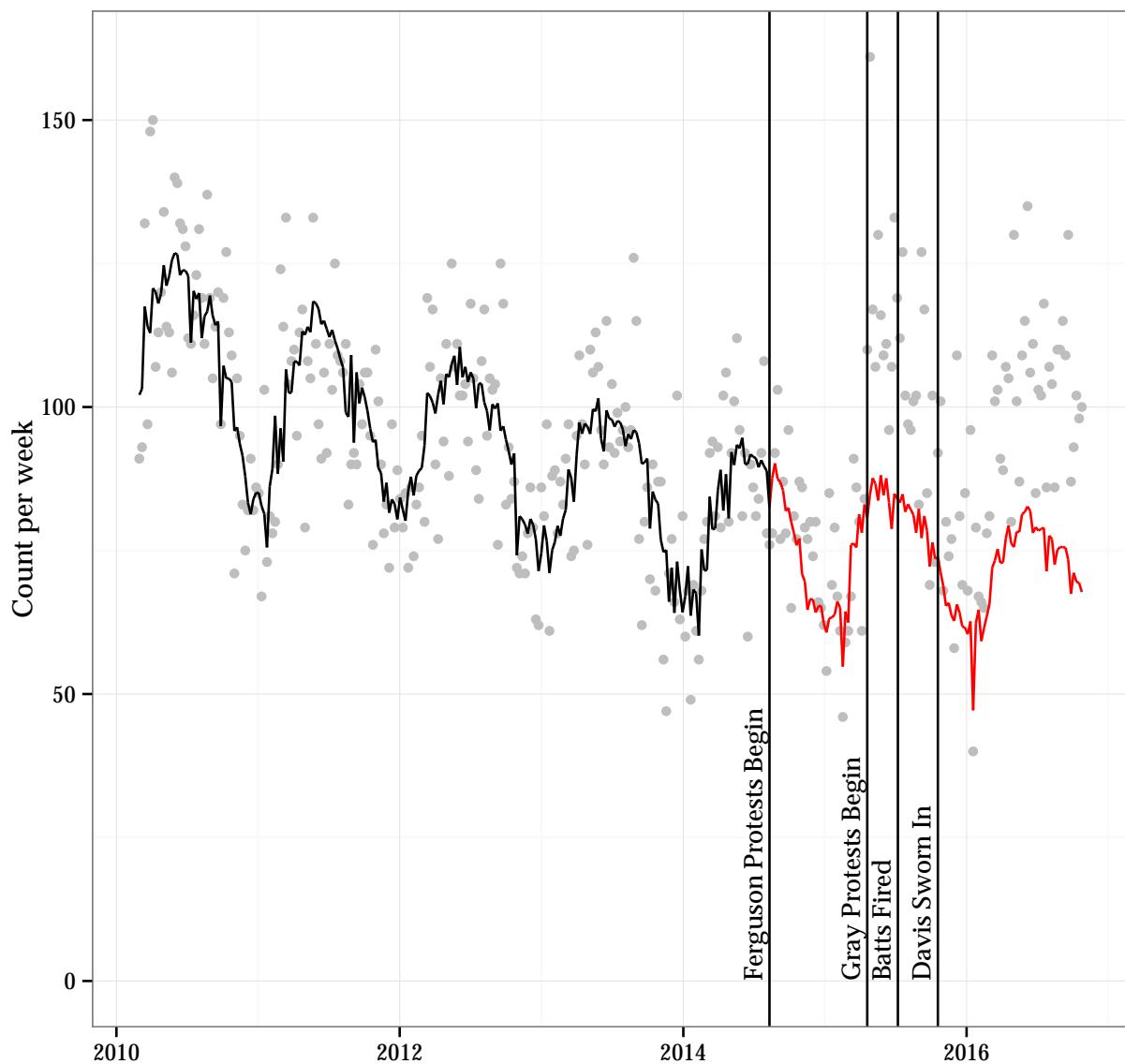
Autocorrelation Function for the Residuals from Model (2)



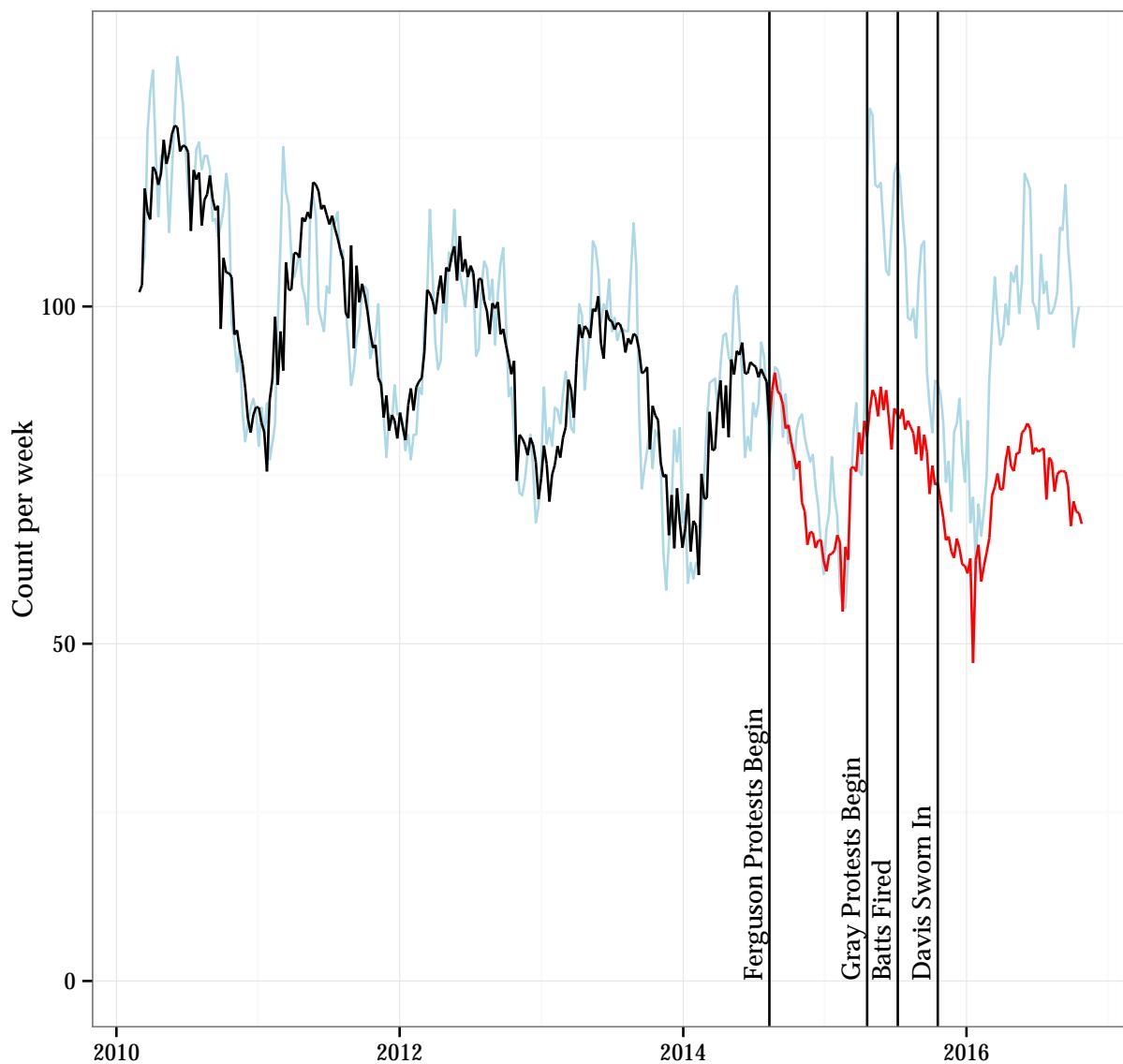
## 11.4 A Poisson Regression Model as an Alternative to Model (2) for aggravated.assault

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-3.4840 -0.8587 -0.0178  0.7169  3.1934  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) 4.6725377 0.1502506 31.098 < 2e-16 ***  
t            -0.0013900 0.0001033 -13.452 < 2e-16 ***  
tmax.f.spline1 0.0056061 0.0027699  2.024 0.042979 *  
tmax.f.spline2 -0.0012138 0.0054530 -0.223 0.823846  
tmax.f.spline3 -0.0023977 0.0064448 -0.372 0.709861  
tmax.f.spline4  0.0004600 0.0058831  0.078 0.937677  
tmax.f.spline5 -0.0025995 0.0050388 -0.516 0.605919  
snow.in        -0.0444424 0.0380514 -1.168 0.242824  
precip.in       -0.1374390 0.0386242 -3.558 0.000373 ***  
dark.before.12 -0.0579628 0.0099692 -5.814 6.09e-09 ***  
school          0.0499195 0.0297875  1.676 0.093767 .  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 895.77 on 231 degrees of freedom  
Residual deviance: 361.81 on 221 degrees of freedom  
AIC: 1863.1  
  
Number of Fisher Scoring iterations: 4
```

## aggravated.assault



## aggravated.assault



## 12 Results for assault.by.threat

### 12.1 Summary Values for assault.by.threat

Table 12.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic         | N   | Mean   | St. Dev. | Min | Median | Max |
|-------------------|-----|--------|----------|-----|--------|-----|
| assault.by.threat | 232 | 12.366 | 4.351    | 1   | 12     | 28  |

Table 12.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic         | N   | Mean   | St. Dev. | Min | Median | Max |
|-------------------|-----|--------|----------|-----|--------|-----|
| assault.by.threat | 116 | 10.759 | 4.083    | 4   | 11     | 23  |

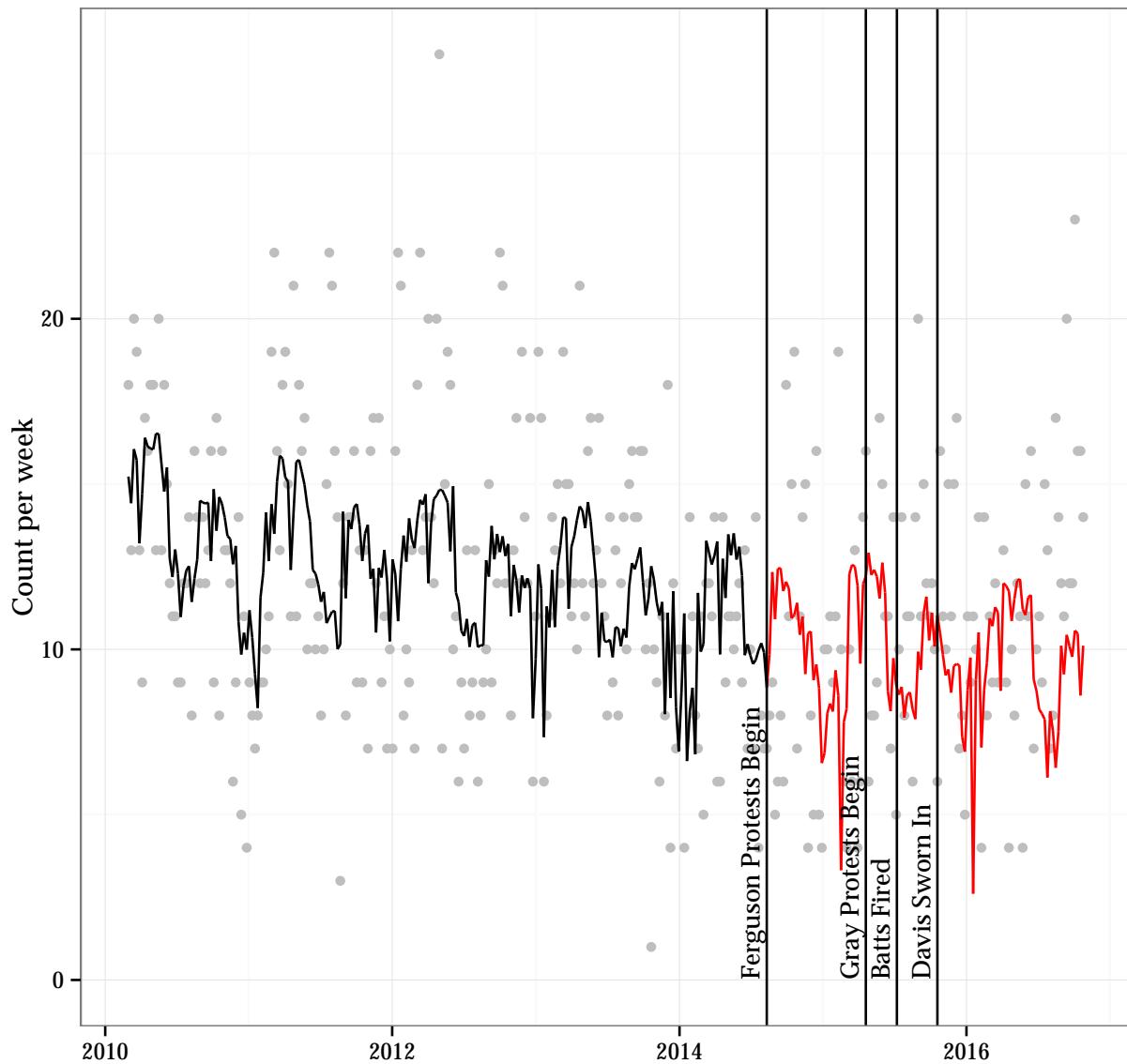
## 12.2 Four Models for assault.by.threat

Table 12.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

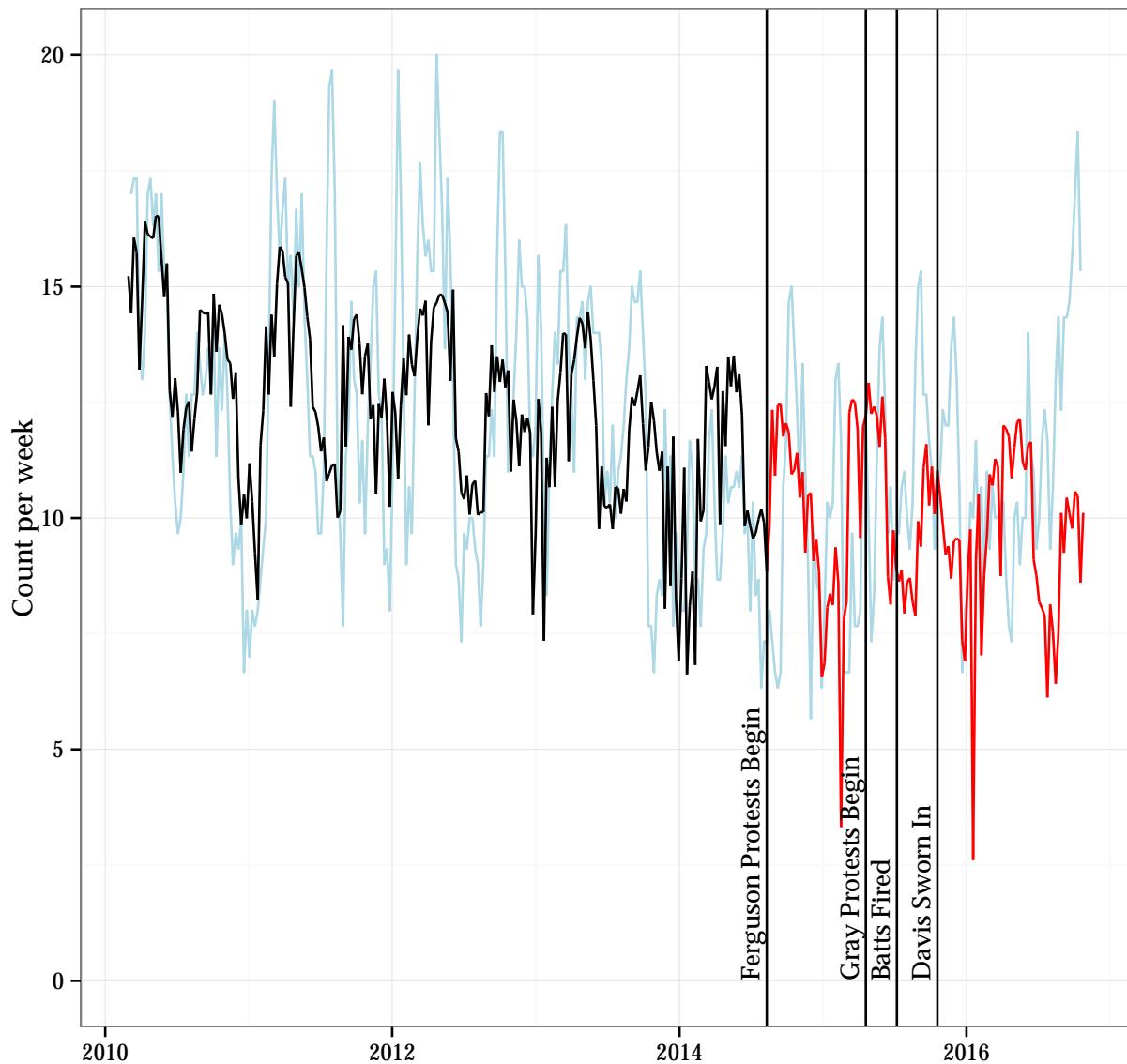
|  | Outcome: Count Per Week |       |       |       |
|--|-------------------------|-------|-------|-------|
|  | (1)                     | (2)   | (3)   | (4)   |
| Time (counter in weeks)                                | -0.01                   | -0.01 |       | -0.01 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.99                   |       | -0.48 | -0.88 |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 1.78                    |       | 0.52  | 1.00  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -5.07                   |       | -6.97 | -6.74 |
| After Batts Fired (week of 7/13/15 onward)             | 0.96                    |       | 2.29  | 1.59  |
| After Davis Sworn In (week of 10/19/15 onward)         | 0.01                    |       | -0.55 | -0.37 |
| Average Maximum Temperature to 50 Degrees              |                         | 0.23  |       | 0.15  |
| Plus Degrees in the 50s                                |                         | -0.31 |       | -0.18 |
| Plus Degrees in the 60s                                |                         | 0.09  |       | 0.11  |
| Plus Degrees in the 70s                                |                         | -0.08 |       | -0.14 |
| Plus Degrees Greater Than 80                           |                         | -0.03 |       | 0.07  |
| Snowfall (inches)                                      |                         | -0.61 |       | 0.07  |
| Precipitation (inches)                                 |                         | -2.40 |       | -2.00 |
| Darkness Before Midnight (hours)                       |                         | -0.90 |       | -0.41 |
| School Days (proportion of week)                       |                         | 3.87  |       | 3.99  |
| Observations   | 348                     | 232   | 348   | 348   |
| R <sup>2</sup>   | 0.08                    | 0.21  | 0.05  | 0.18  |

### 12.3 Least Squares Model (2) for assault.by.threat

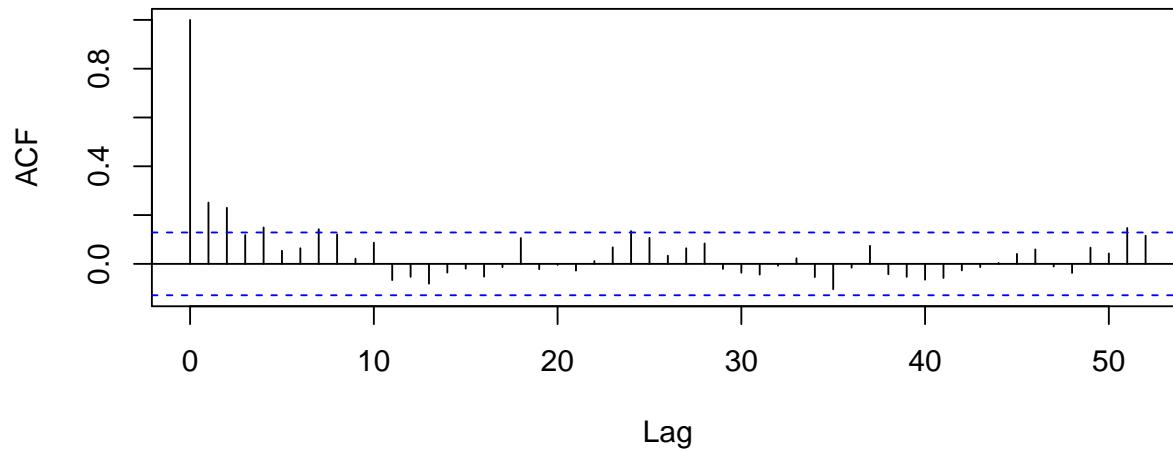
assault.by.threat



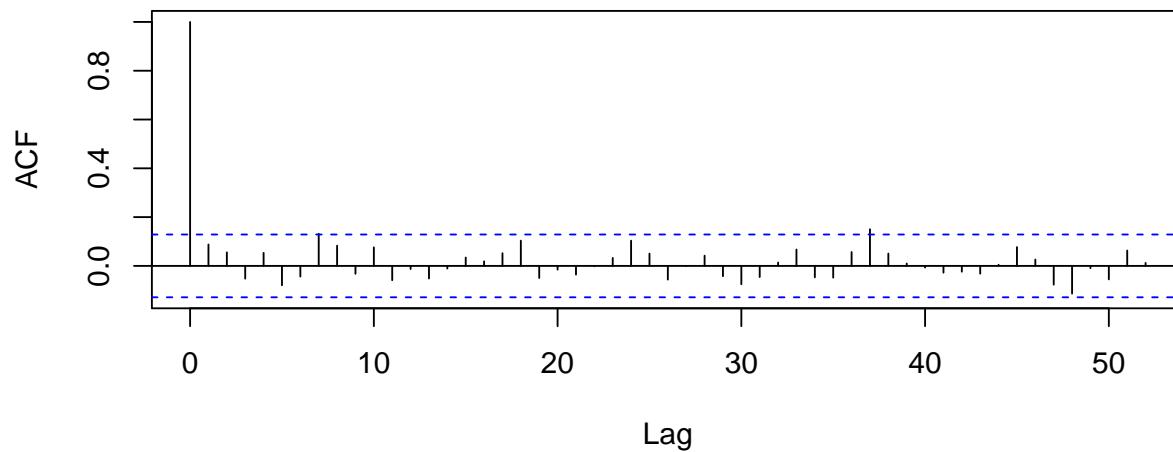
## assault.by.threat



Autocorrelation Function for the Observed Outcome for Model (2)



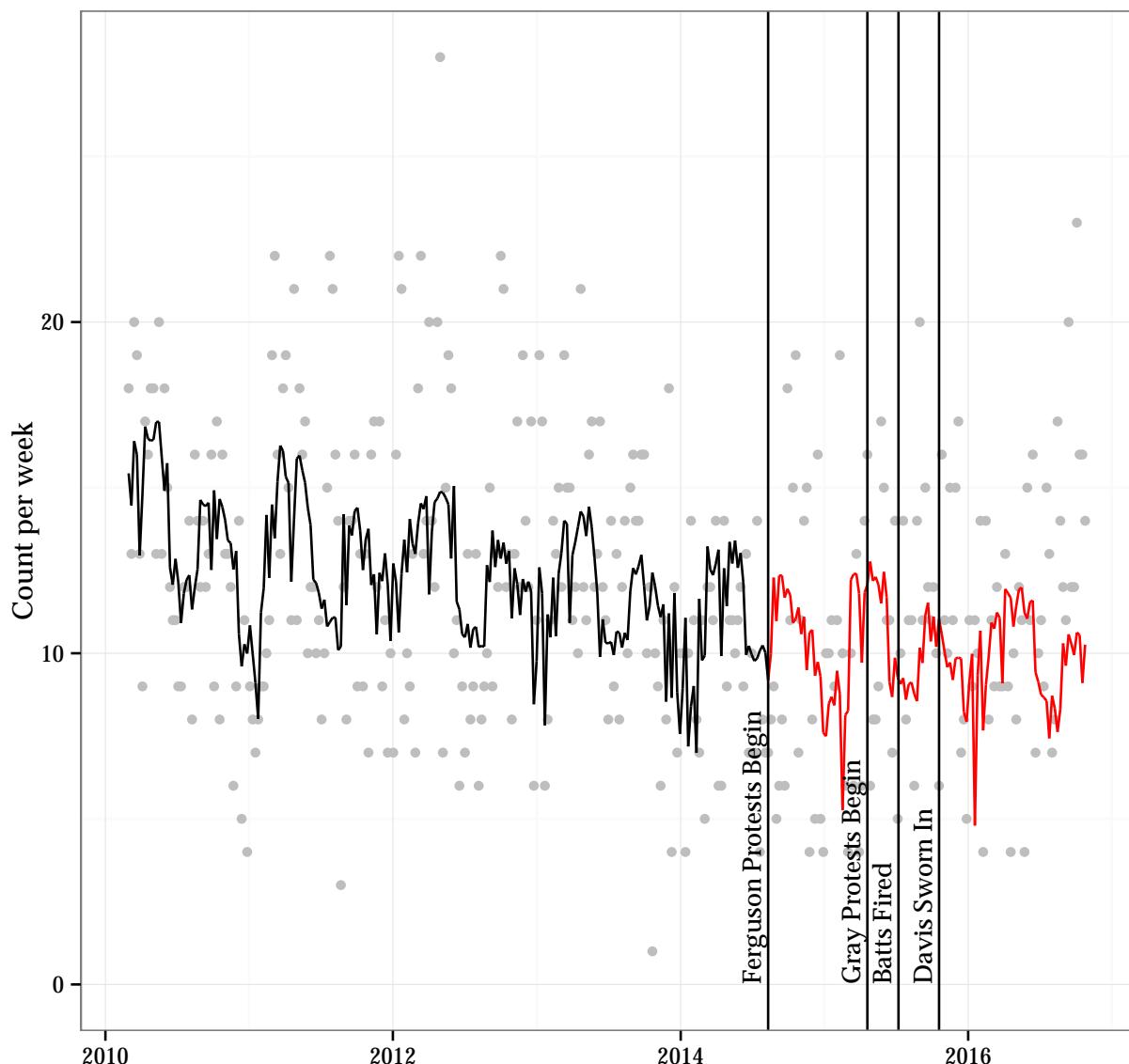
Autocorrelation Function for the Residuals from Model (2)



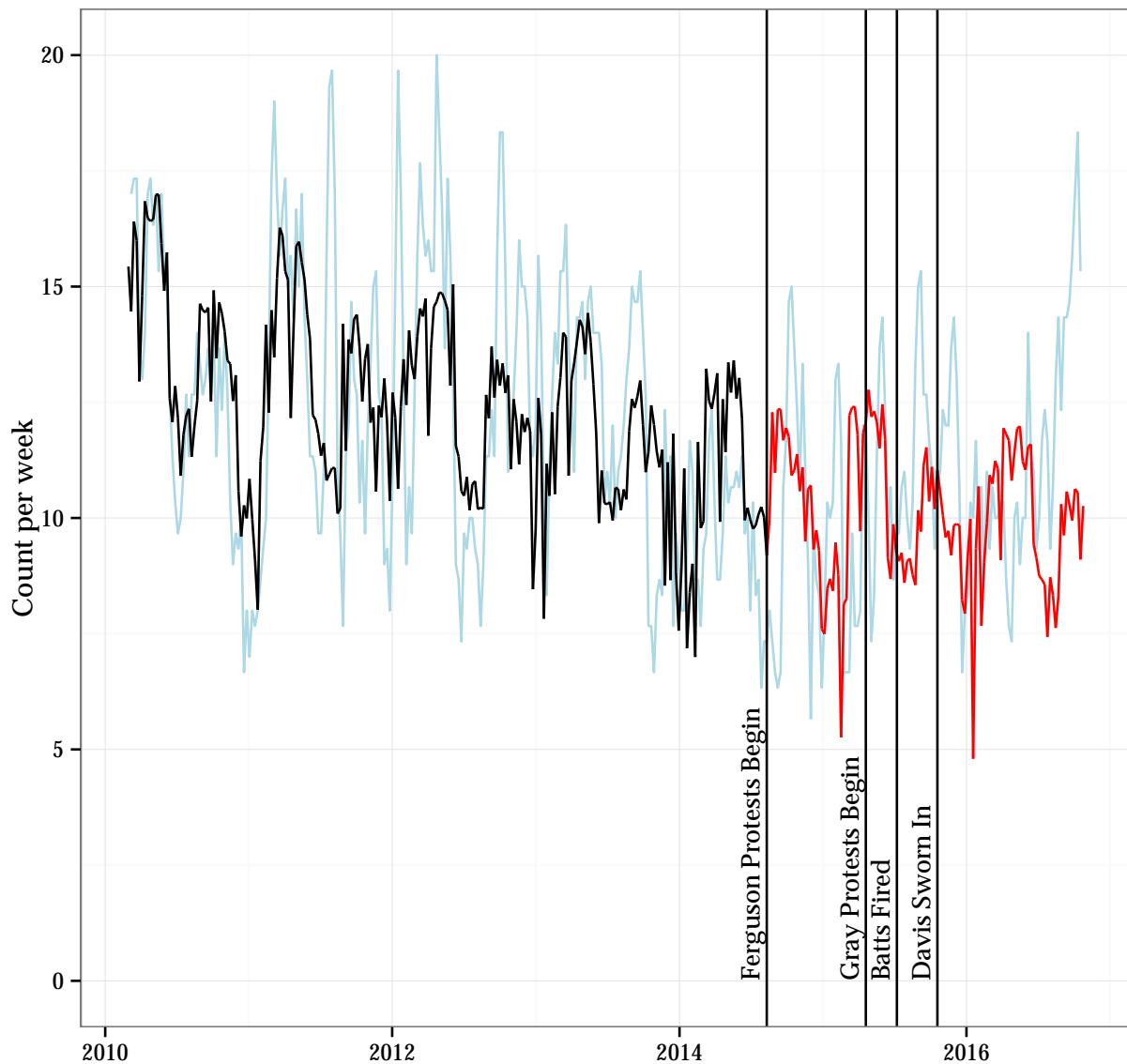
## 12.4 A Poisson Regression Model as an Alternative to Model (2) for assault.by.threat

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-4.2225 -0.7279 -0.1221  0.6603  3.0439  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) 1.9089066  0.4132764  4.619 3.86e-06 ***  
t            -0.0011327  0.0002878 -3.935 8.32e-05 ***  
tmax.f.spline1 0.0212658  0.0076326  2.786 0.005333 **  
tmax.f.spline2 -0.0283909  0.0145439 -1.952 0.050928 .  
tmax.f.spline3  0.0075405  0.0170780  0.442 0.658828  
tmax.f.spline4 -0.0053699  0.0159719 -0.336 0.736713  
tmax.f.spline5 -0.0026227  0.0146416 -0.179 0.857839  
snow.in        -0.0802887  0.1092269 -0.735 0.462301  
precip.in       -0.1937018  0.1083212 -1.788 0.073741 .  
dark.before.12 -0.0694852  0.0265065 -2.621 0.008756 **  
school          0.3202507  0.0855318  3.744 0.000181 ***  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 361.75 on 231 degrees of freedom  
Residual deviance: 285.46 on 221 degrees of freedom  
AIC: 1304.6  
  
Number of Fisher Scoring iterations: 4
```

## assault.by.threat



## assault.by.threat



## 13 Results for common.assault

### 13.1 Summary Values for common.assault

Table 13.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic      | N   | Mean    | St. Dev. | Min | Median | Max |
|----------------|-----|---------|----------|-----|--------|-----|
| common.assault | 232 | 170.216 | 25.479   | 100 | 170.5  | 241 |

Table 13.2: Descriptives for Outcome After Ferguson Protests Begin

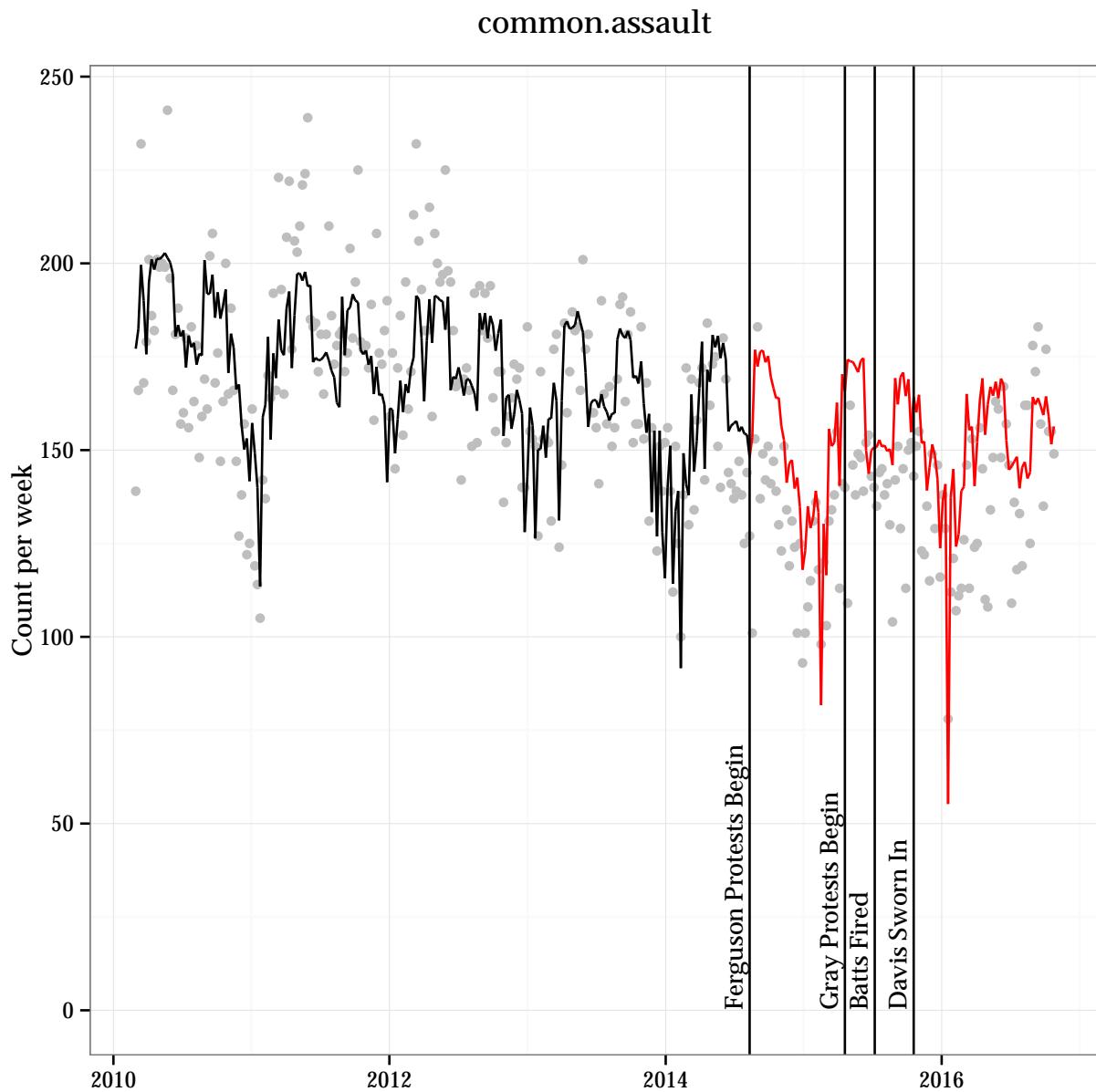
| Statistic      | N   | Mean    | St. Dev. | Min | Median | Max |
|----------------|-----|---------|----------|-----|--------|-----|
| common.assault | 116 | 135.595 | 19.973   | 78  | 138    | 183 |

## 13.2 Four Models for common.assault

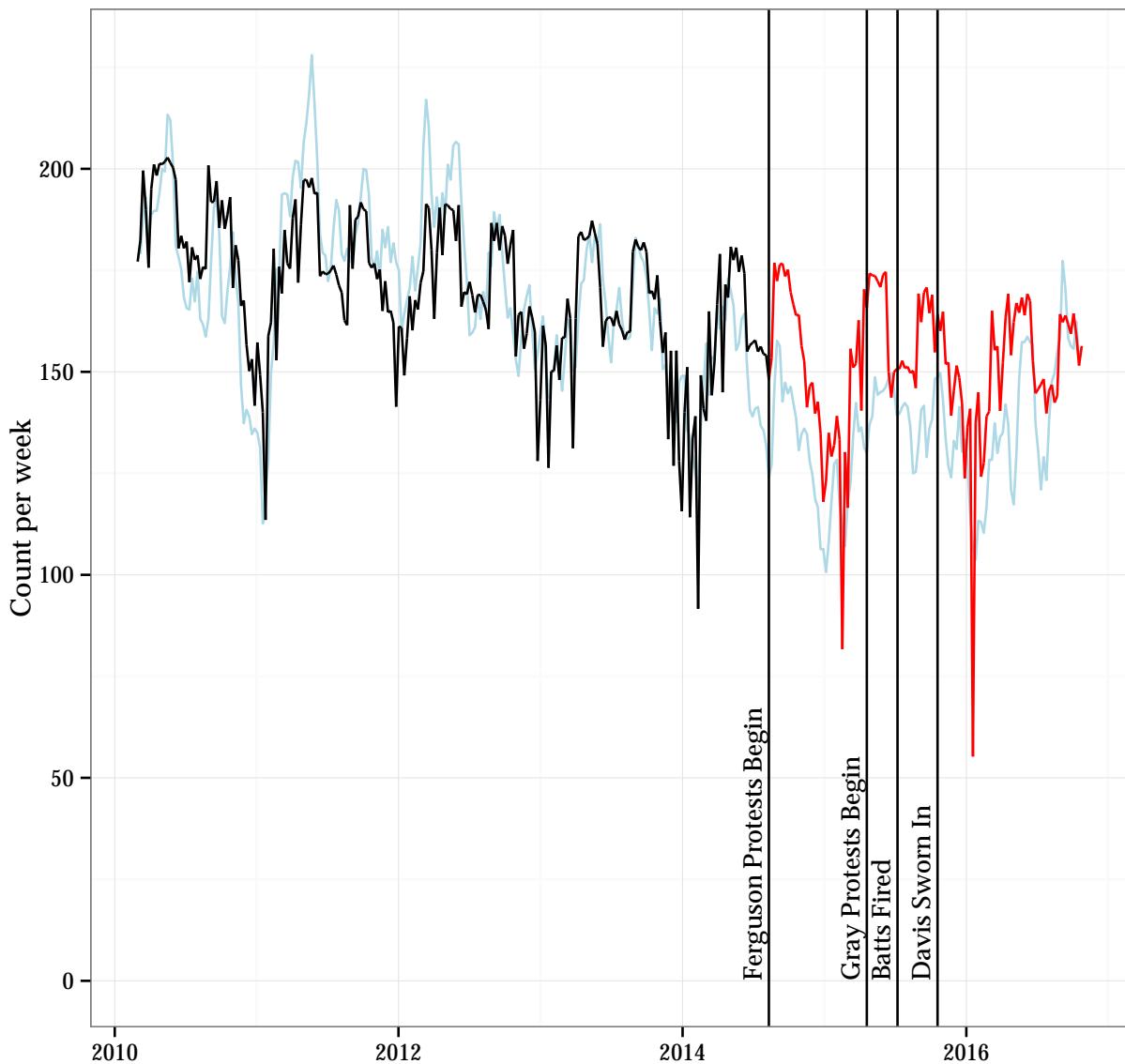
Table 13.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |        |        |        |
|--|-------------------------|--------|--------|--------|
|  | (1)                     | (2)    | (3)    | (4)    |
| Time (counter in weeks)                                | -0.13                   | -0.11  |        | -0.10  |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -24.32                  |        | -19.58 | -20.40 |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 20.56                   |        | 2.48   | 3.07   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -38.07                  |        | -48.16 | -44.92 |
| After Batts Fired (week of 7/13/15 onward)             | -7.79                   |        | -3.80  | -5.62  |
| After Davis Sworn In (week of 10/19/15 onward)         | 5.13                    |        | 8.67   | 9.78   |
| Average Maximum Temperature to 50 Degrees              |                         | 1.08   |        | 0.93   |
| Plus Degrees in the 50s                                |                         | -0.23  |        | -0.09  |
| Plus Degrees in the 60s                                |                         | 0.29   |        | 0.44   |
| Plus Degrees in the 70s                                |                         | -1.46  |        | -1.20  |
| Plus Degrees Greater Than 80                           |                         | 0.66   |        | 0.44   |
| Snowfall (inches)                                      |                         | -17.35 |        | -11.55 |
| Precipitation (inches)                                 |                         | -11.96 |        | -11.93 |
| Darkness Before Midnight (hours)                       |                         | -2.77  |        | -1.39  |
| School Days (proportion of week)                       |                         | 32.58  |        | 32.11  |
| Observations   | 348                     | 232    | 348    | 348    |
| R <sup>2</sup>   | 0.39                    | 0.52   | 0.20   | 0.67   |

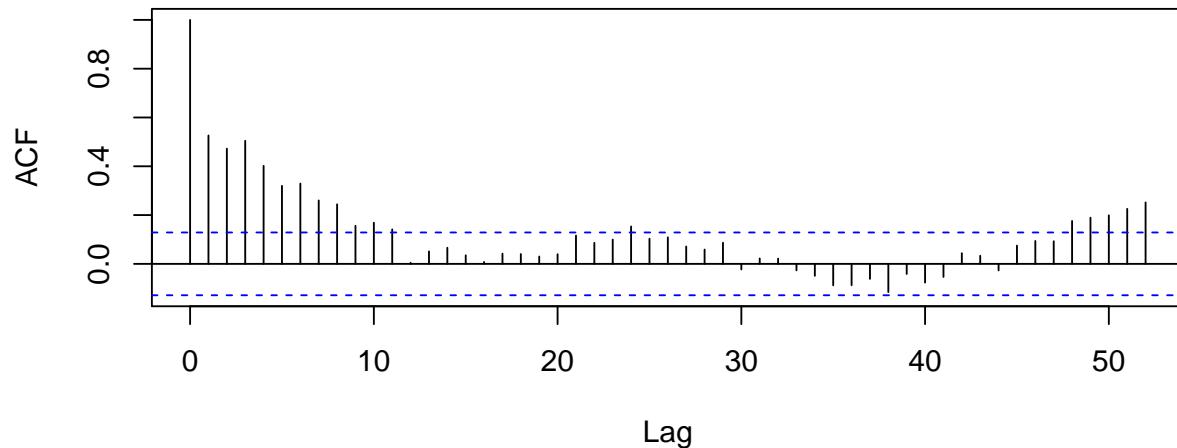
### 13.3 Least Squares Model (2) for common.assault



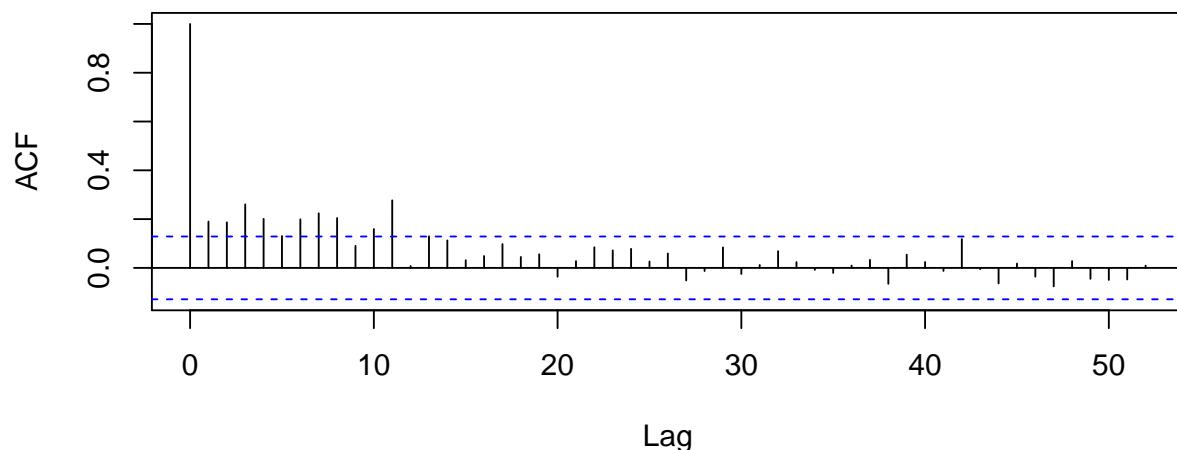
## common.assault



Autocorrelation Function for the Observed Outcome for Model (2)



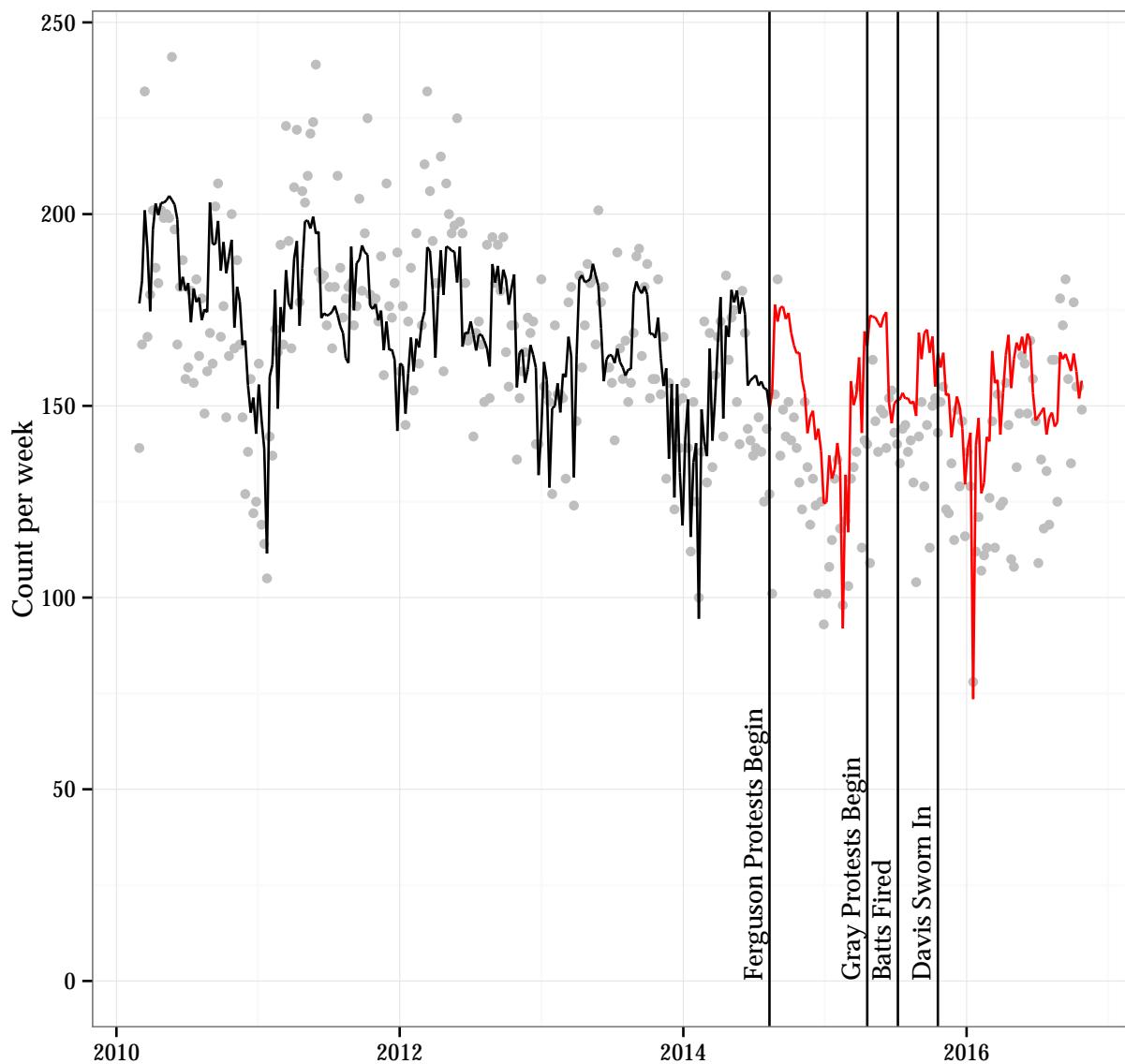
Autocorrelation Function for the Residuals from Model (2)



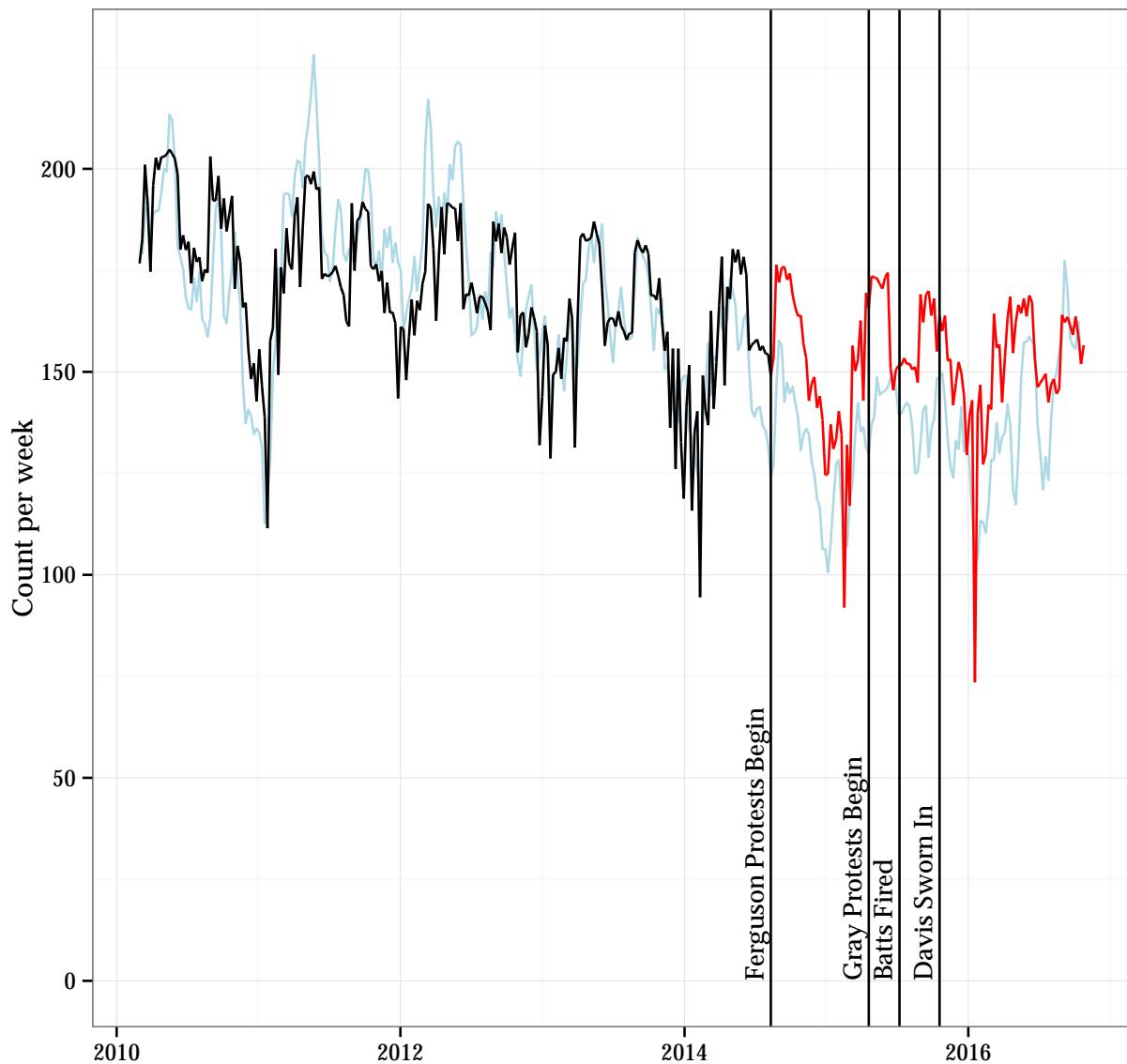
### 13.4 A Poisson Regression Model as an Alternative to Model (2) for common.assault

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-3.2350 -0.8779 -0.1088  0.7249  3.7003  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) 4.800e+00 1.097e-01 43.748 < 2e-16 ***  
t          -6.134e-04 7.761e-05 -7.904 2.69e-15 ***  
tmax.f.spline1 7.080e-03 2.028e-03  3.492 0.00048 ***  
tmax.f.spline2 -2.129e-03 3.996e-03 -0.533 0.59424  
tmax.f.spline3 1.139e-03 4.731e-03  0.241 0.80981  
tmax.f.spline4 -7.749e-03 4.366e-03 -1.775 0.07591 .  
tmax.f.spline5 3.868e-03 3.865e-03  1.001 0.31688  
snow.in       -1.456e-01 2.961e-02 -4.916 8.82e-07 ***  
precip.in      -6.798e-02 2.840e-02 -2.393 0.01671 *  
dark.before.12 -1.676e-02 7.314e-03 -2.291 0.02198 *  
school         1.918e-01 2.272e-02  8.442 < 2e-16 ***  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 887.35 on 231 degrees of freedom  
Residual deviance: 409.74 on 221 degrees of freedom  
AIC: 2047.5  
  
Number of Fisher Scoring iterations: 4
```

## common.assault



## common.assault



## 14 Results for burglary

### 14.1 Summary Values for burglary

Table 14.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic | N   | Mean    | St. Dev. | Min | Median | Max |
|-----------|-----|---------|----------|-----|--------|-----|
| burglary  | 232 | 149.711 | 25.754   | 85  | 149    | 241 |

Table 14.2: Descriptives for Outcome After Ferguson Protests Begin

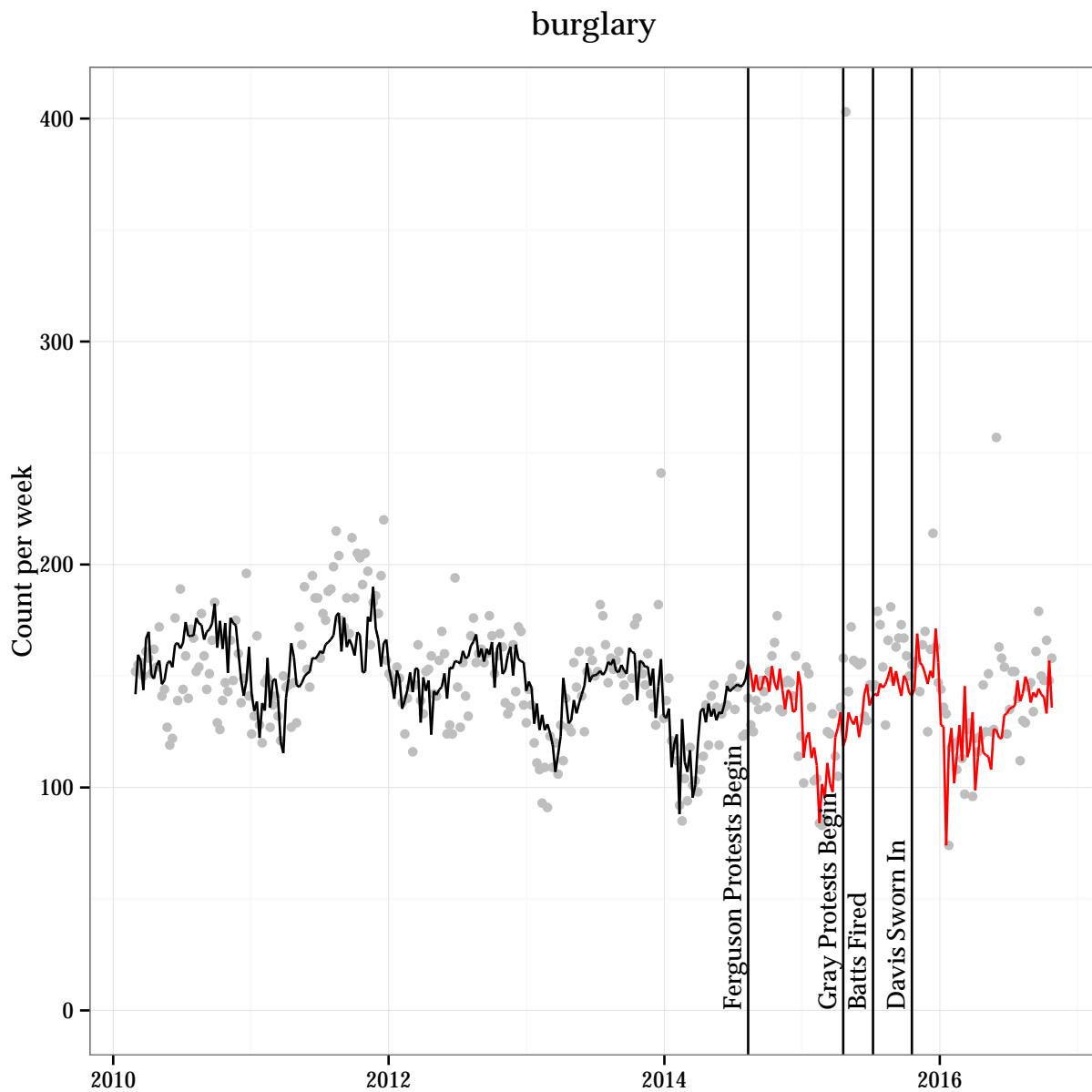
| Statistic | N   | Mean    | St. Dev. | Min | Median | Max |
|-----------|-----|---------|----------|-----|--------|-----|
| burglary  | 116 | 143.871 | 35.121   | 74  | 145    | 403 |

## 14.2 Four Models for burglary

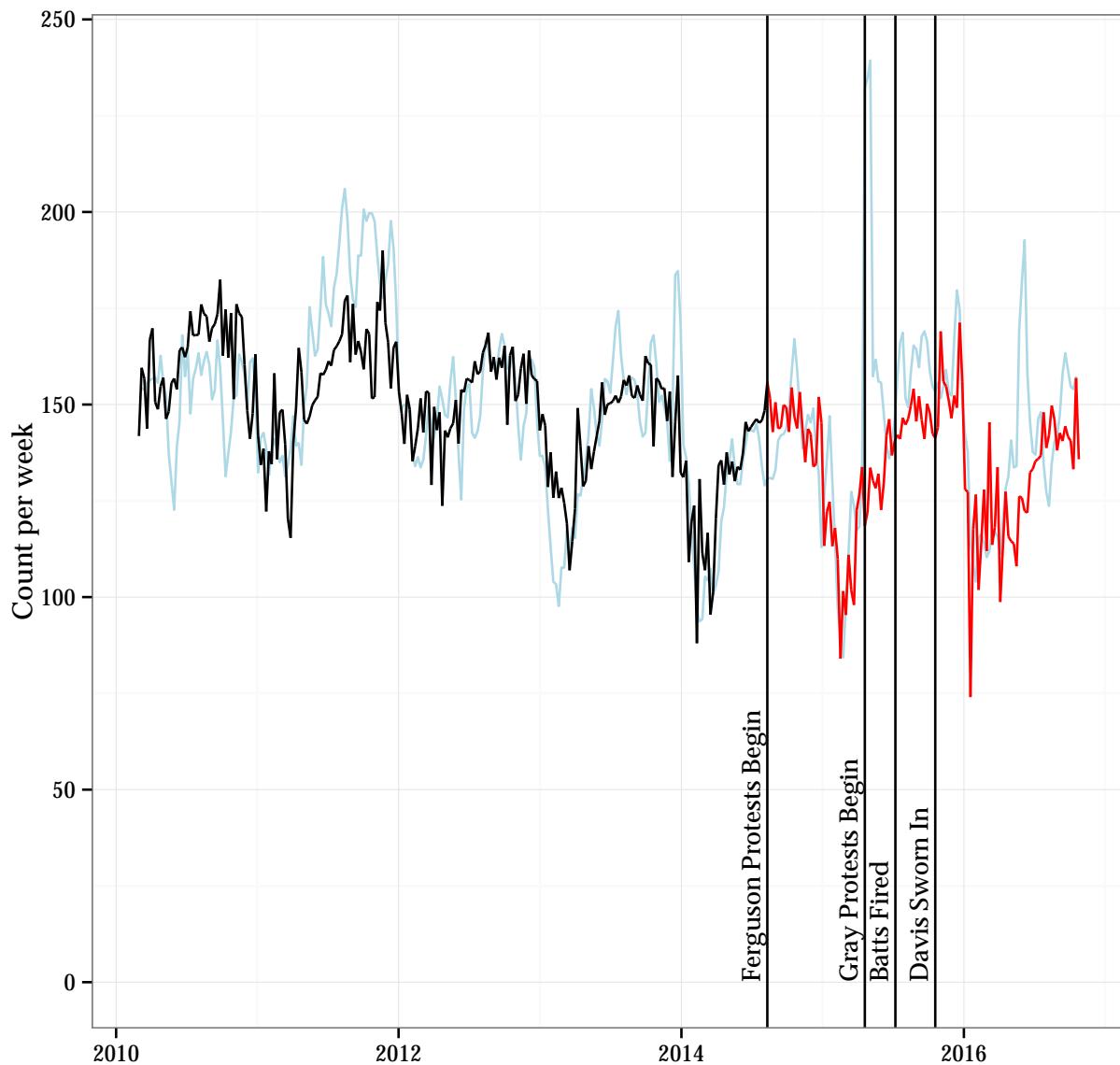
Table 14.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |        |        |        |
|--|-------------------------|--------|--------|--------|
|  | (1)                     | (2)    | (3)    | (4)    |
| Time (counter in weeks)                                | -0.12                   | -0.09  |        | -0.09  |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -1.94                   |        | -0.02  | -0.40  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 21.43                   |        | 17.26  | 16.04  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 252.40                  |        | 263.65 | 263.27 |
| After Batts Fired (week of 7/13/15 onward)             | 12.60                   |        | -2.59  | 1.14   |
| After Davis Sworn In (week of 10/19/15 onward)         | -15.36                  |        | -6.23  | -8.42  |
| Average Maximum Temperature to 50 Degrees              |                         | 1.07   |        | 1.02   |
| Plus Degrees in the 50s                                |                         | 0.77   |        | 0.94   |
| Plus Degrees in the 60s                                |                         | 0.05   |        | -0.72  |
| Plus Degrees in the 70s                                |                         | -0.94  |        | 0.19   |
| Plus Degrees Greater Than 80                           |                         | -0.66  |        | -1.29  |
| Snowfall (inches)                                      |                         | -11.07 |        | -5.32  |
| Precipitation (inches)                                 |                         | 14.16  |        | 11.62  |
| Darkness Before Midnight (hours)                       |                         | 15.57  |        | 13.22  |
| School Days (proportion of week)                       |                         | -16.35 |        | -4.50  |
| Observations   | 348                     | 232    | 348    | 348    |
| R <sup>2</sup>   | 0.32                    | 0.41   | 0.36   | 0.51   |

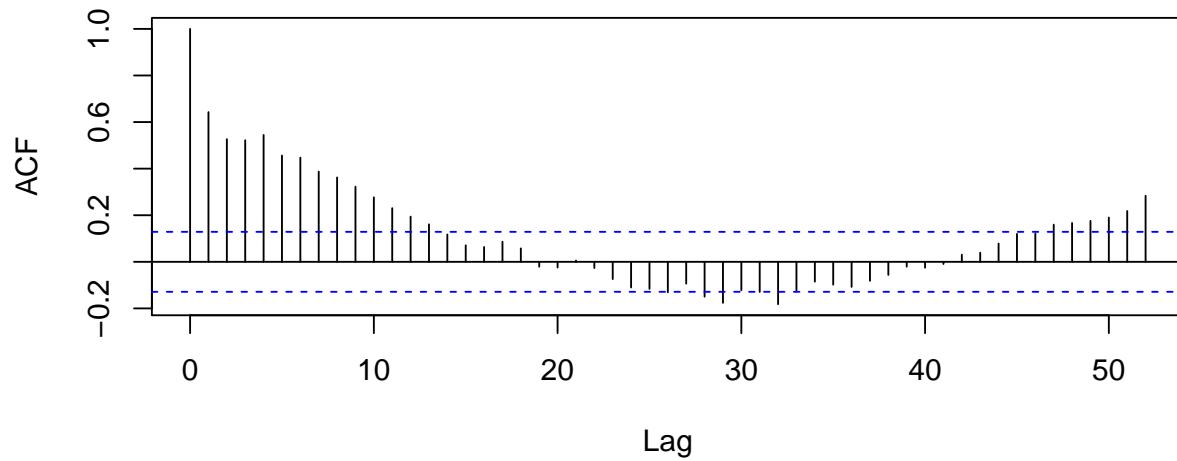
### 14.3 Least Squares Model (2) for burglary



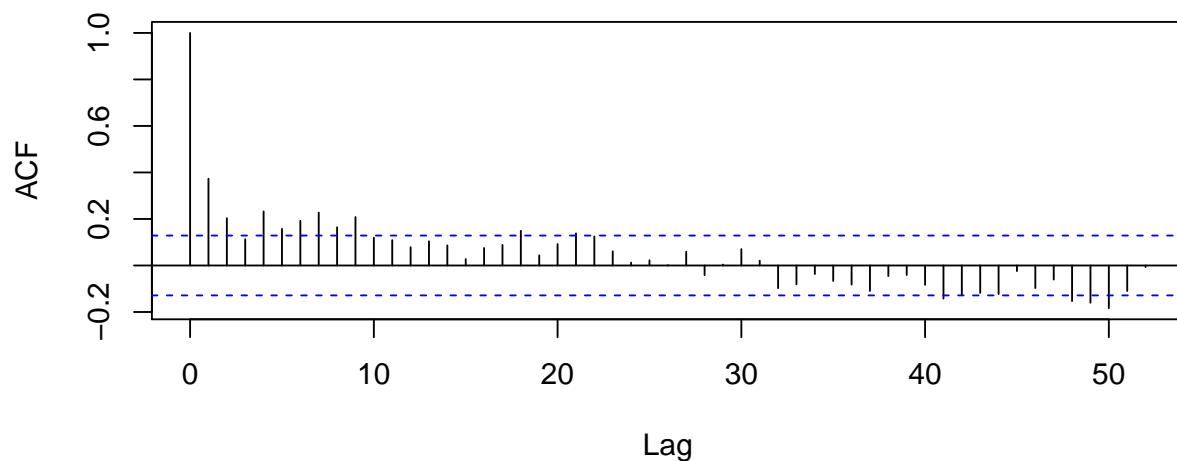
## burglary



Autocorrelation Function for the Observed Outcome for Model (2)



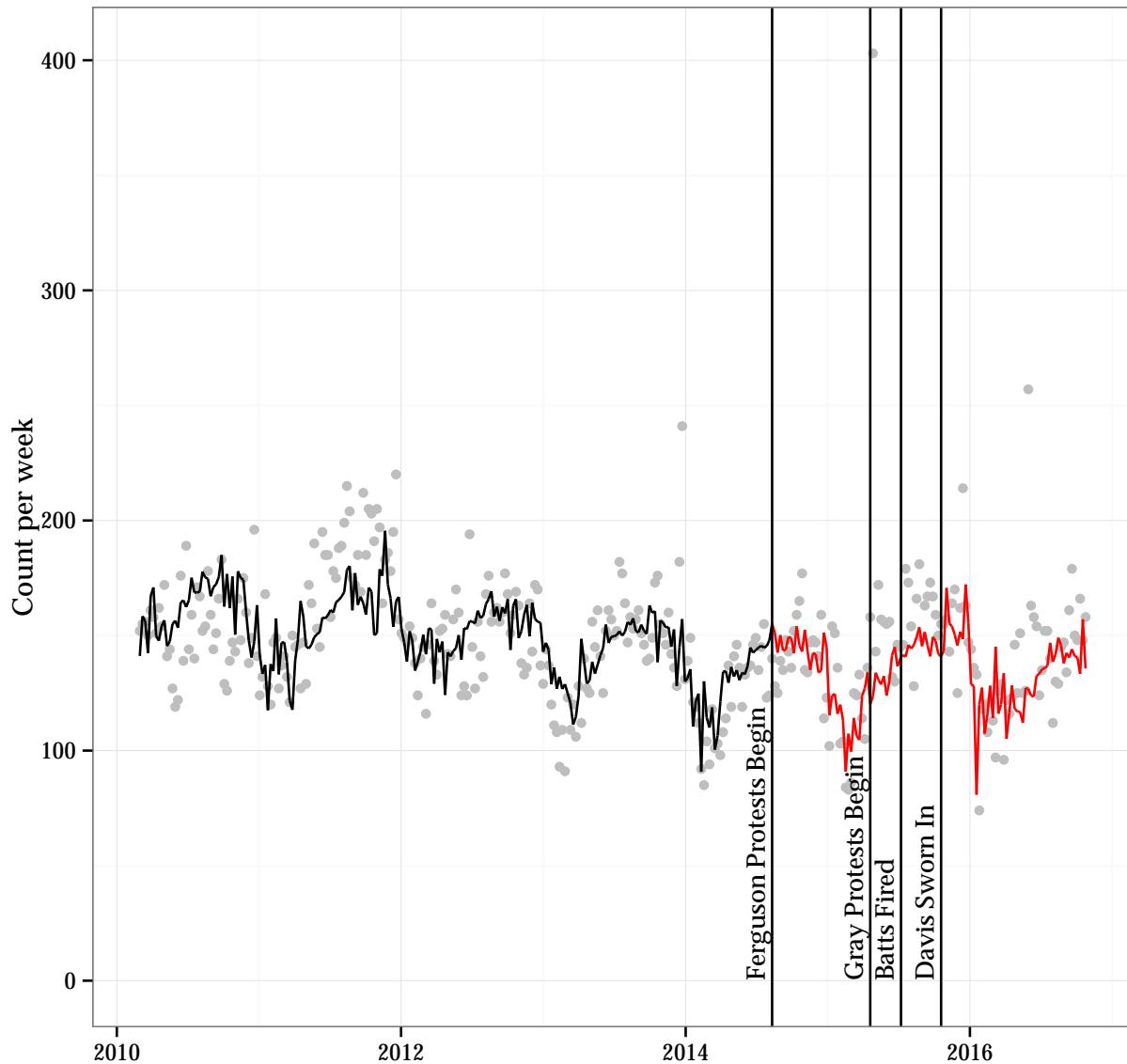
Autocorrelation Function for the Residuals from Model (2)



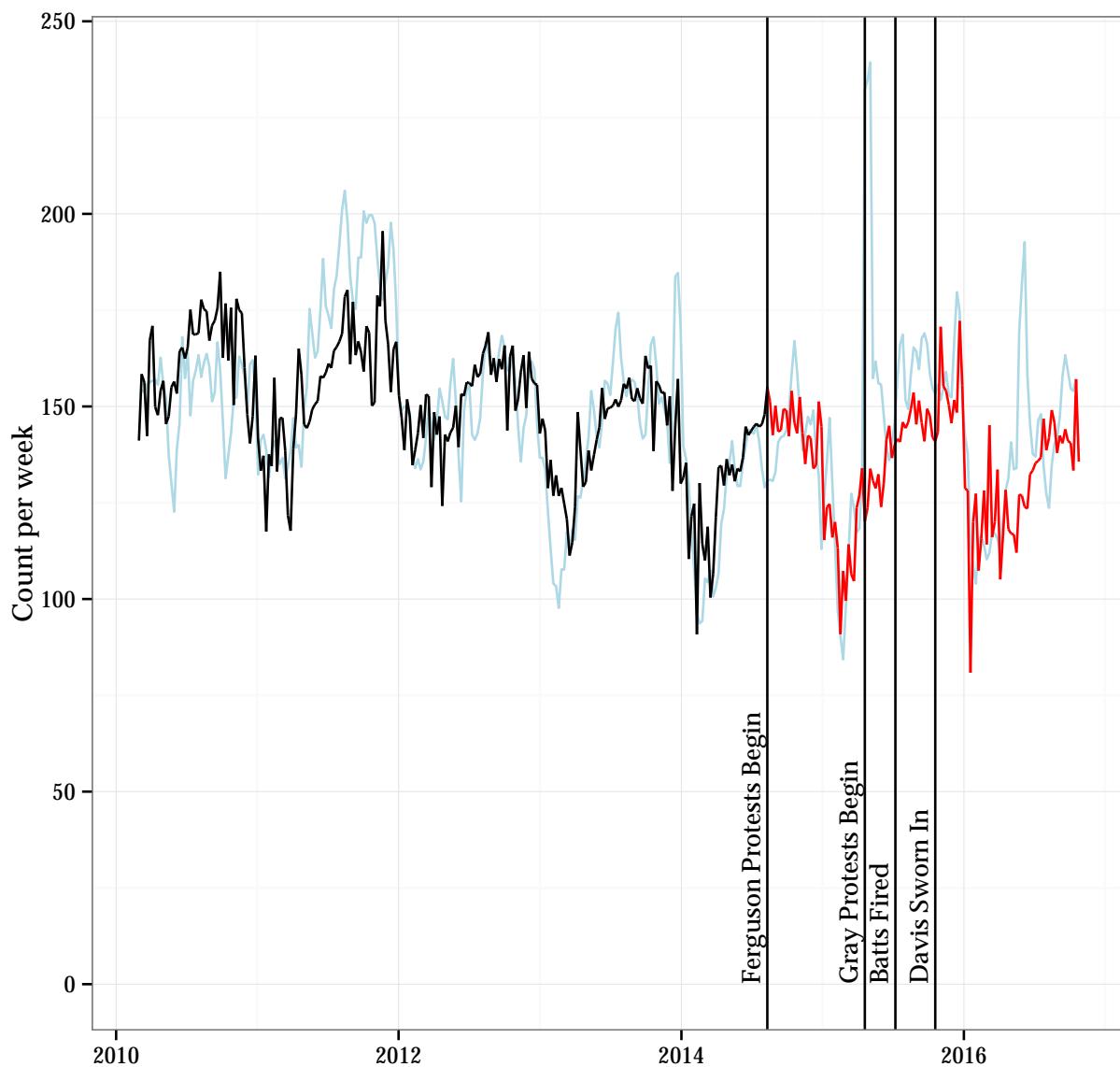
## 14.4 A Poisson Regression Model as an Alternative to Model (2) for burglary

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-4.2239 -0.9836 -0.0638  0.9001  6.1987  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) 4.049e+00 1.151e-01 35.175 < 2e-16 ***  
t          -6.284e-04 8.333e-05 -7.542 4.63e-14 ***  
tmax.f.spline1 7.109e-03 2.121e-03  3.352 0.000802 ***  
tmax.f.spline2 5.239e-03 4.256e-03  1.231 0.218380  
tmax.f.spline3 1.091e-03 5.130e-03  0.213 0.831545  
tmax.f.spline4 -6.952e-03 4.763e-03 -1.460 0.144371  
tmax.f.spline5 -4.434e-03 4.120e-03 -1.076 0.281822  
snow.in       -1.043e-01 3.038e-02 -3.434 0.000595 ***  
precip.in      8.834e-02 2.919e-02  3.026 0.002475 **  
dark.before.12 1.067e-01 7.950e-03 13.428 < 2e-16 ***  
school        -1.113e-01 2.371e-02 -4.693 2.69e-06 ***  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 1022.54 on 231 degrees of freedom  
Residual deviance: 587.57 on 221 degrees of freedom  
AIC: 2194.8  
  
Number of Fisher Scoring iterations: 4
```

## burglary



## burglary



## 15 Results for larceny.from.auto

### 15.1 Summary Values for larceny.from.auto

Table 15.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic         | N   | Mean    | St. Dev. | Min | Median | Max |
|-------------------|-----|---------|----------|-----|--------|-----|
| larceny.from.auto | 232 | 132.961 | 26.707   | 71  | 131    | 207 |

Table 15.2: Descriptives for Outcome After Ferguson Protests Begin

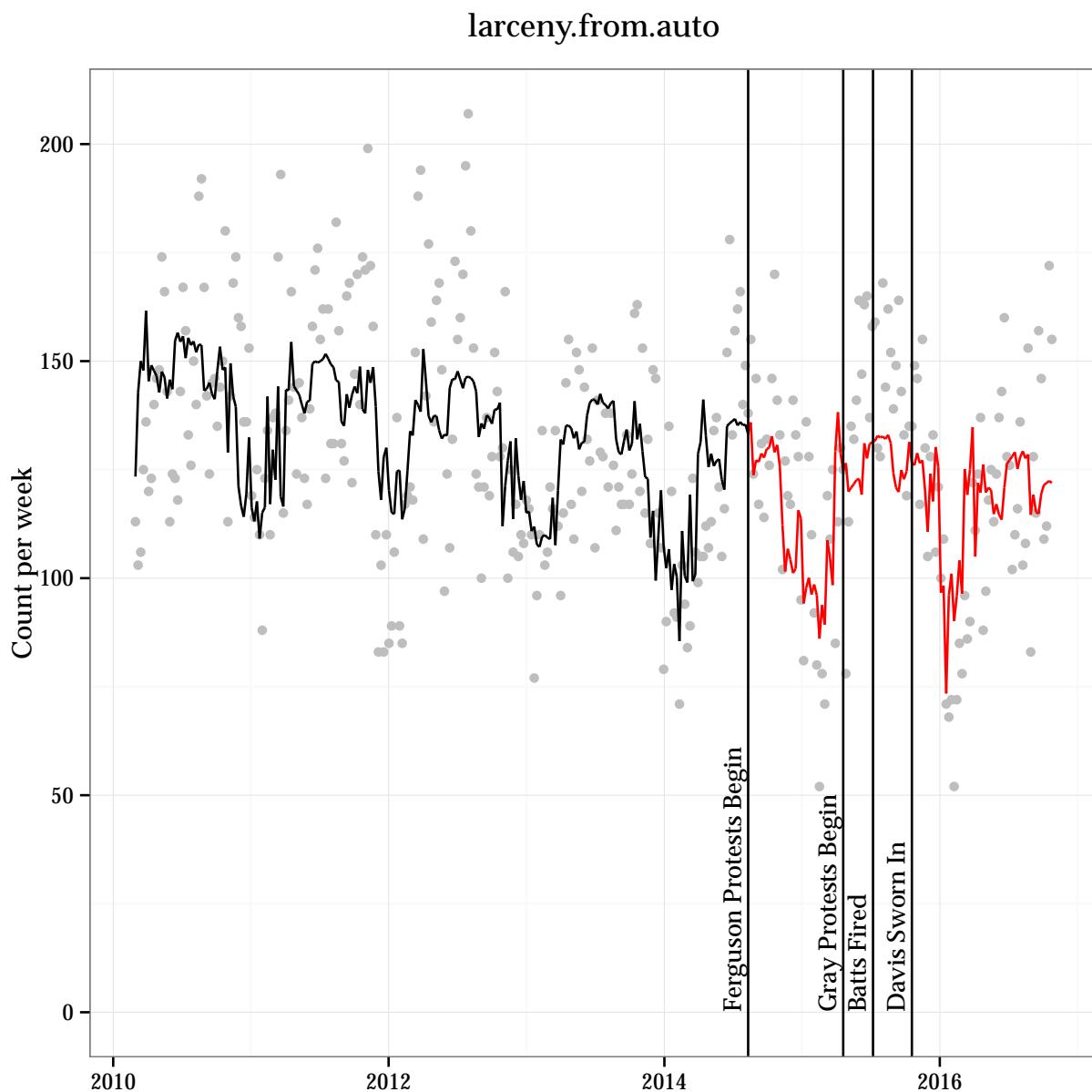
| Statistic         | N   | Mean    | St. Dev. | Min | Median | Max |
|-------------------|-----|---------|----------|-----|--------|-----|
| larceny.from.auto | 116 | 122.319 | 26.865   | 52  | 126    | 172 |

## 15.2 Four Models for larceny.from.auto

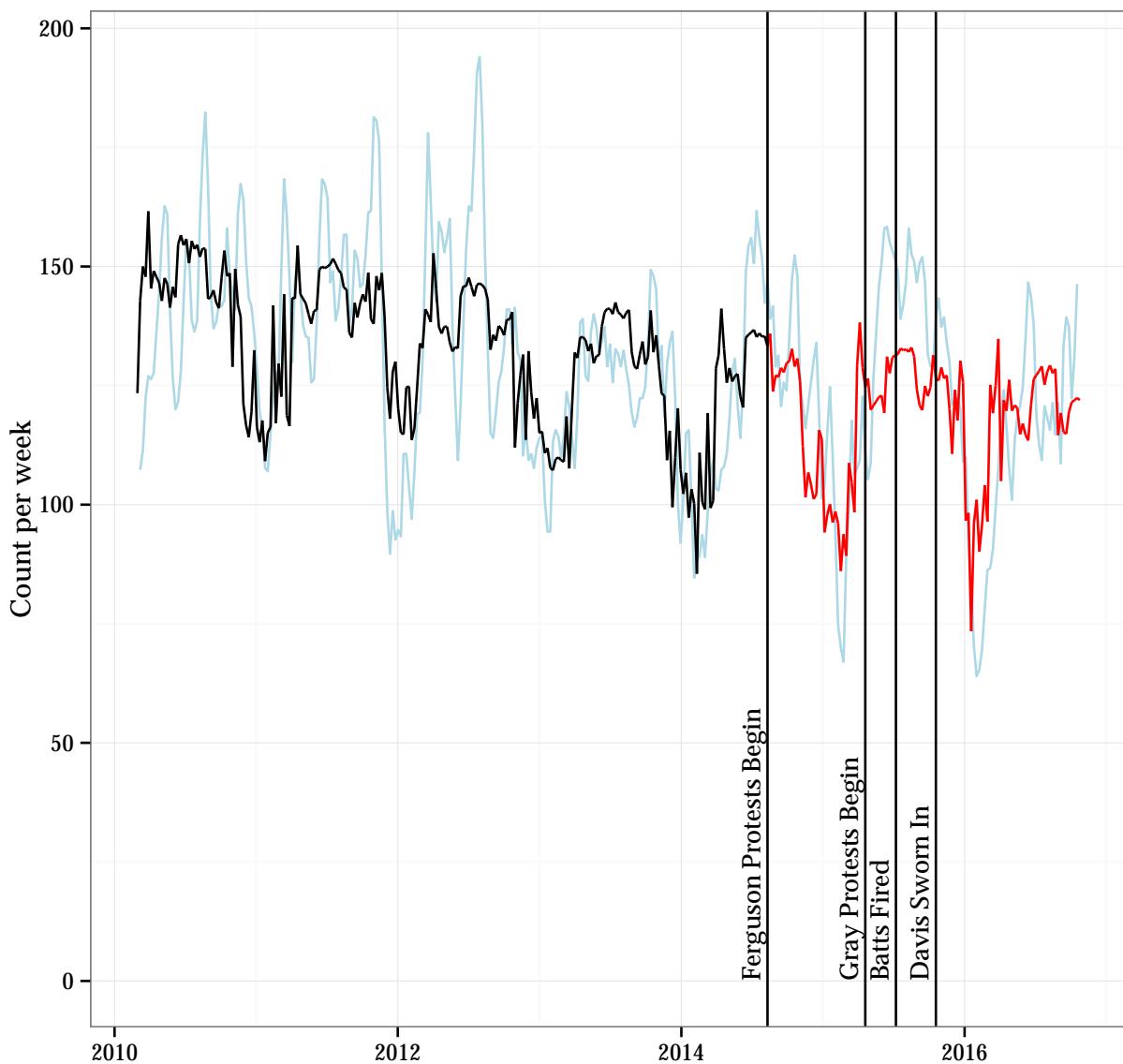
Table 15.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |       |        |        |
|--|-------------------------|-------|--------|--------|
|  | (1)                     | (2)   | (3)    | (4)    |
| Time (counter in weeks)                                | -0.11                   | -0.08 |        | -0.08  |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.96                   |       | 4.03   | 4.45   |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 28.32                   |       | 14.81  | 13.47  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -66.15                  |       | -67.35 | -63.13 |
| After Batts Fired (week of 7/13/15 onward)             | 2.33                    |       | -2.36  | -3.02  |
| After Davis Sworn In (week of 10/19/15 onward)         | -25.10                  |       | -18.19 | -17.10 |
| Average Maximum Temperature to 50 Degrees              | 0.45                    |       | 0.85   |        |
| Plus Degrees in the 50s                                | 2.21                    |       | 1.54   |        |
| Plus Degrees in the 60s                                | -2.52                   |       | -1.83  |        |
| Plus Degrees in the 70s                                | -0.82                   |       | -0.41  |        |
| Plus Degrees Greater Than 80                           | 0.91                    |       | -0.23  |        |
| Snowfall (inches)                                      | -5.19                   |       | -6.63  |        |
| Precipitation (inches)                                 | -5.85                   |       | -3.96  |        |
| Darkness Before Midnight (hours)                       | 1.50                    |       | 3.99   |        |
| School Days (proportion of week)                       | -17.72                  |       | -13.94 |        |
| Observations   | 348                     | 232   | 348    | 348    |
| R <sup>2</sup>   | 0.15                    | 0.30  | 0.06   | 0.38   |

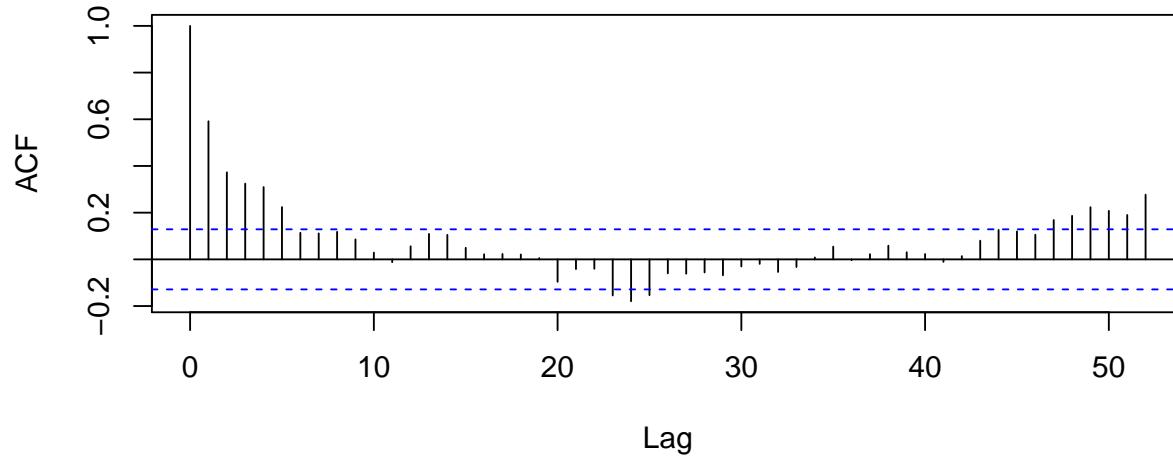
### 15.3 Least Squares Model (2) for larceny.from.auto



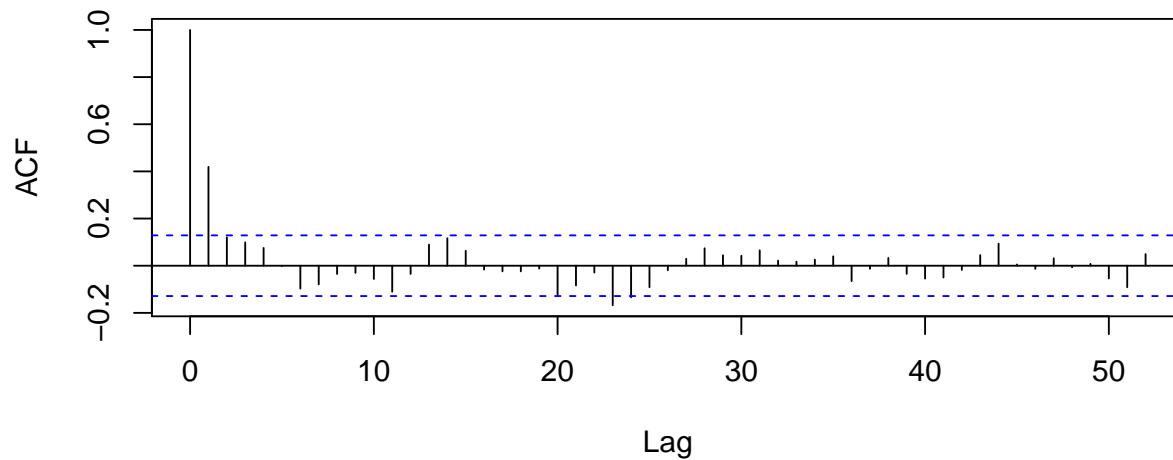
## `larceny.from.auto`



Autocorrelation Function for the Observed Outcome for Model (2)



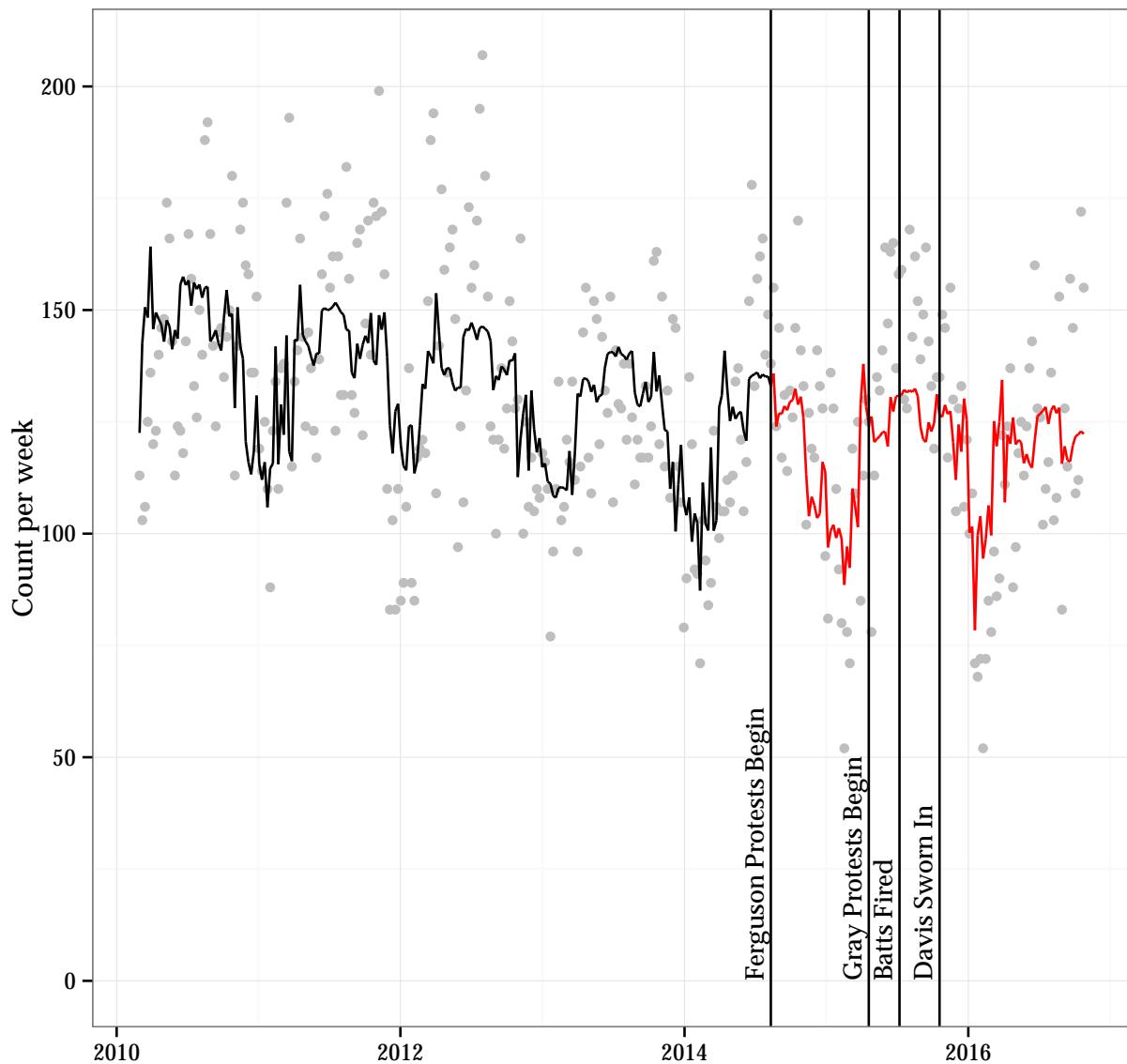
Autocorrelation Function for the Residuals from Model (2)



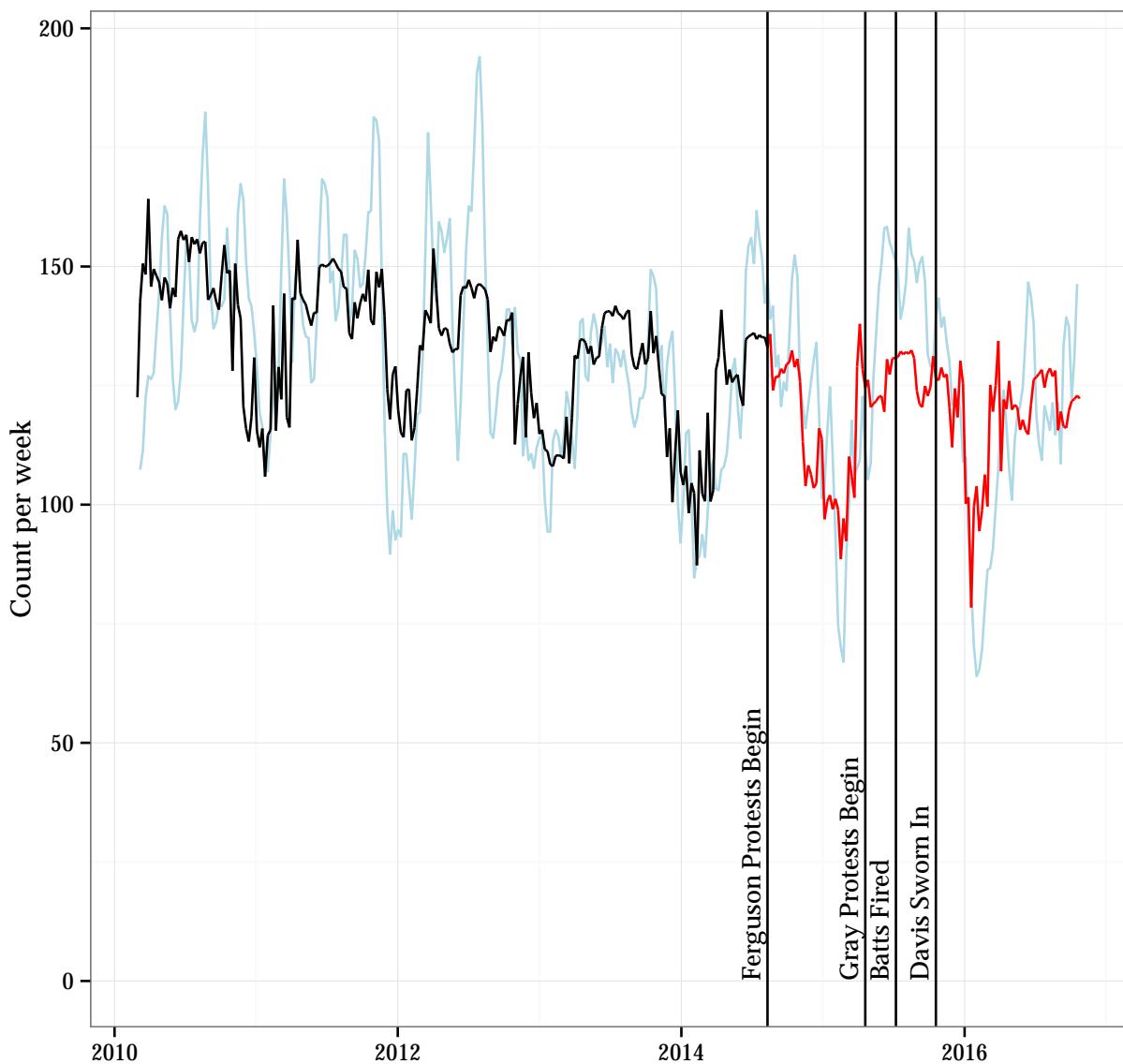
## 15.4 A Poisson Regression Model as an Alternative to Model (2) for larceny.from.auto

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-4.1986 -1.3533 -0.2113  1.2302  6.2812  
  
Coefficients:  
             Estimate Std. Error z value Pr(>|z|)  
(Intercept) 4.643e+00 1.249e-01 37.179 < 2e-16 ***  
t            -6.352e-04 8.782e-05 -7.234 4.71e-13 ***  
tmax.f.spline1 3.921e-03 2.311e-03  1.697 0.089688 .  
tmax.f.spline2 1.687e-02 4.565e-03  3.696 0.000219 ***  
tmax.f.spline3 -1.986e-02 5.363e-03 -3.702 0.000214 ***  
tmax.f.spline4 -5.644e-03 4.973e-03 -1.135 0.256431  
tmax.f.spline5 6.020e-03 4.326e-03  1.392 0.164030  
snow.in       -5.708e-02 3.180e-02 -1.795 0.072639 .  
precip.in      -4.529e-02 3.206e-02 -1.413 0.157655  
dark.before.12 1.236e-02 8.373e-03  1.476 0.139925  
school        -1.326e-01 2.512e-02 -5.277 1.32e-07 ***  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 1238.05 on 231 degrees of freedom  
Residual deviance: 859.77 on 221 degrees of freedom  
AIC: 2438.2  
  
Number of Fisher Scoring iterations: 4
```

## `larceny.from.auto`



## `larceny.from.auto`



## 16 Results for larceny

### 16.1 Summary Values for larceny

Table 16.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic | N   | Mean    | St. Dev. | Min | Median | Max |
|-----------|-----|---------|----------|-----|--------|-----|
| larceny   | 232 | 206.086 | 32.555   | 115 | 205    | 302 |

Table 16.2: Descriptives for Outcome After Ferguson Protests Begin

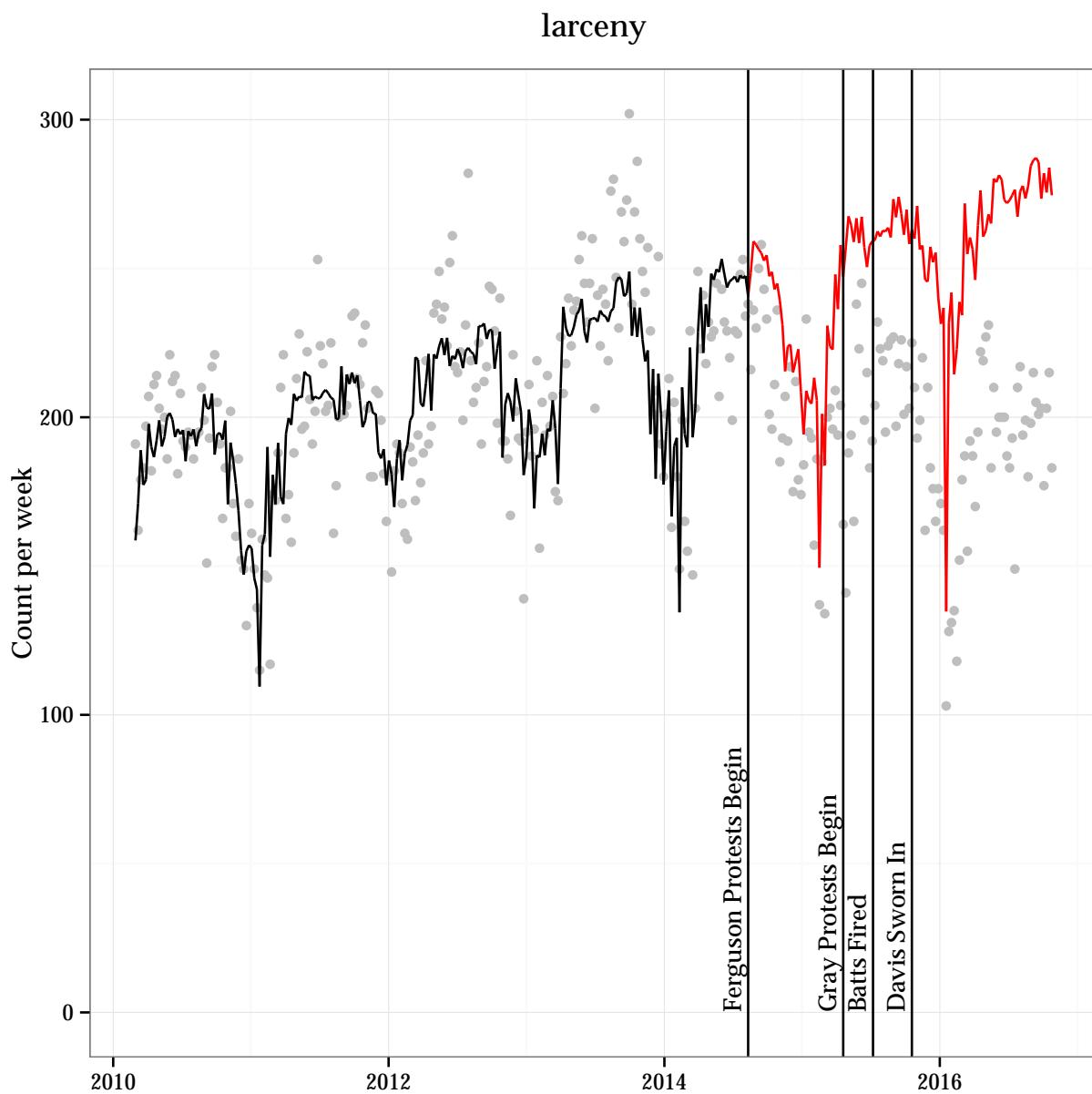
| Statistic | N   | Mean    | St. Dev. | Min | Median | Max |
|-----------|-----|---------|----------|-----|--------|-----|
| larceny   | 116 | 195.983 | 28.782   | 103 | 198.5  | 258 |

## 16.2 Four Models for larceny

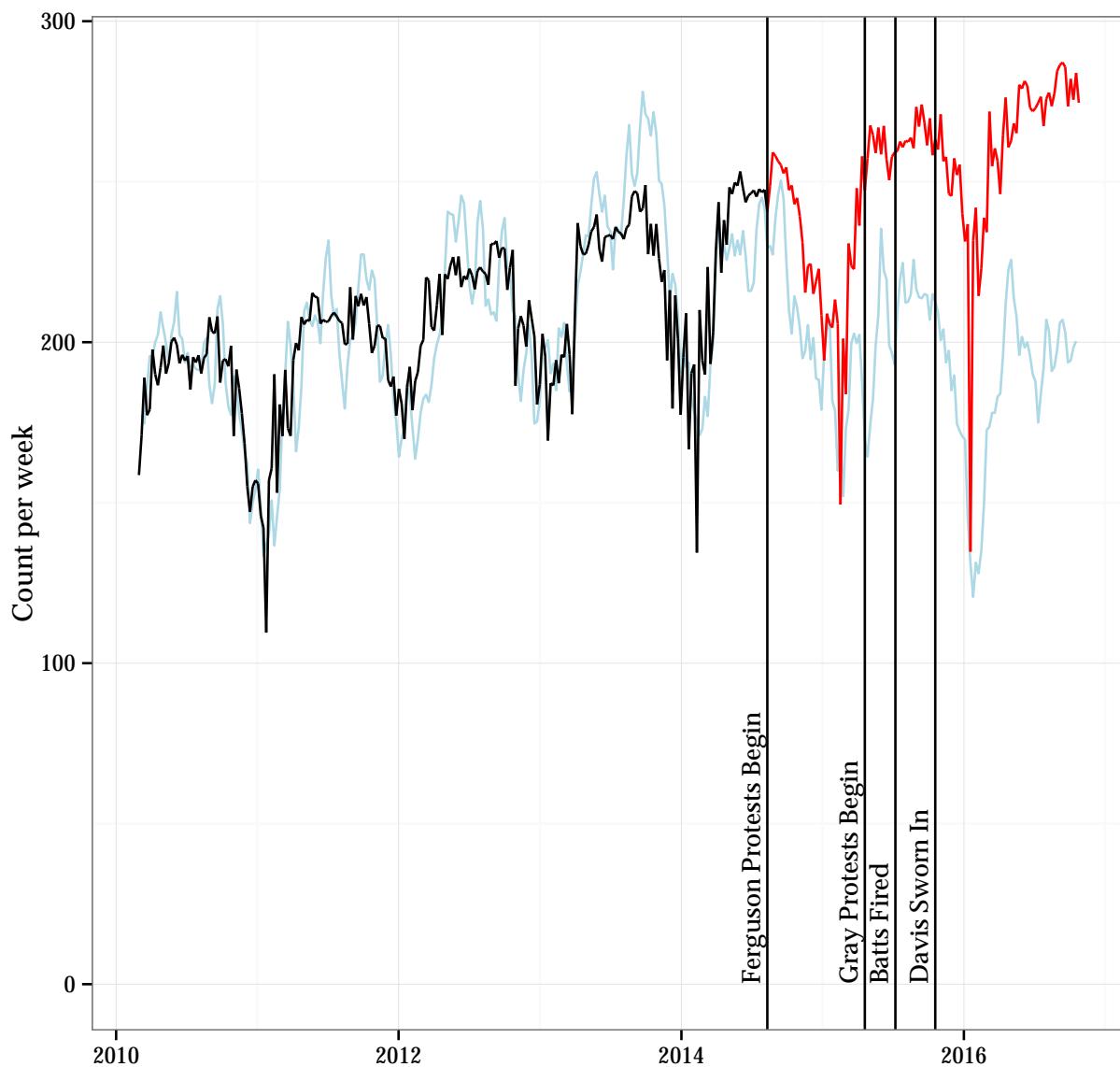
Table 16.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |        |        |        |
|--|-------------------------|--------|--------|--------|
|  | (1)                     | (2)    | (3)    | (4)    |
| Time (counter in weeks)                                | 0.22                    | 0.26   |        | 0.25   |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -32.35                  |        | -25.07 | -24.92 |
| After Gray Protests Begin (wee of 4/20/15 onward)      | -7.26                   |        | -33.97 | -33.03 |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -58.49                  |        | -57.24 | -57.24 |
| After Batts Fired (week of 7/13/15 onward)             | 11.89                   |        | 9.59   | 9.84   |
| After Davis Sworn In (week of 10/19/15 onward)         | -35.73                  |        | -24.43 | -24.76 |
| Average Maximum Temperature to 50 Degrees              |                         | 1.37   |        | 1.06   |
| Plus Degrees in the 50s                                |                         | 0.52   |        | 1.18   |
| Plus Degrees in the 60s                                |                         | -0.52  |        | -0.99  |
| Plus Degrees in the 70s                                |                         | -0.63  |        | -0.51  |
| Plus Degrees Greater Than 80                           |                         | -0.50  |        | -0.43  |
| Snowfall (inches)                                      |                         | -21.26 |        | -17.81 |
| Precipitation (inches)                                 |                         | -14.11 |        | -11.22 |
| Darkness Before Midnight (hours)                       |                         | 1.64   |        | 1.73   |
| School Days (proportion of week)                       |                         | 12.45  |        | 14.33  |
| Observations   | 348                     | 232    | 348    | 348    |
| R <sup>2</sup>   | 0.21                    | 0.58   | 0.67   | 0.59   |

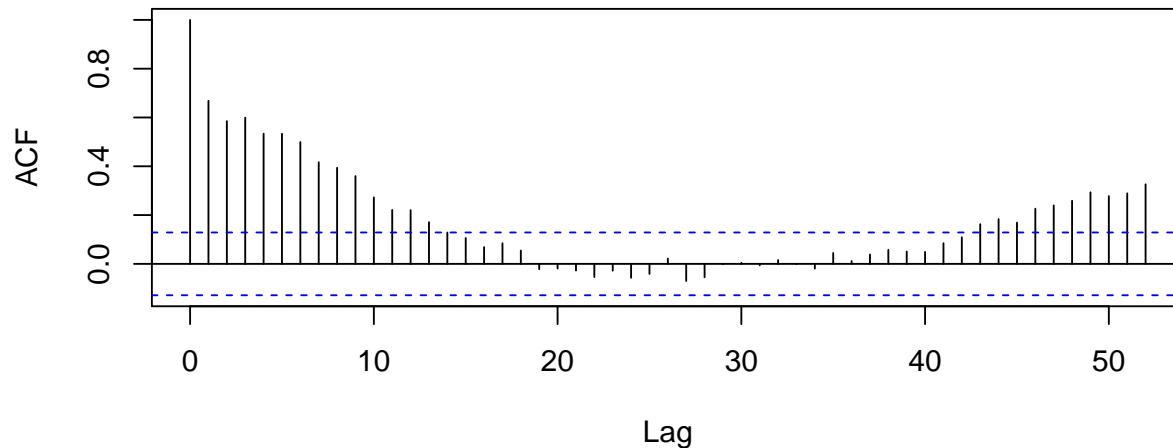
### 16.3 Least Squares Model (2) for larceny



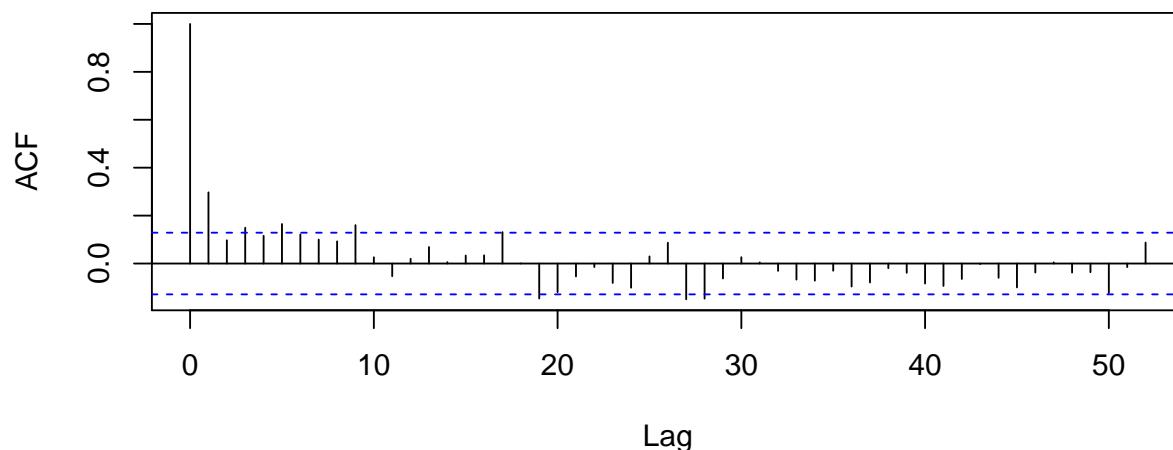
## larceny



Autocorrelation Function for the Observed Outcome for Model (2)



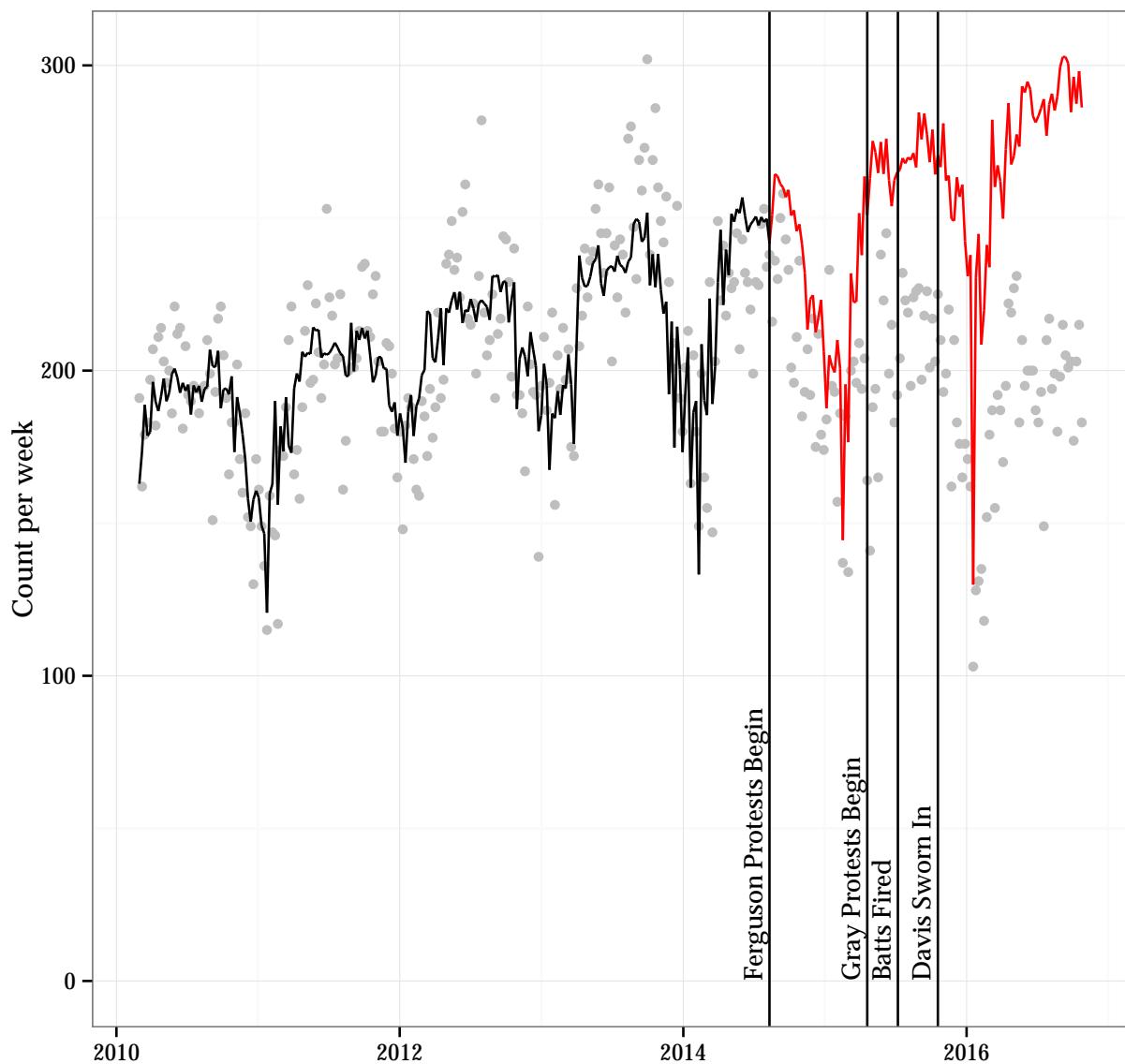
Autocorrelation Function for the Residuals from Model (2)



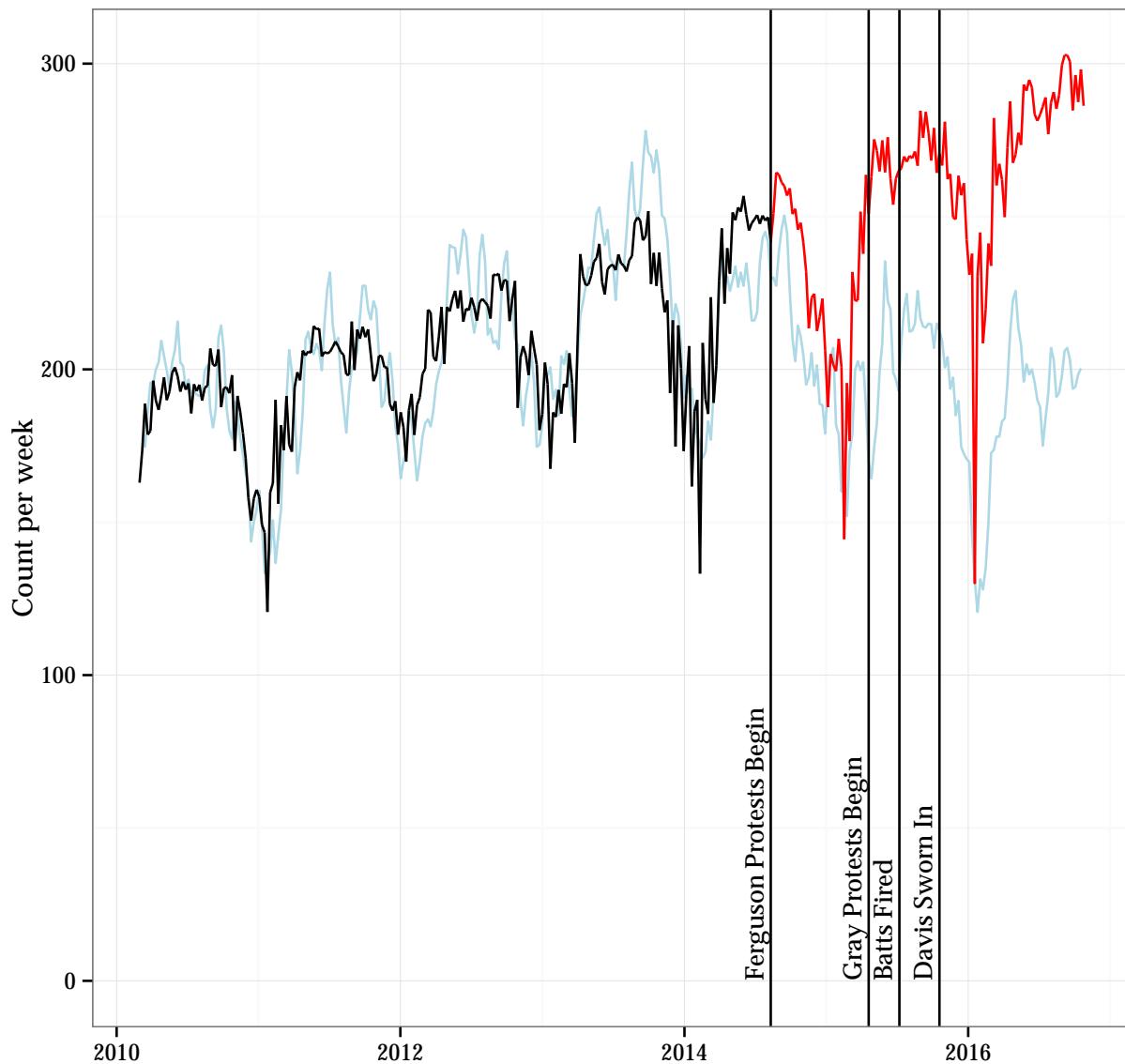
## 16.4 A Poisson Regression Model as an Alternative to Model (2) for larceny

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-3.7241 -1.0073 -0.0080  0.9357  3.7877  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) 4.619e+00 1.003e-01 46.065 < 2e-16 ***  
t           1.241e-03 7.088e-05 17.513 < 2e-16 ***  
tmax.f.spline1 7.994e-03 1.855e-03  4.309 1.64e-05 ***  
tmax.f.spline2 1.008e-03 3.673e-03  0.275  0.78367  
tmax.f.spline3 -2.498e-03 4.377e-03 -0.571  0.56823  
tmax.f.spline4 -3.357e-03 4.035e-03 -0.832  0.40549  
tmax.f.spline5 -1.464e-03 3.494e-03 -0.419  0.67509  
snow.in      -1.285e-01 2.607e-02 -4.929 8.27e-07 ***  
precip.in     -6.604e-02 2.592e-02 -2.548  0.01083 *  
dark.before.12 7.889e-03 6.686e-03  1.180  0.23806  
school        6.094e-02 2.033e-02  2.997  0.00273 **  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 1204.08 on 231 degrees of freedom  
Residual deviance: 494.62 on 221 degrees of freedom  
AIC: 2176.4  
  
Number of Fisher Scoring iterations: 4
```

## larceny



## larceny



## 17 Results for auto.theft

### 17.1 Summary Values for auto.theft

Table 17.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic  | N   | Mean   | St. Dev. | Min | Median | Max |
|------------|-----|--------|----------|-----|--------|-----|
| auto.theft | 232 | 83.052 | 18.133   | 47  | 81     | 146 |

Table 17.2: Descriptives for Outcome After Ferguson Protests Begin

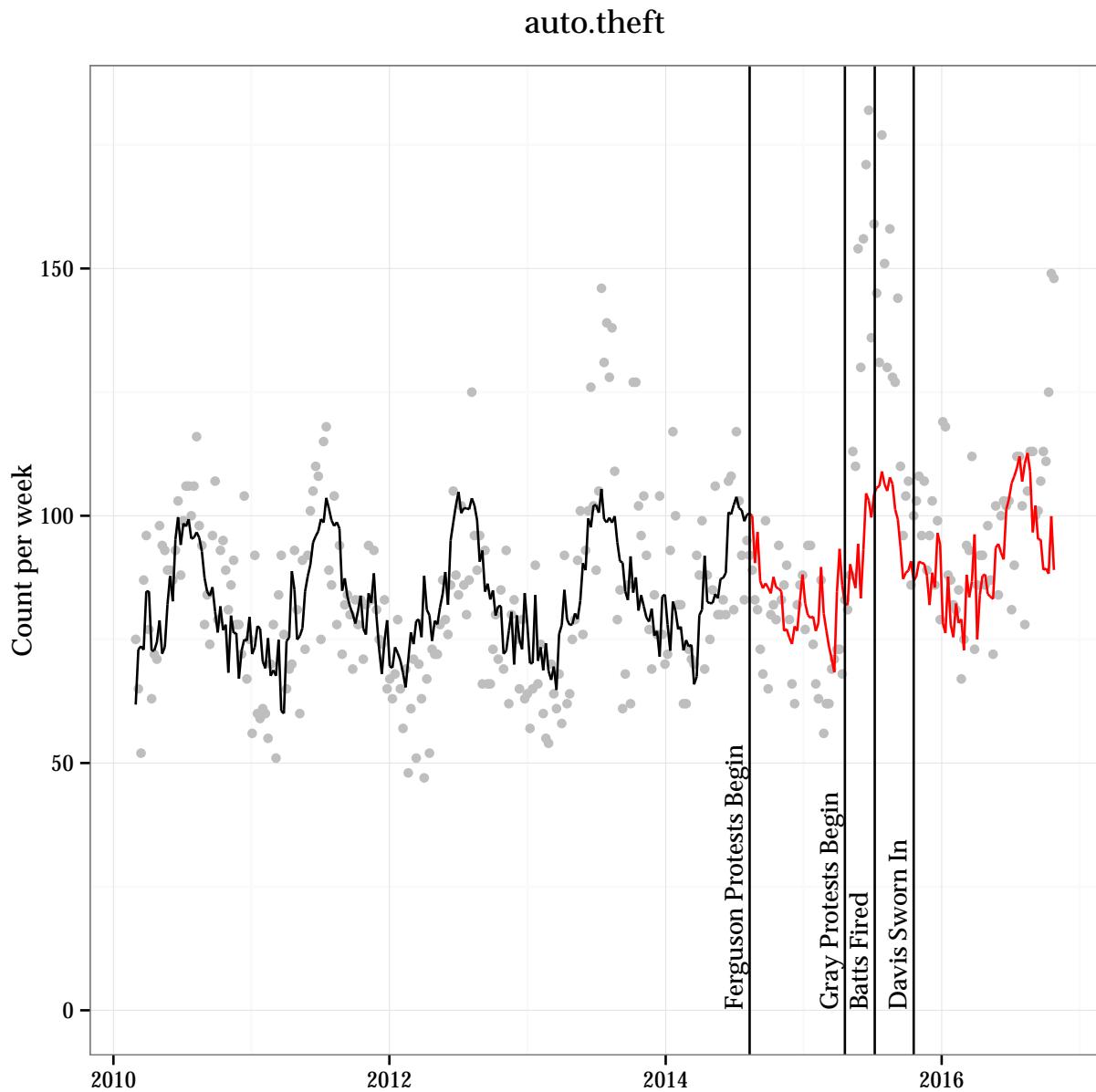
| Statistic  | N   | Mean   | St. Dev. | Min | Median | Max |
|------------|-----|--------|----------|-----|--------|-----|
| auto.theft | 116 | 98.793 | 26.525   | 56  | 93.5   | 182 |

## 17.2 Four Models for auto.theft

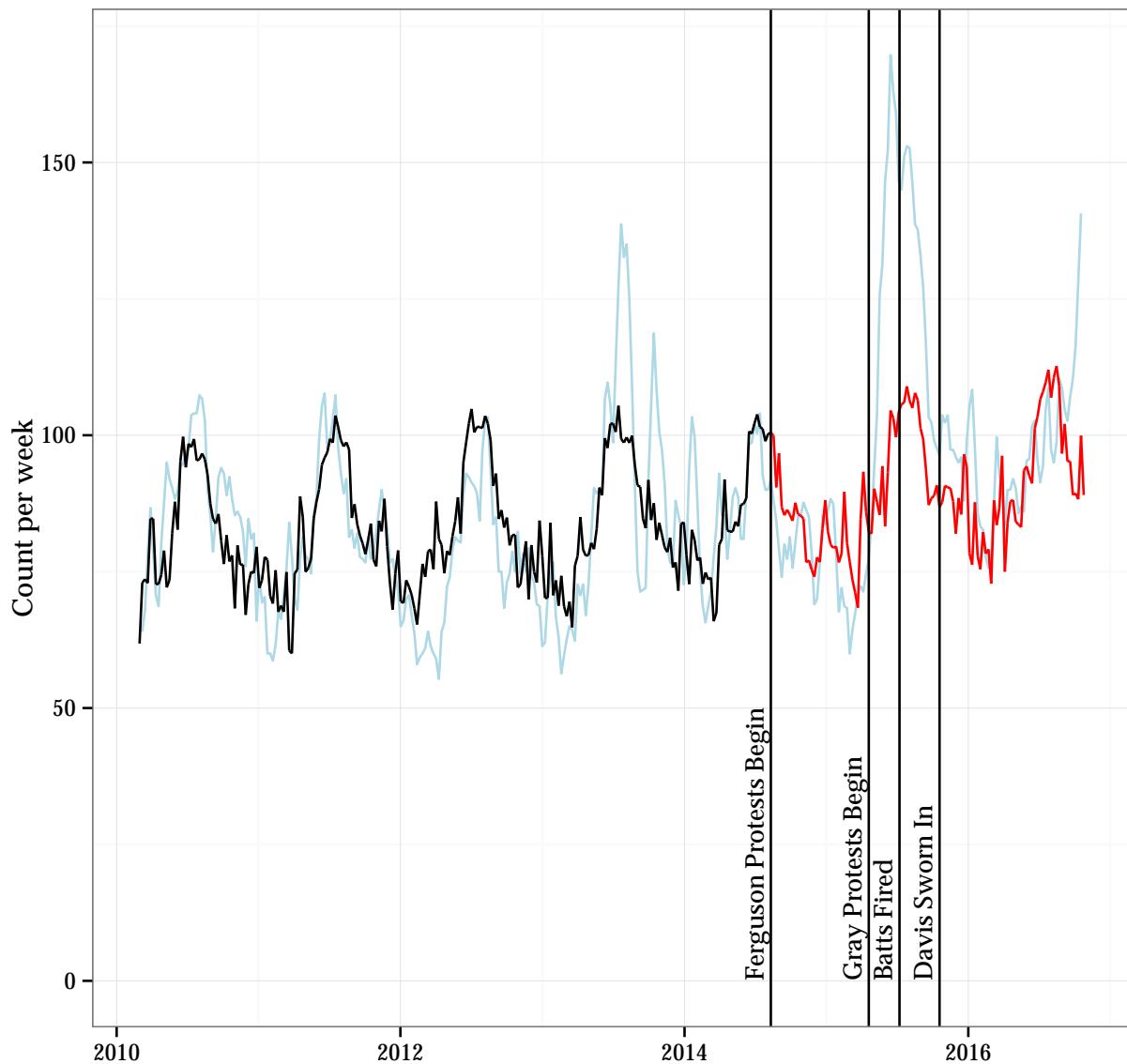
Table 17.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |        |        |        |
|--|-------------------------|--------|--------|--------|
|  | (1)                     | (2)    | (3)    | (4)    |
| Time (counter in weeks)                                | 0.03                    | 0.04   |        | 0.04   |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -9.08                   |        | -5.31  | -5.90  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 56.39                   |        | 46.58  | 47.75  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -53.59                  |        | -42.22 | -40.96 |
| After Batts Fired (week of 7/13/15 onward)             | -6.93                   |        | -12.83 | -14.05 |
| After Davis Sworn In (week of 10/19/15 onward)         | -30.80                  |        | -21.37 | -21.36 |
| Average Maximum Temperature to 50 Degrees              |                         | -0.55  |        | -0.46  |
| Plus Degrees in the 50s                                |                         | 2.06   |        | 1.88   |
| Plus Degrees in the 60s                                |                         | -1.38  |        | -1.18  |
| Plus Degrees in the 70s                                |                         | 0.66   |        | 0.73   |
| Plus Degrees Greater Than 80                           |                         | -0.12  |        | -0.13  |
| Snowfall (inches)                                      |                         | -0.25  |        | -1.46  |
| Precipitation (inches)                                 |                         | 2.82   |        | 6.08   |
| Darkness Before Midnight (hours)                       |                         | 2.54   |        | 4.03   |
| School Days (proportion of week)                       |                         | -15.73 |        | -13.35 |
| Observations   | 348                     | 232    | 348    | 348    |
| R <sup>2</sup>   | 0.36                    | 0.35   | 0.27   | 0.54   |

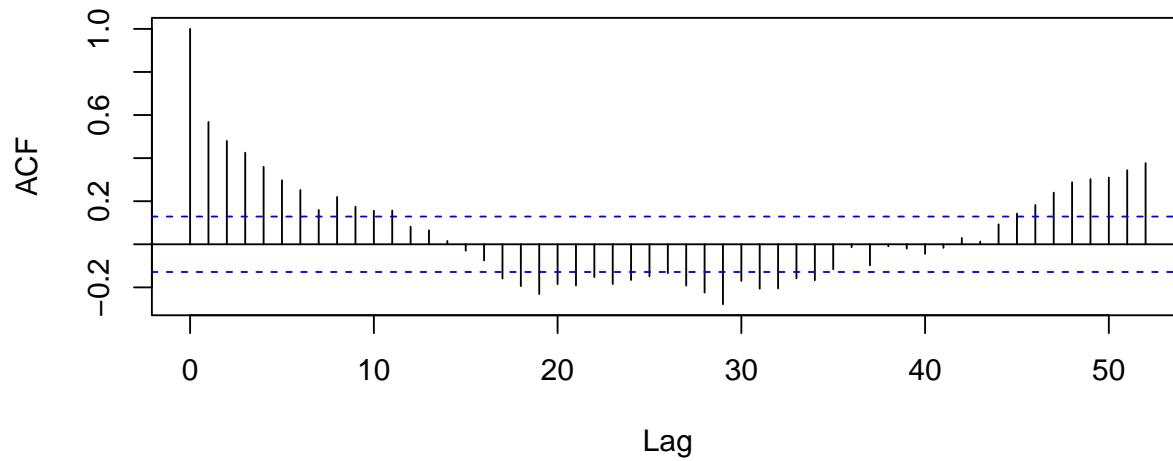
### 17.3 Least Squares Model (2) for auto.theft



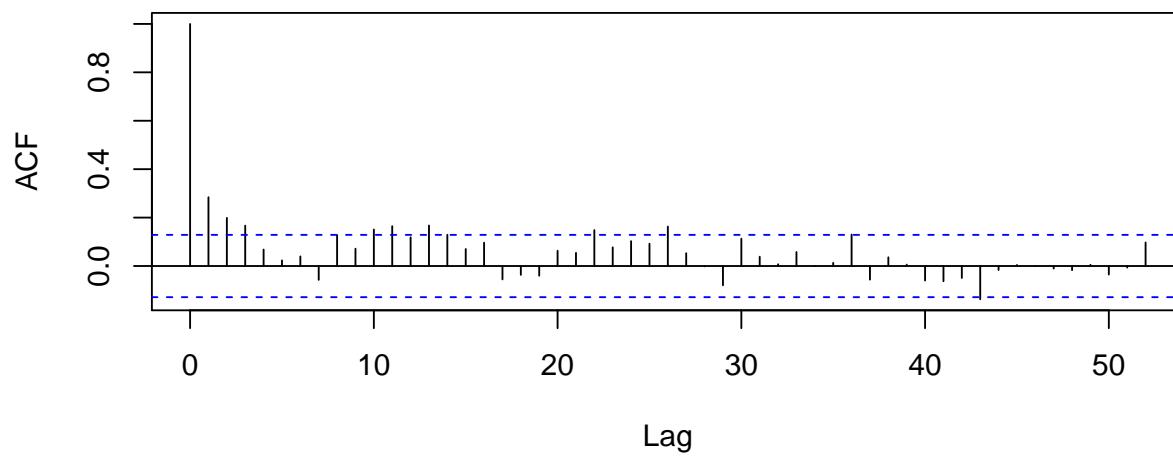
## auto.theft



Autocorrelation Function for the Observed Outcome for Model (2)



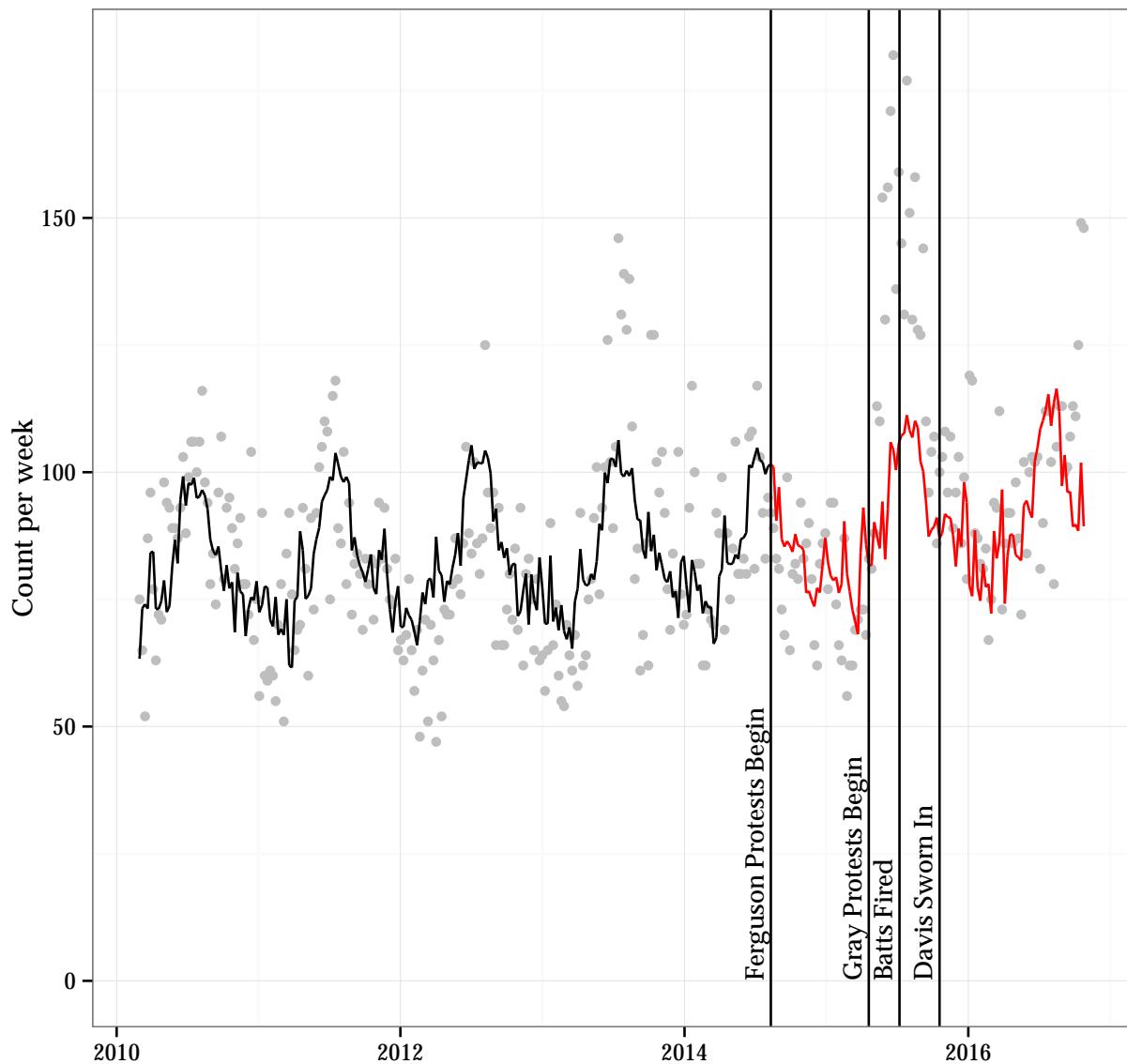
Autocorrelation Function for the Residuals from Model (2)



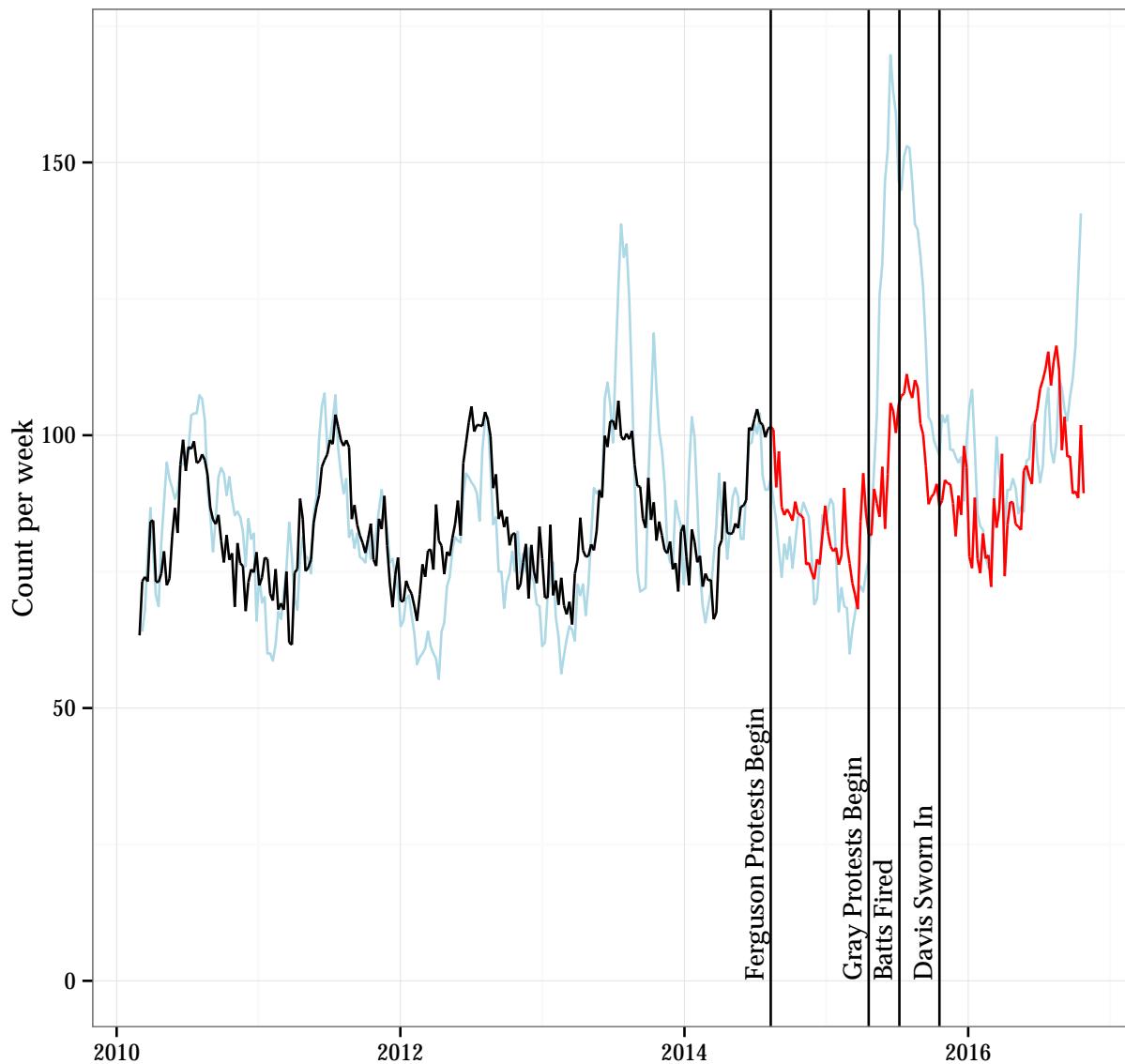
## 17.4 A Poisson Regression Model as an Alternative to Model (2) for auto.theft

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-4.7324 -1.1946 -0.0779  0.9045  4.3016  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) 4.4277961  0.1548779 28.589 < 2e-16 ***  
t            0.0004524  0.0001112  4.069 4.73e-05 ***  
tmax.f.spline1 -0.0073949  0.0028410 -2.603  0.00924 **  
tmax.f.spline2  0.0273797  0.0058390  4.689 2.74e-06 ***  
tmax.f.spline3 -0.0180857  0.0070761 -2.556  0.01059 *  
tmax.f.spline4  0.0075562  0.0065211  1.159  0.24656  
tmax.f.spline5 -0.0024558  0.0054121 -0.454  0.65001  
snow.in        -0.0005651  0.0361285 -0.016  0.98752  
precip.in       0.0326381  0.0402438  0.811  0.41736  
dark.before.12  0.0341799  0.0108572  3.148  0.00164 **  
school         -0.1830027  0.0315077 -5.808 6.32e-09 ***  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 891.40 on 231 degrees of freedom  
Residual deviance: 574.64 on 221 degrees of freedom  
AIC: 2043.5  
  
Number of Fisher Scoring iterations: 4
```

## auto.theft



## auto.theft



## 18 Results for arson

### 18.1 Summary Values for arson

Table 18.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------|-----|-------|----------|-----|--------|-----|
| arson     | 232 | 5.280 | 2.896    | 0   | 5      | 15  |

Table 18.2: Descriptives for Outcome After Ferguson Protests Begin

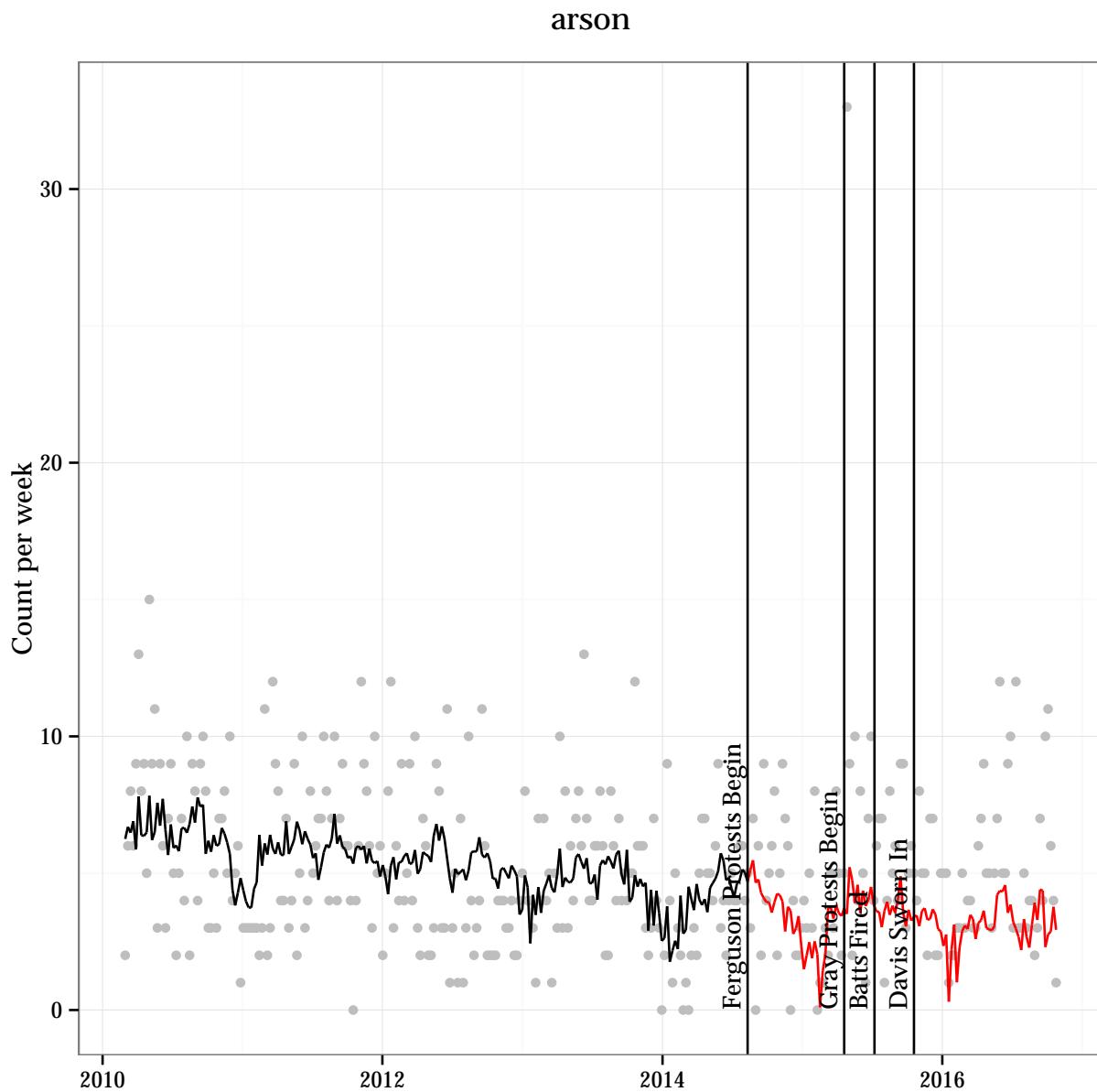
| Statistic | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------|-----|-------|----------|-----|--------|-----|
| arson     | 116 | 5.121 | 3.735    | 0   | 5      | 33  |

## 18.2 Four Models for arson

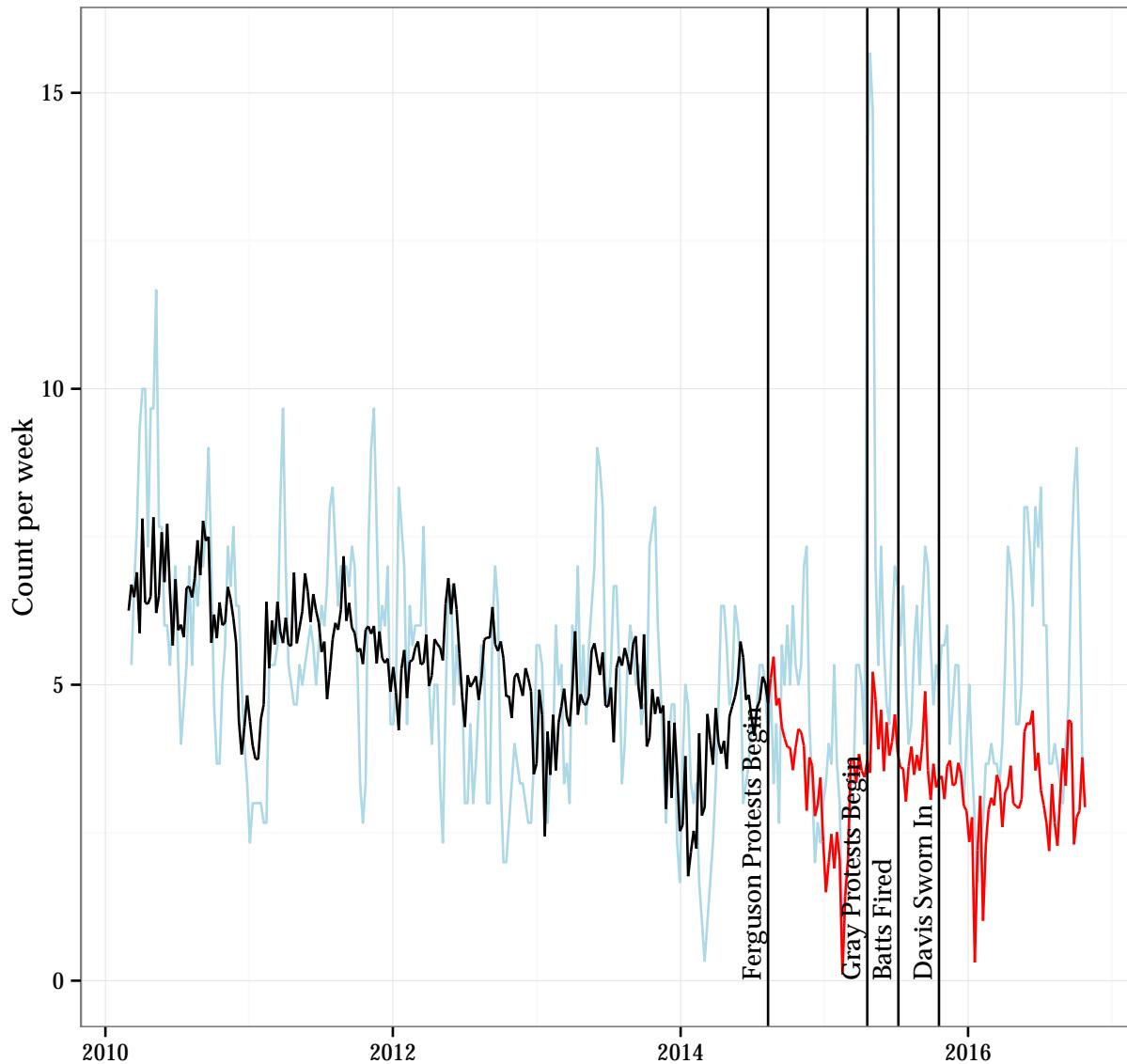
Table 18.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |       |       |       |
|--|-------------------------|-------|-------|-------|
|  | (1)                     | (2)   | (3)   | (4)   |
| Time (counter in weeks)                                | -0.01                   | -0.01 |       | -0.01 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | 0.25                    |       | 0.77  | 0.70  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 2.06                    |       | 0.93  | 0.89  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 27.04                   |       | 27.78 | 27.47 |
| After Batts Fired (week of 7/13/15 onward)             | -0.06                   |       | 0.36  | 0.45  |
| After Davis Sworn In (week of 10/19/15 onward)         | -0.39                   |       | -0.24 | -0.23 |
| Average Maximum Temperature to 50 Degrees              |                         | 0.13  |       | 0.11  |
| Plus Degrees in the 50s                                |                         | -0.08 |       | -0.08 |
| Plus Degrees in the 60s                                |                         | -0.13 |       | -0.04 |
| Plus Degrees in the 70s                                |                         | 0.27  |       | 0.15  |
| Plus Degrees Greater Than 80                           |                         | -0.33 |       | -0.29 |
| Snowfall (inches)                                      |                         | 0.03  |       | -0.20 |
| Precipitation (inches)                                 |                         | -0.65 |       | -0.61 |
| Darkness Before Midnight (hours)                       |                         | -0.01 |       | -0.08 |
| School Days (proportion of week)                       |                         | 0.70  |       | 0.62  |
| Observations   | 348                     | 232   | 348   | 348   |
| R <sup>2</sup>   | 0.27                    | 0.14  | 0.31  | 0.33  |

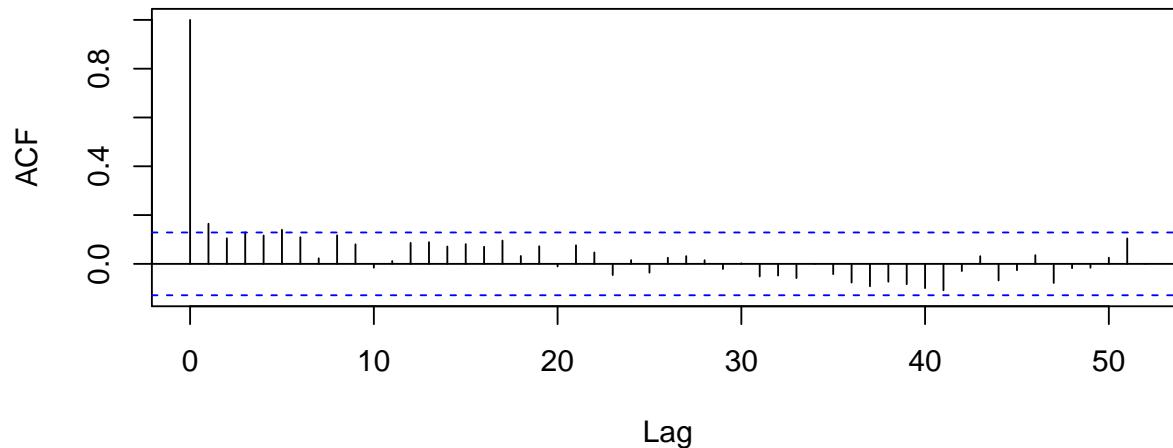
### 18.3 Least Squares Model (2) for arson



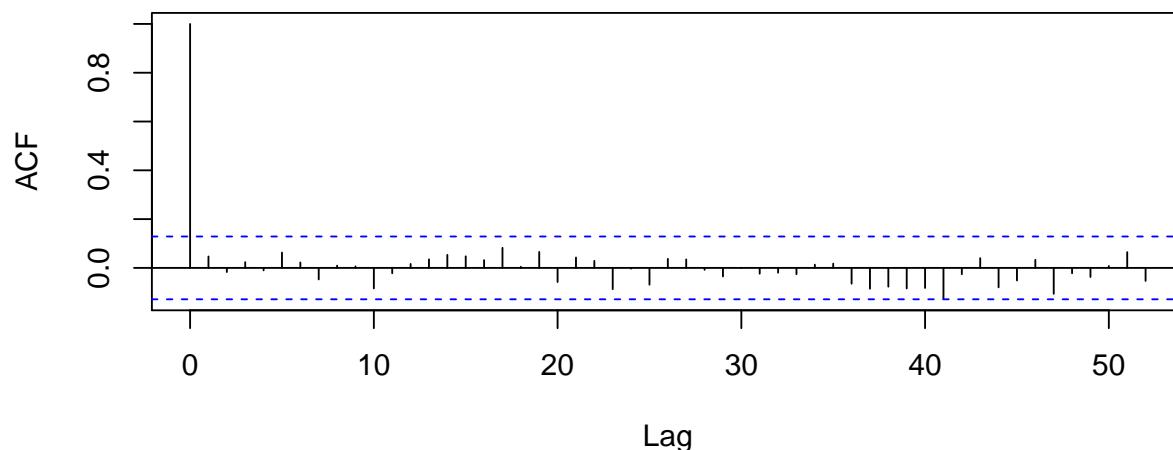
## arson



Autocorrelation Function for the Observed Outcome for Model (2)



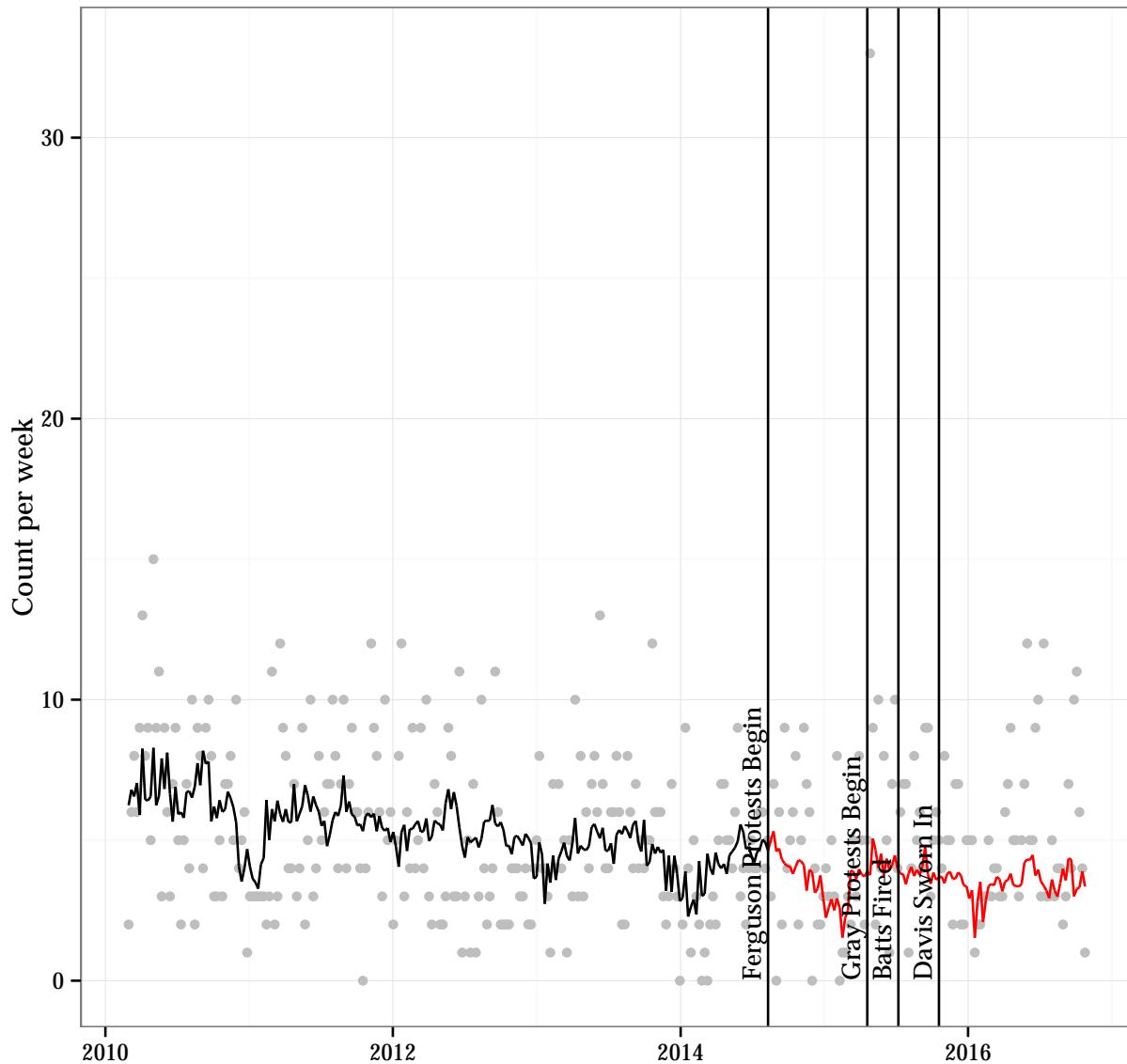
Autocorrelation Function for the Residuals from Model (2)



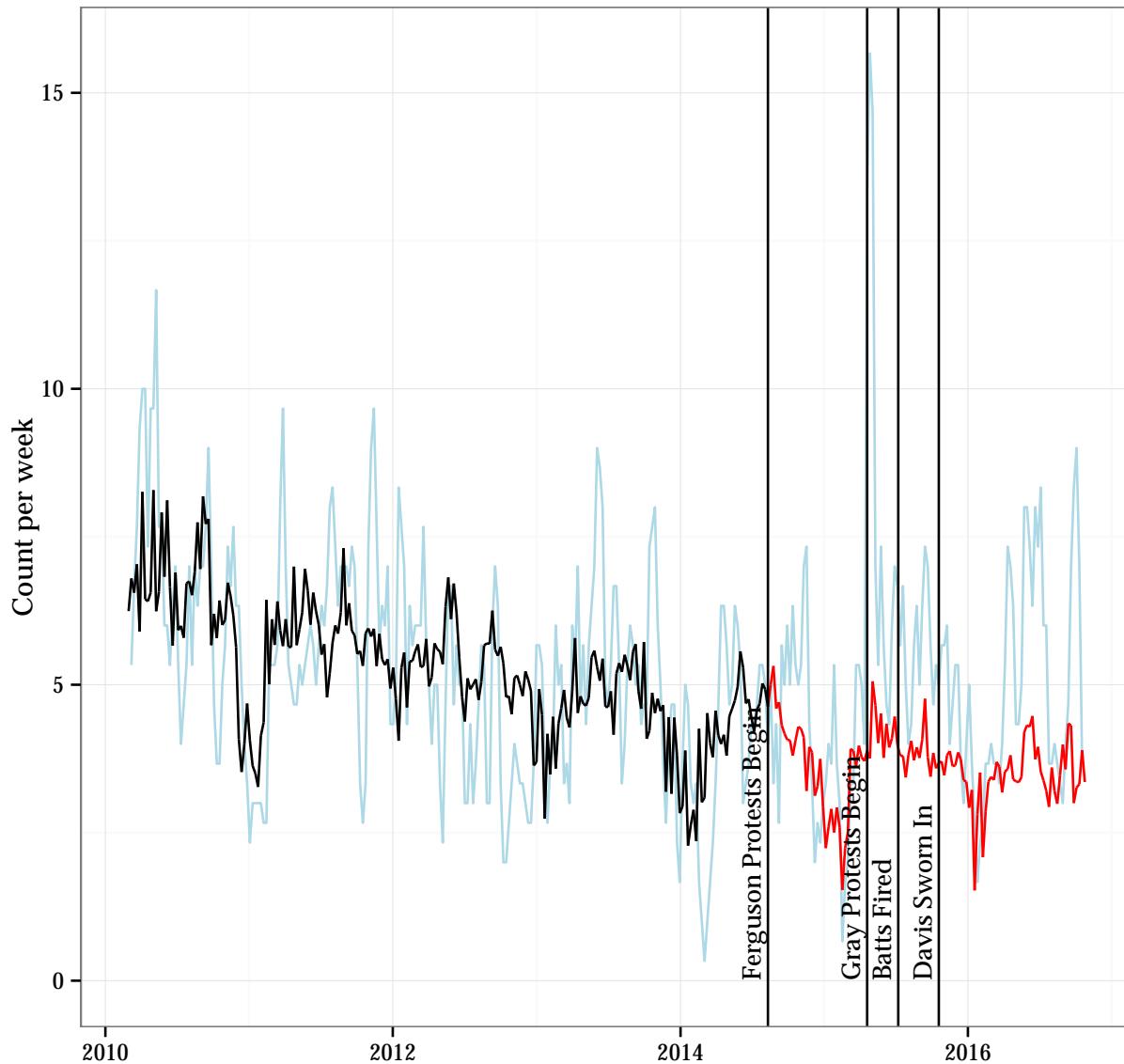
## 18.4 A Poisson Regression Model as an Alternative to Model (2) for arson

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-3.2618 -0.8961 -0.1708  0.7326  2.9374  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) 0.2325578 0.6722015 0.346 0.72937  
t          -0.0020594 0.0004413 -4.666 3.06e-06 ***  
tmax.f.spline1 0.0317094 0.0125831 2.520 0.01174 *  
tmax.f.spline2 -0.0235547 0.0233293 -1.010 0.31266  
tmax.f.spline3 -0.0211348 0.0266550 -0.793 0.42783  
tmax.f.spline4 0.0469344 0.0248685 1.887 0.05912 .  
tmax.f.spline5 -0.0572901 0.0216123 -2.651 0.00803 **  
snow.in       -0.0416203 0.1821037 -0.229 0.81922  
precip.in      -0.1198980 0.1609743 -0.745 0.45638  
dark.before.12 -0.0004010 0.0416903 -0.010 0.99233  
school         0.1202408 0.1261332  0.953 0.34045  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 377.59 on 231 degrees of freedom  
Residual deviance: 322.42 on 221 degrees of freedom  
AIC: 1121.8  
  
Number of Fisher Scoring iterations: 4
```

## arson



## arson



## 19 Results for northwestern

### 19.1 Summary Values for northwestern

Table 19.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic    | N   | Mean   | St. Dev. | Min | Median | Max |
|--------------|-----|--------|----------|-----|--------|-----|
| northwestern | 232 | 95.621 | 15.068   | 56  | 94     | 152 |

Table 19.2: Descriptives for Outcome After Ferguson Protests Begin

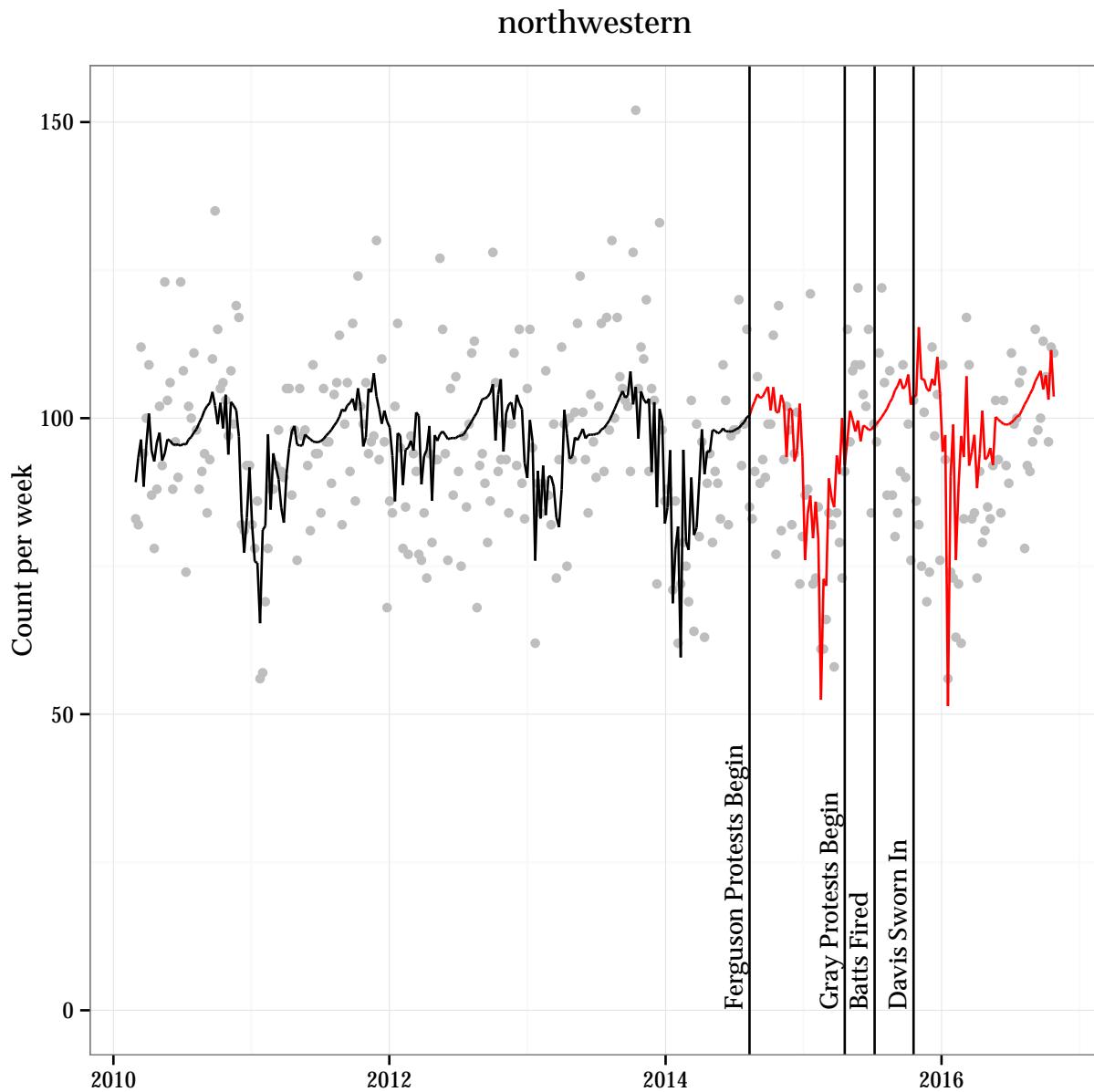
| Statistic    | N   | Mean   | St. Dev. | Min | Median | Max |
|--------------|-----|--------|----------|-----|--------|-----|
| northwestern | 116 | 91.905 | 15.327   | 56  | 91.5   | 122 |

## 19.2 Four Models for northwestern

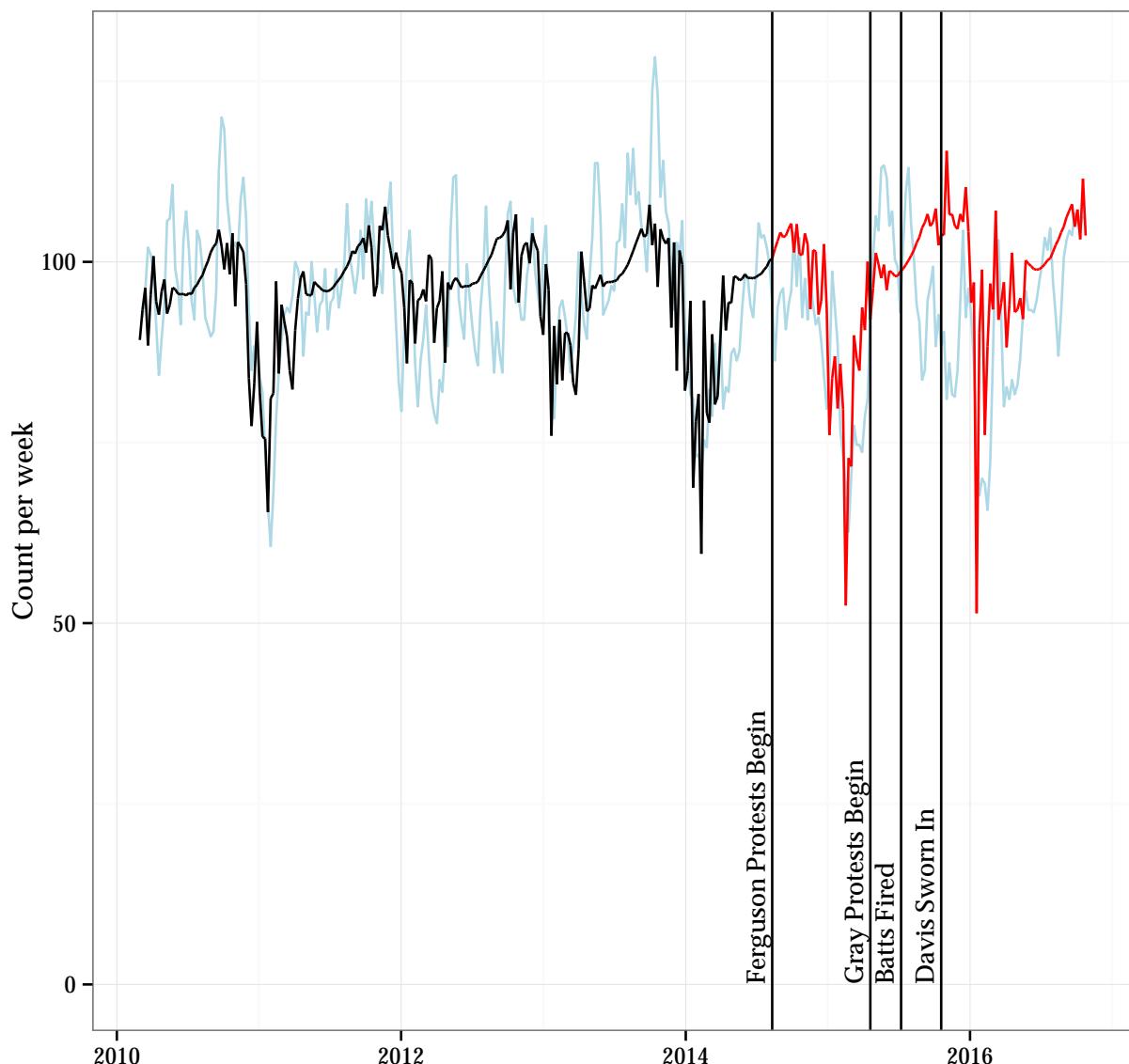
Table 19.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |       |        |        |
|--|-------------------------|-------|--------|--------|
|  | (1)                     | (2)   | (3)    | (4)    |
| Time (counter in weeks)                                | 0.0003                  | 0.01  |        | 0.02   |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -8.91                   |       | -6.46  | -7.37  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 16.79                   |       | 11.97  | 11.81  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 11.46                   |       | 13.12  | 13.00  |
| After Batts Fired (week of 7/13/15 onward)             | -7.41                   |       | -12.53 | -12.85 |
| After Davis Sworn In (week of 10/19/15 onward)         | -4.71                   |       | -0.97  | -0.59  |
| Average Maximum Temperature to 50 Degrees              |                         | 1.26  |        | 0.87   |
| Plus Degrees in the 50s                                |                         | -0.84 |        | -0.27  |
| Plus Degrees in the 60s                                |                         | 0.62  |        | 0.43   |
| Plus Degrees in the 70s                                |                         | -0.68 |        | -0.74  |
| Plus Degrees Greater Than 80                           |                         | -0.32 |        | 0.11   |
| Snowfall (inches)                                      |                         | -6.65 |        | -5.57  |
| Precipitation (inches)                                 |                         | -0.52 |        | 0.01   |
| Darkness Before Midnight (hours)                       |                         | 5.74  |        | 5.26   |
| School Days (proportion of week)                       |                         | -0.10 |        | 2.56   |
| Observations   | 348                     | 232   | 348    | 348    |
| R <sup>2</sup>   | 0.05                    | 0.25  | 0.08   | 0.28   |

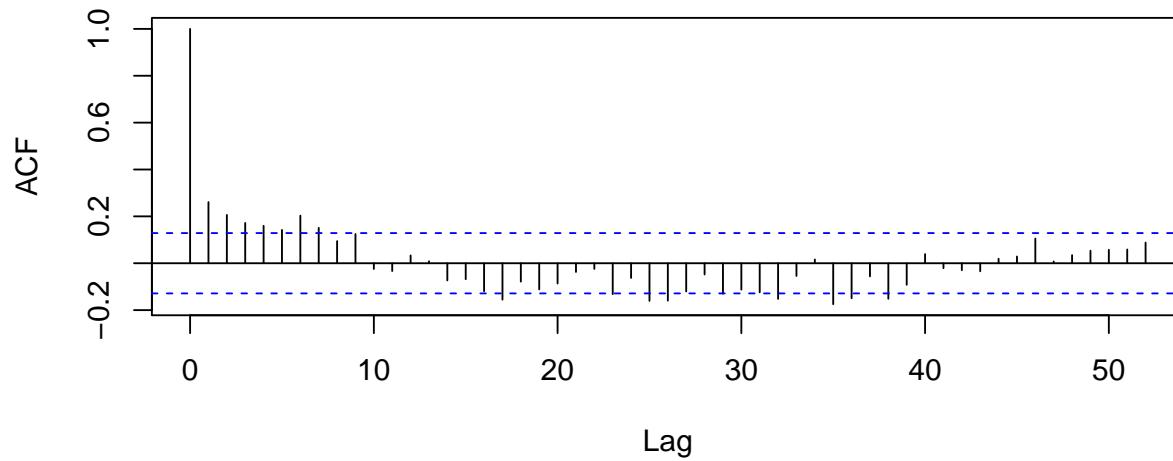
### 19.3 Least Squares Model (2) for northwestern



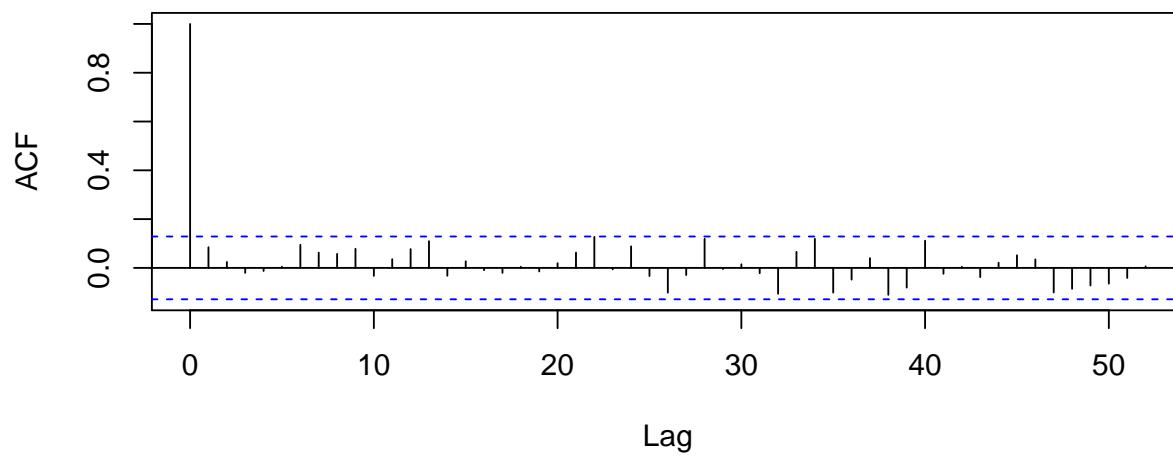
## northwestern



Autocorrelation Function for the Observed Outcome for Model (2)



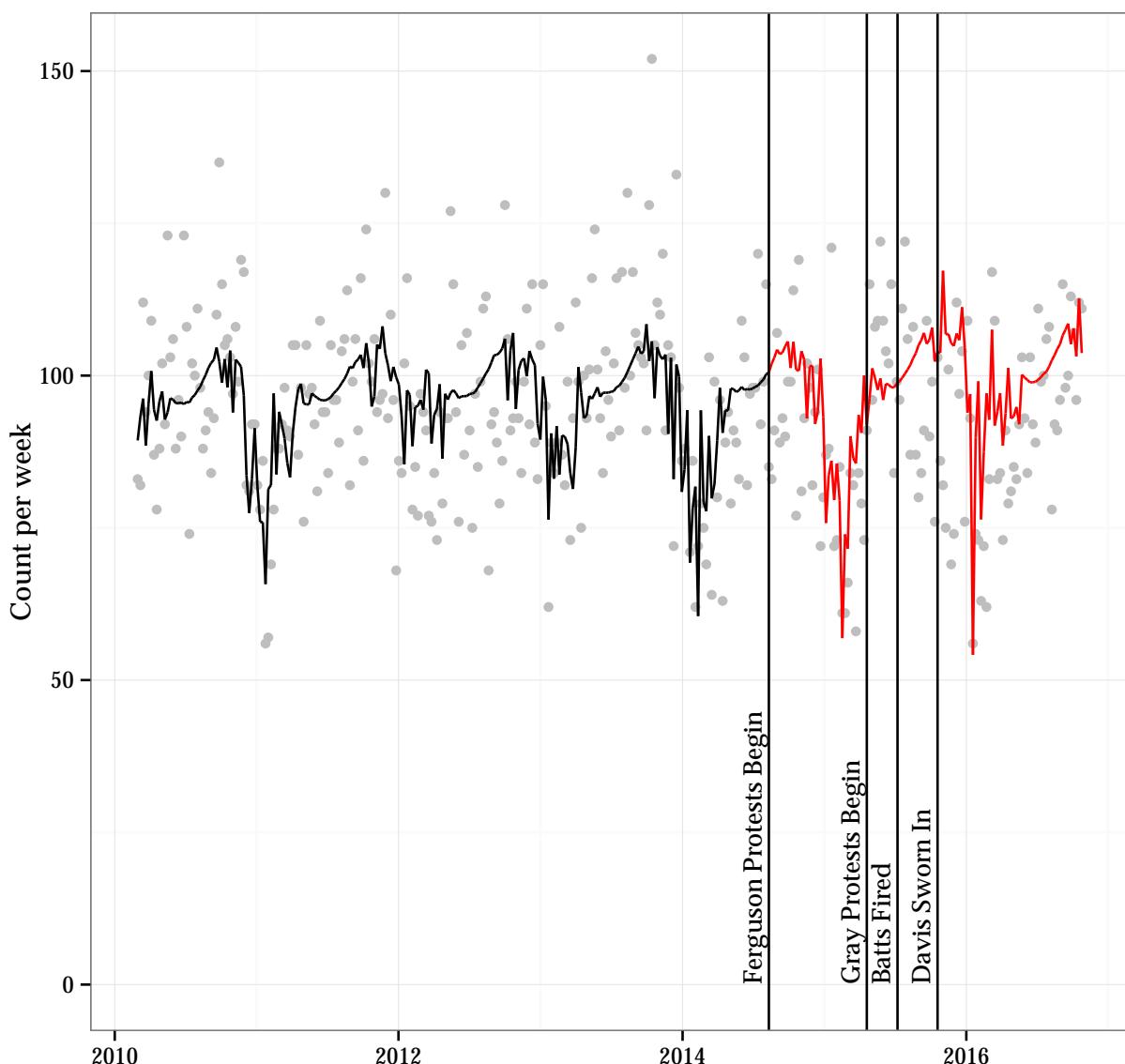
Autocorrelation Function for the Residuals from Model (2)



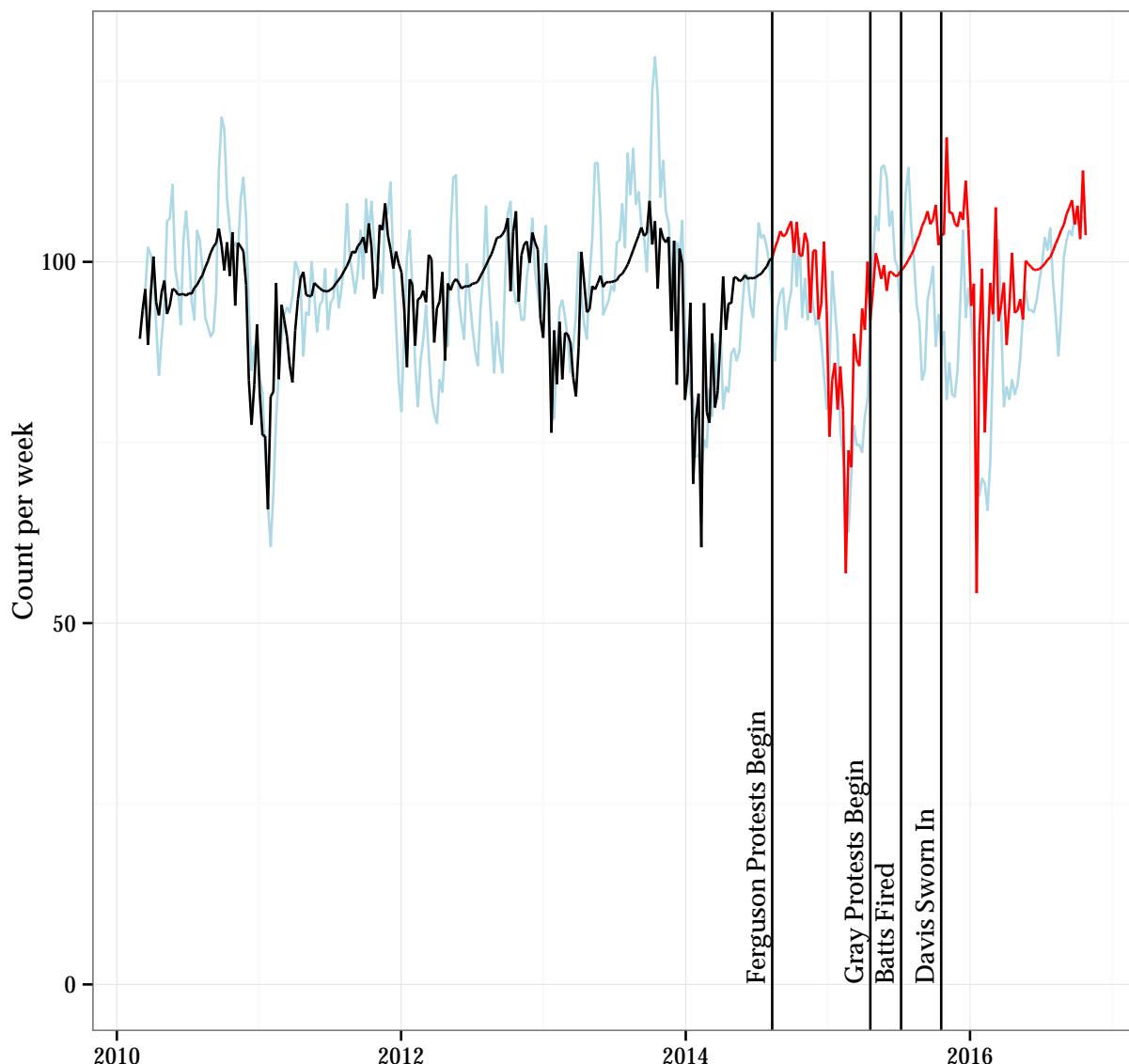
## 19.4 A Poisson Regression Model as an Alternative to Model (2) for northwestern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-3.4973 -0.9942 -0.0596  0.8690  4.2311  
  
Coefficients:  
             Estimate Std. Error z value Pr(>|z|)  
(Intercept) 3.4611937  0.1454427 23.798 < 2e-16 ***  
t            0.0001266  0.0001042  1.216  0.2241  
tmax.f.spline1 0.0141335  0.0026816  5.271 1.36e-07 ***  
tmax.f.spline2 -0.0102558  0.0052981 -1.936  0.0529 .  
tmax.f.spline3 0.0070383  0.0063753  1.104  0.2696  
tmax.f.spline4 -0.0073450  0.0059352 -1.238  0.2159  
tmax.f.spline5 -0.0032620  0.0051900 -0.629  0.5297  
snow.in       -0.0950201  0.0379575 -2.503  0.0123 *  
precip.in      -0.0045926  0.0373791 -0.123  0.9022  
dark.before.12 0.0595006  0.0097975  6.073 1.26e-09 ***  
school        -0.0028769  0.0298558 -0.096  0.9232  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 549.05 on 231 degrees of freedom  
Residual deviance: 406.10 on 221 degrees of freedom  
AIC: 1910  
  
Number of Fisher Scoring iterations: 4
```

## northwestern



## northwestern



## 20 Results for northern

### 20.1 Summary Values for northern

Table 20.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic | N   | Mean    | St. Dev. | Min | Median | Max |
|-----------|-----|---------|----------|-----|--------|-----|
| northern  | 232 | 104.216 | 17.691   | 56  | 104    | 150 |

Table 20.2: Descriptives for Outcome After Ferguson Protests Begin

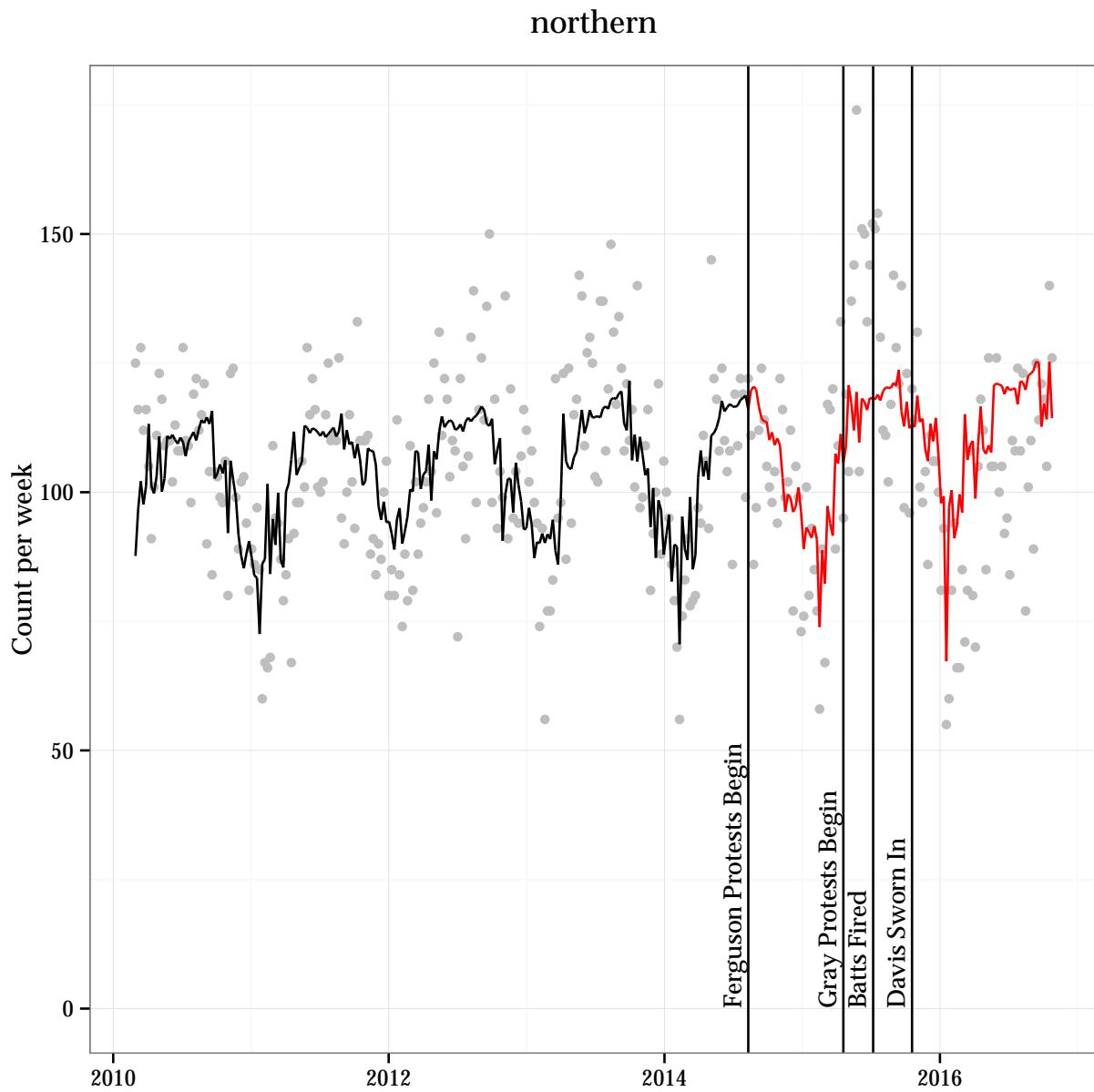
| Statistic | N   | Mean    | St. Dev. | Min | Median | Max |
|-----------|-----|---------|----------|-----|--------|-----|
| northern  | 116 | 106.371 | 22.530   | 55  | 105    | 174 |

## 20.2 Four Models for northern

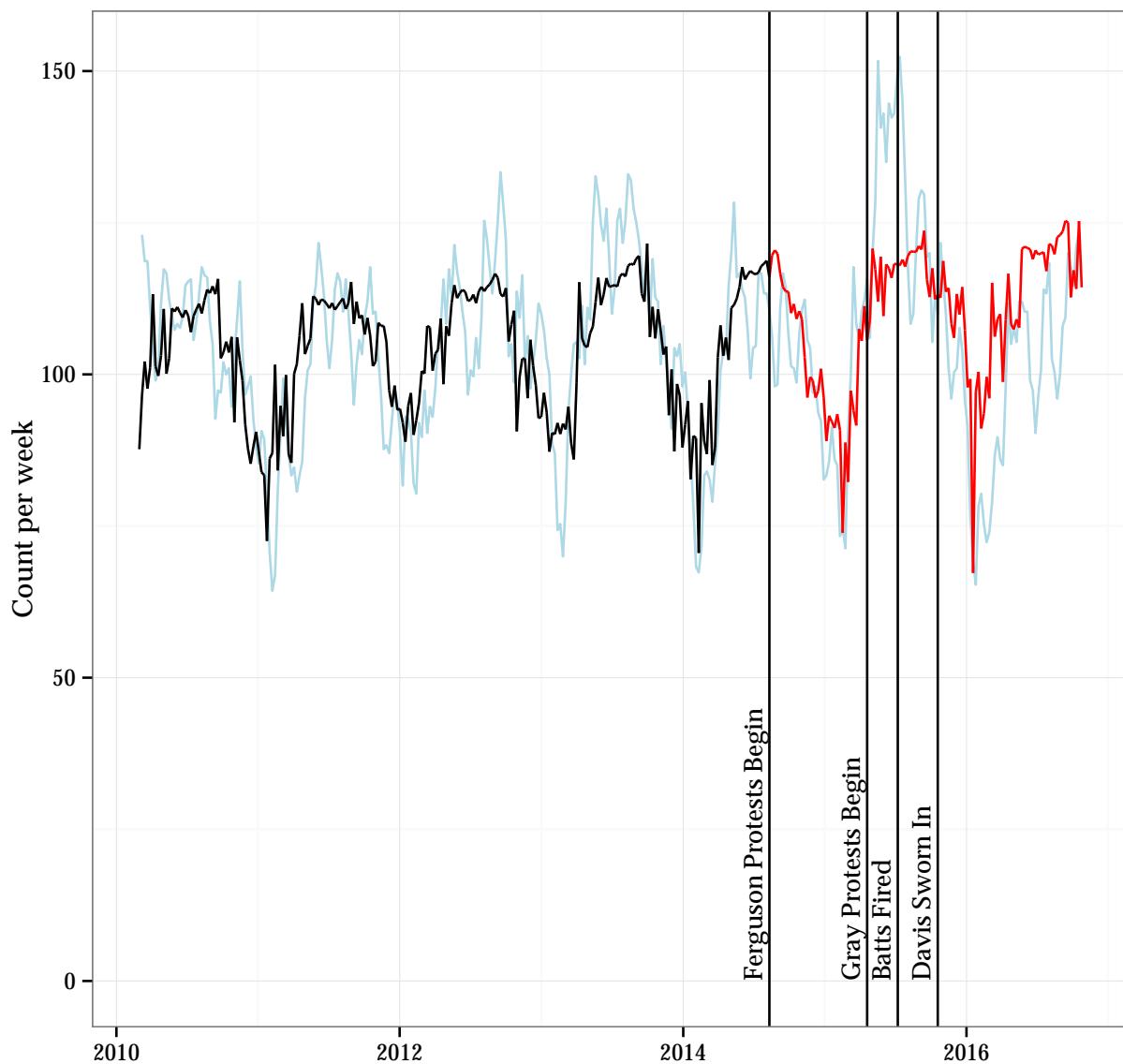
Table 20.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |      |        |        |
|--|-------------------------|------|--------|--------|
|  | (1)                     | (2)  | (3)    | (4)    |
| Time (counter in weeks)                                | 0.02                    | 0.03 |        | 0.03   |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -7.10                   |      | -2.55  | -2.74  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 35.30                   |      | 22.13  | 22.09  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -16.18                  |      | -9.49  | -11.32 |
| After Batts Fired (week of 7/13/15 onward)             | -12.36                  |      | -14.90 | -15.42 |
| After Davis Sworn In (week of 10/19/15 onward)         | -23.29                  |      | -15.99 | -15.99 |
| Average Maximum Temperature to 50 Degrees              | 0.41                    |      | 0.59   |        |
| Plus Degrees in the 50s                                | 0.93                    |      | 0.61   |        |
| Plus Degrees in the 60s                                | -0.85                   |      | -0.49  |        |
| Plus Degrees in the 70s                                | 0.63                    |      | 0.17   |        |
| Plus Degrees Greater Than 80                           | -1.27                   |      | -0.88  |        |
| Snowfall (inches)                                      | -6.79                   |      | -7.21  |        |
| Precipitation (inches)                                 | -5.04                   |      | -6.95  |        |
| Darkness Before Midnight (hours)                       | 2.78                    |      | 2.79   |        |
| School Days (proportion of week)                       | 0.01                    |      | 0.80   |        |
| Observations   | 348                     | 232  | 348    | 348    |
| R <sup>2</sup>   | 0.13                    | 0.33 | 0.13   | 0.42   |

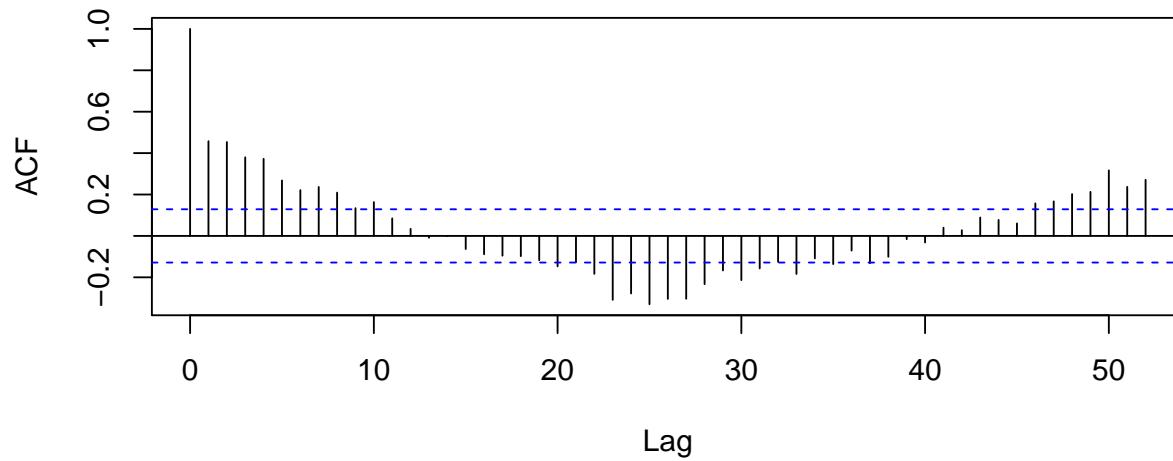
### 20.3 Least Squares Model (2) for northern



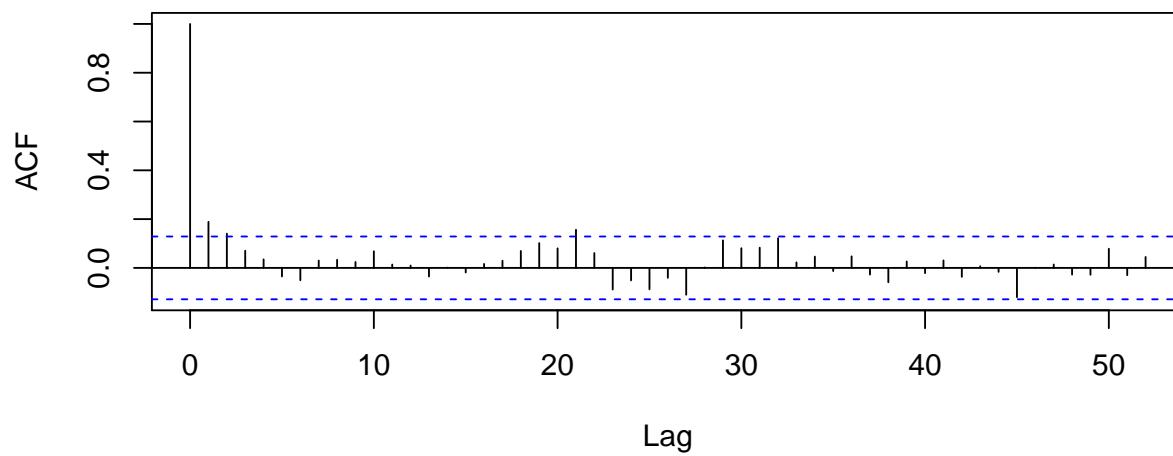
## northern



Autocorrelation Function for the Observed Outcome for Model (2)



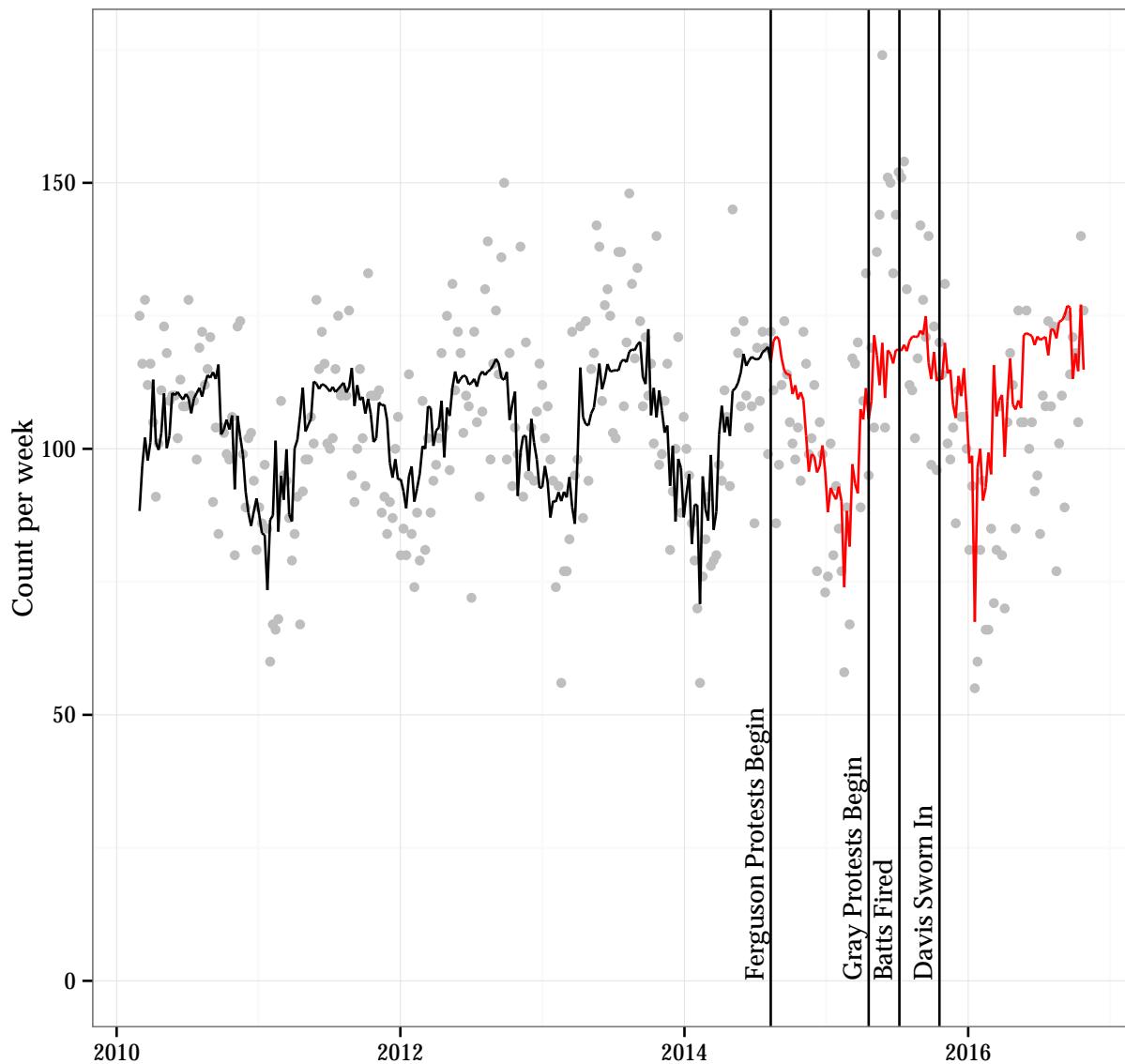
Autocorrelation Function for the Residuals from Model (2)



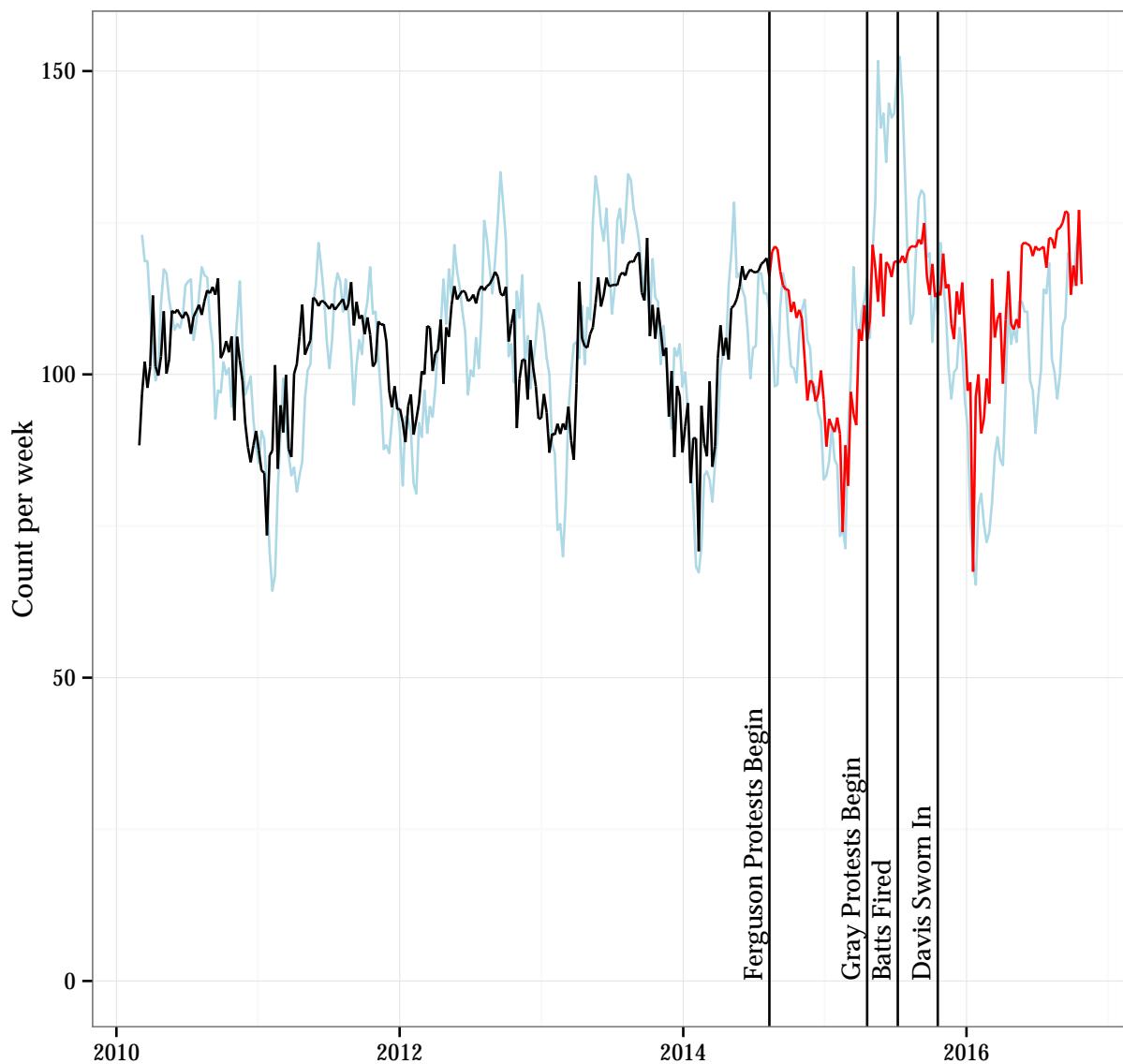
## 20.4 A Poisson Regression Model as an Alternative to Model (2) for northern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-4.0874 -1.0053 -0.0479  0.9049  3.6726  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) 4.107e+00 1.406e-01 29.221 < 2e-16 ***  
t            2.978e-04 9.929e-05 2.999 0.00271 **  
tmax.f.spline1 4.409e-03 2.599e-03 1.697 0.08974 .  
tmax.f.spline2 9.033e-03 5.184e-03 1.742 0.08146 .  
tmax.f.spline3 -8.650e-03 6.182e-03 -1.399 0.16178  
tmax.f.spline4 5.443e-03 5.695e-03 0.956 0.33918  
tmax.f.spline5 -1.137e-02 4.879e-03 -2.330 0.01979 *  
snow.in       -8.412e-02 3.588e-02 -2.344 0.01906 *  
precip.in      -4.714e-02 3.624e-02 -1.301 0.19333  
dark.before.12 2.735e-02 9.502e-03 2.878 0.00400 **  
school        -1.018e-03 2.842e-02 -0.036 0.97142  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 706.93 on 231 degrees of freedom  
Residual deviance: 471.31 on 221 degrees of freedom  
AIC: 1994.5  
  
Number of Fisher Scoring iterations: 4
```

## northern



## northern



## 21 Results for northeastern

### 21.1 Summary Values for northeastern

Table 21.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic    | N   | Mean    | St. Dev. | Min | Median | Max |
|--------------|-----|---------|----------|-----|--------|-----|
| northeastern | 232 | 149.828 | 20.160   | 91  | 149    | 207 |

Table 21.2: Descriptives for Outcome After Ferguson Protests Begin

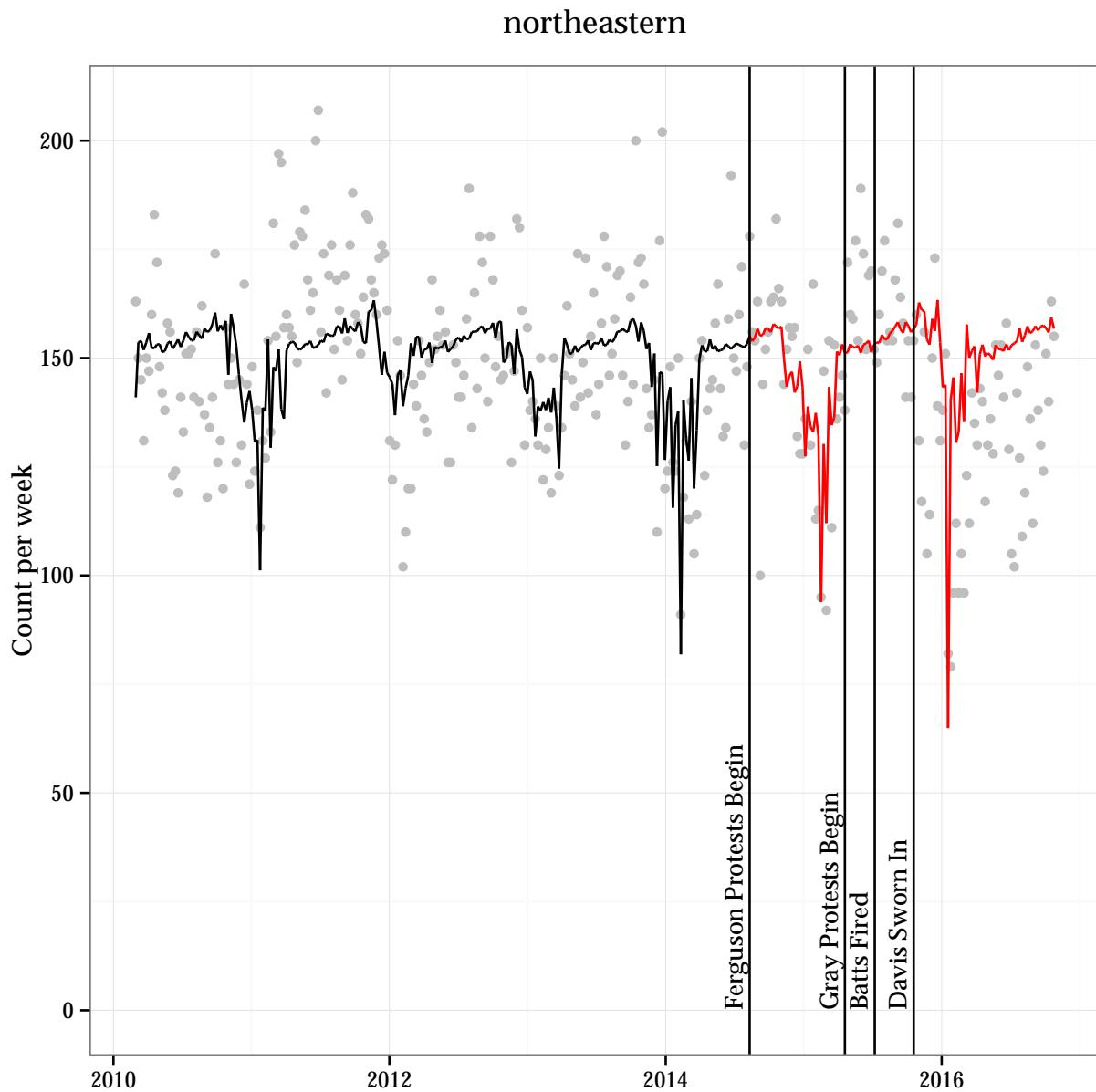
| Statistic    | N   | Mean    | St. Dev. | Min | Median | Max |
|--------------|-----|---------|----------|-----|--------|-----|
| northeastern | 116 | 141.638 | 23.293   | 79  | 146    | 189 |

## 21.2 Four Models for northeastern

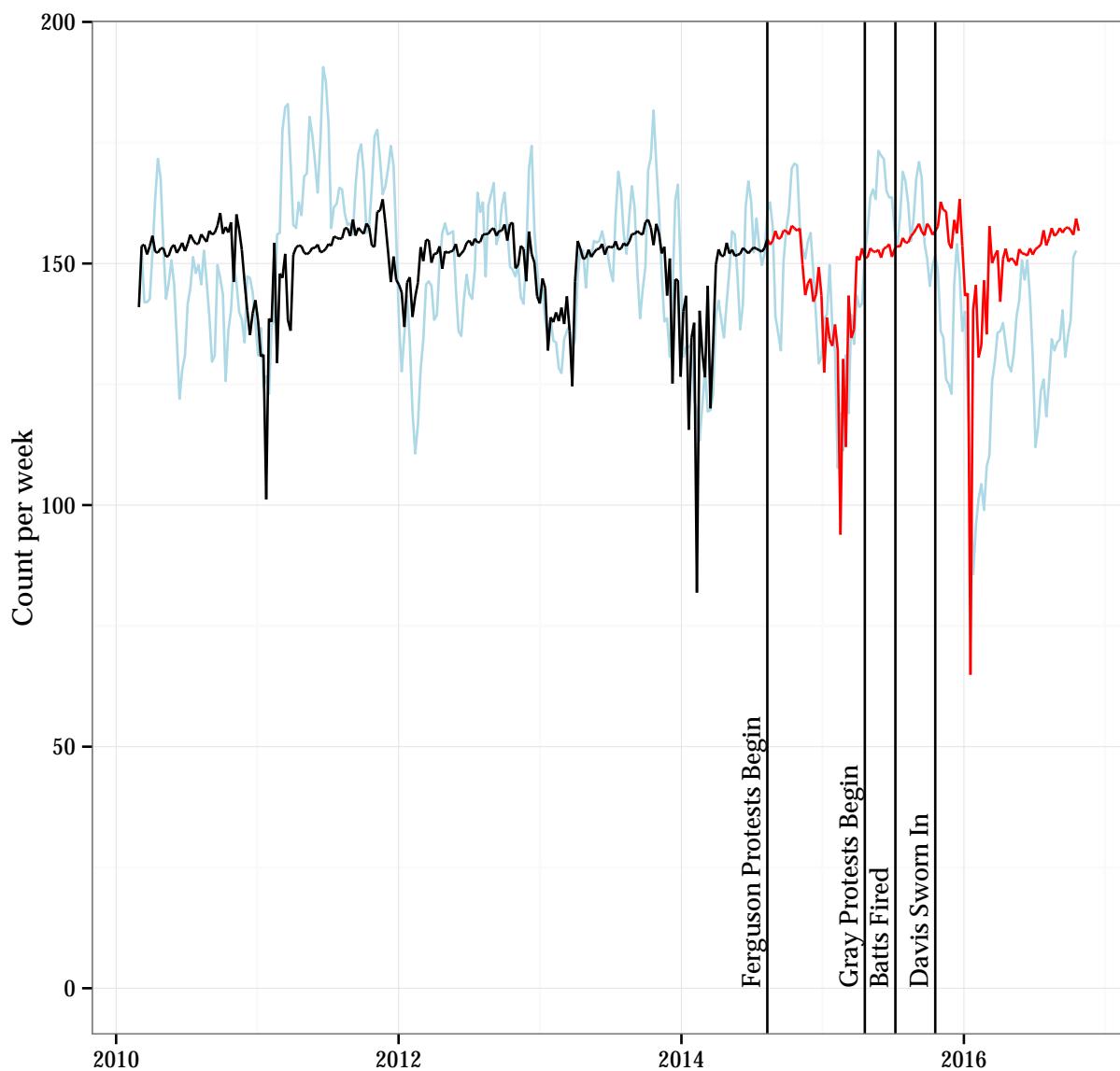
Table 21.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |        |        |         |
|--|-------------------------|--------|--------|---------|
|  | (1)                     | (2)    | (3)    | (4)     |
| Time (counter in weeks)                                | -0.02                   | -0.001 |        | -0.0004 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -2.63                   |        | -0.57  | -0.98   |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 19.74                   |        | 11.11  | 10.92   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 8.79                    |        | 10.18  | 11.39   |
| After Batts Fired (week of 7/13/15 onward)             | -3.71                   |        | -7.36  | -7.04   |
| After Davis Sworn In (week of 10/19/15 onward)         | -27.60                  |        | -23.42 | -23.63  |
| Average Maximum Temperature to 50 Degrees              | 0.53                    |        | 0.24   |         |
| Plus Degrees in the 50s                                | 0.89                    |        | 1.62   |         |
| Plus Degrees in the 60s                                | -1.11                   |        | -1.77  |         |
| Plus Degrees in the 70s                                | -0.15                   |        | 0.40   |         |
| Plus Degrees Greater Than 80                           | 0.05                    |        | -0.26  |         |
| Snowfall (inches)                                      | -20.44                  |        | -17.96 |         |
| Precipitation (inches)                                 | 3.73                    |        | 5.03   |         |
| Darkness Before Midnight (hours)                       | 3.69                    |        | 4.00   |         |
| School Days (proportion of week)                       | -0.04                   |        | 4.19   |         |
| Observations   | 348                     | 232    | 348    | 348     |
| R <sup>2</sup>   | 0.14                    | 0.23   | 0.17   | 0.35    |

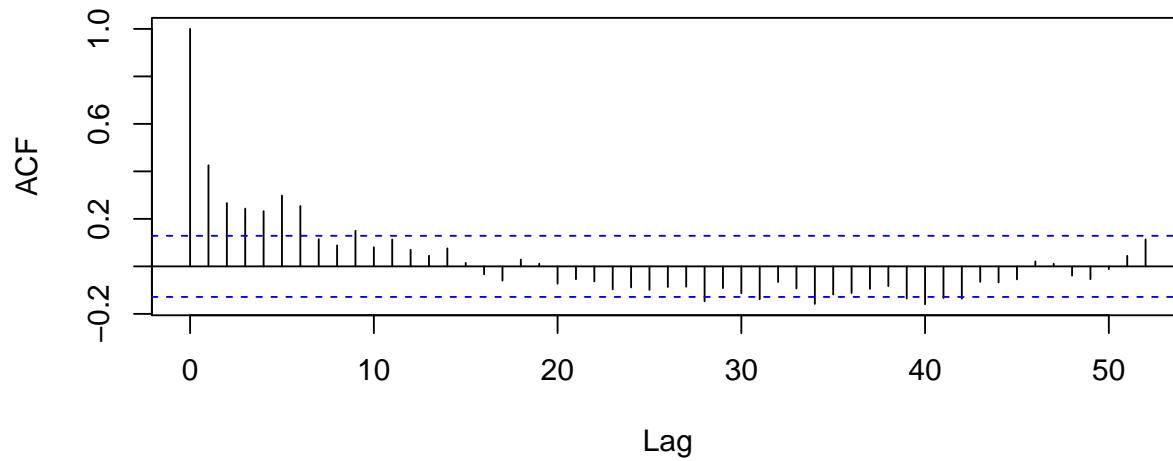
### 21.3 Least Squares Model (2) for northeastern



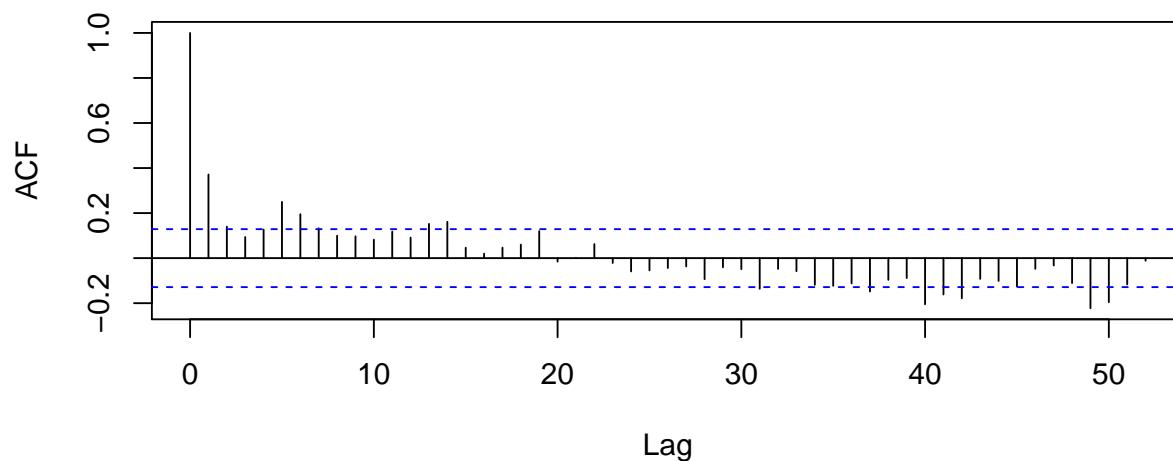
### northeastern



Autocorrelation Function for the Observed Outcome for Model (2)



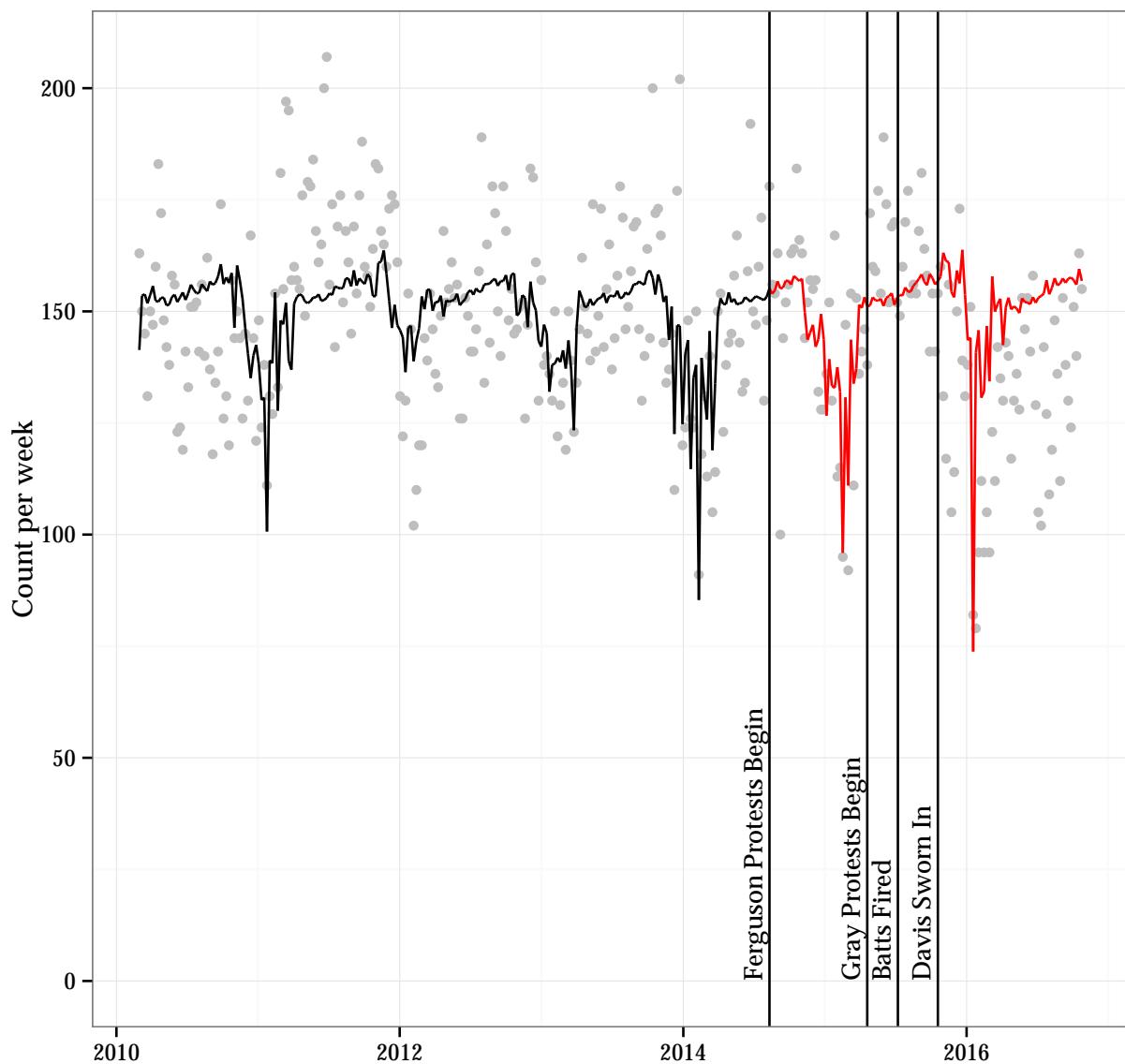
Autocorrelation Function for the Residuals from Model (2)



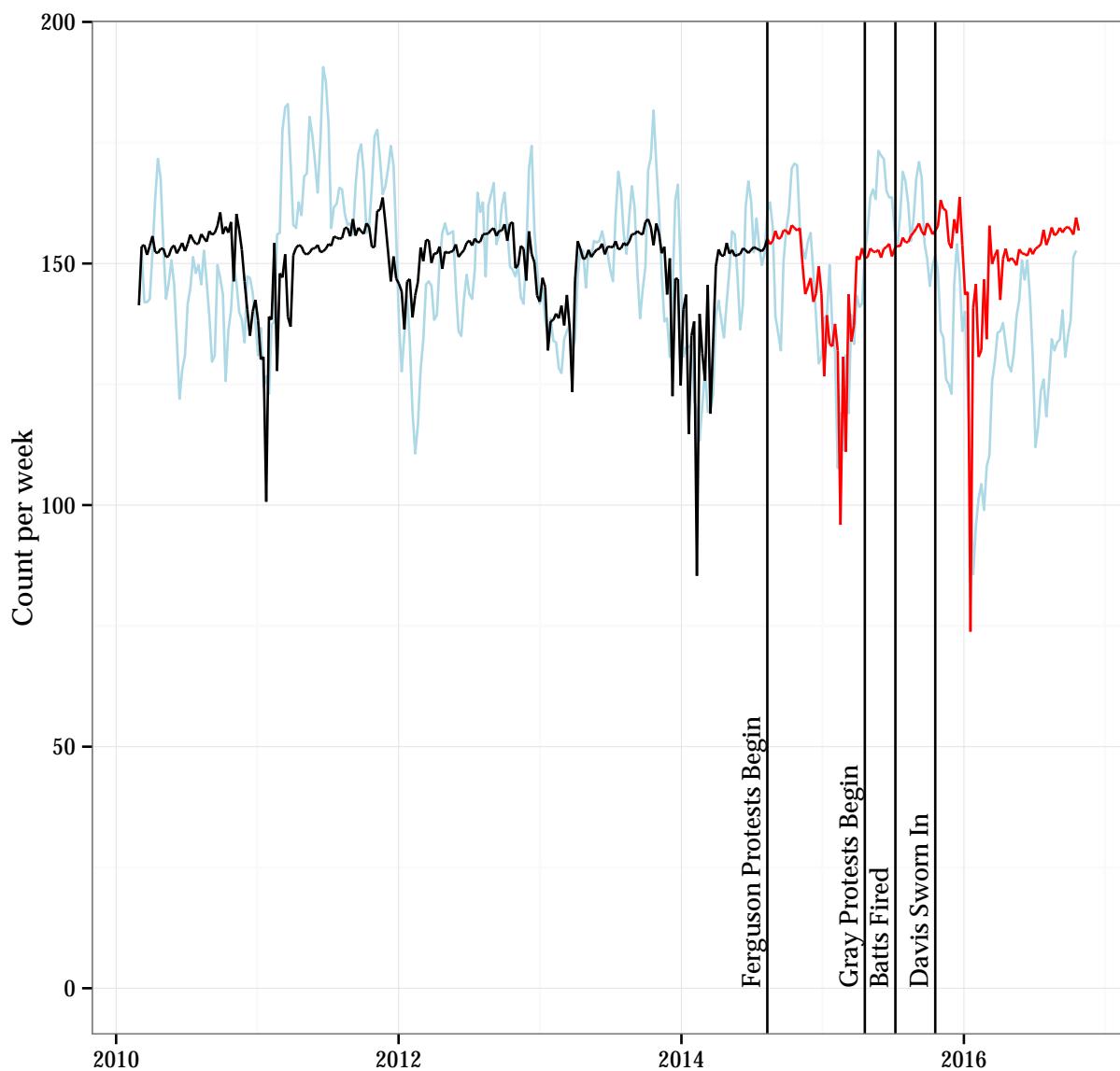
## 21.4 A Poisson Regression Model as an Alternative to Model (2) for northeastern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-3.2814 -1.0011 -0.1294  0.8399  4.4817  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) 4.636e+00 1.144e-01 40.518 < 2e-16 ***  
t          -2.974e-06 8.299e-05 -0.036  0.97141  
tmax.f.spline1 3.566e-03 2.104e-03  1.695  0.09007 .  
tmax.f.spline2 5.686e-03 4.211e-03  1.350  0.17691  
tmax.f.spline3 -7.211e-03 5.058e-03 -1.426  0.15396  
tmax.f.spline4 -1.024e-03 4.733e-03 -0.216  0.82871  
tmax.f.spline5 3.053e-04 4.147e-03  0.074  0.94132  
snow.in      -1.777e-01 3.098e-02 -5.734 9.78e-09 ***  
precip.in     2.432e-02 2.976e-02  0.817  0.41387  
dark.before.12 2.420e-02 7.822e-03  3.095  0.00197 **  
school        -1.361e-03 2.391e-02 -0.057  0.95462  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 627.78 on 231 degrees of freedom  
Residual deviance: 474.51 on 221 degrees of freedom  
AIC: 2083.2  
  
Number of Fisher Scoring iterations: 4
```

## northeastern



### northeastern



## 22 Results for western

### 22.1 Summary Values for western

Table 22.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic | N   | Mean   | St. Dev. | Min | Median | Max |
|-----------|-----|--------|----------|-----|--------|-----|
| western   | 232 | 77.797 | 13.259   | 45  | 77     | 113 |

Table 22.2: Descriptives for Outcome After Ferguson Protests Begin

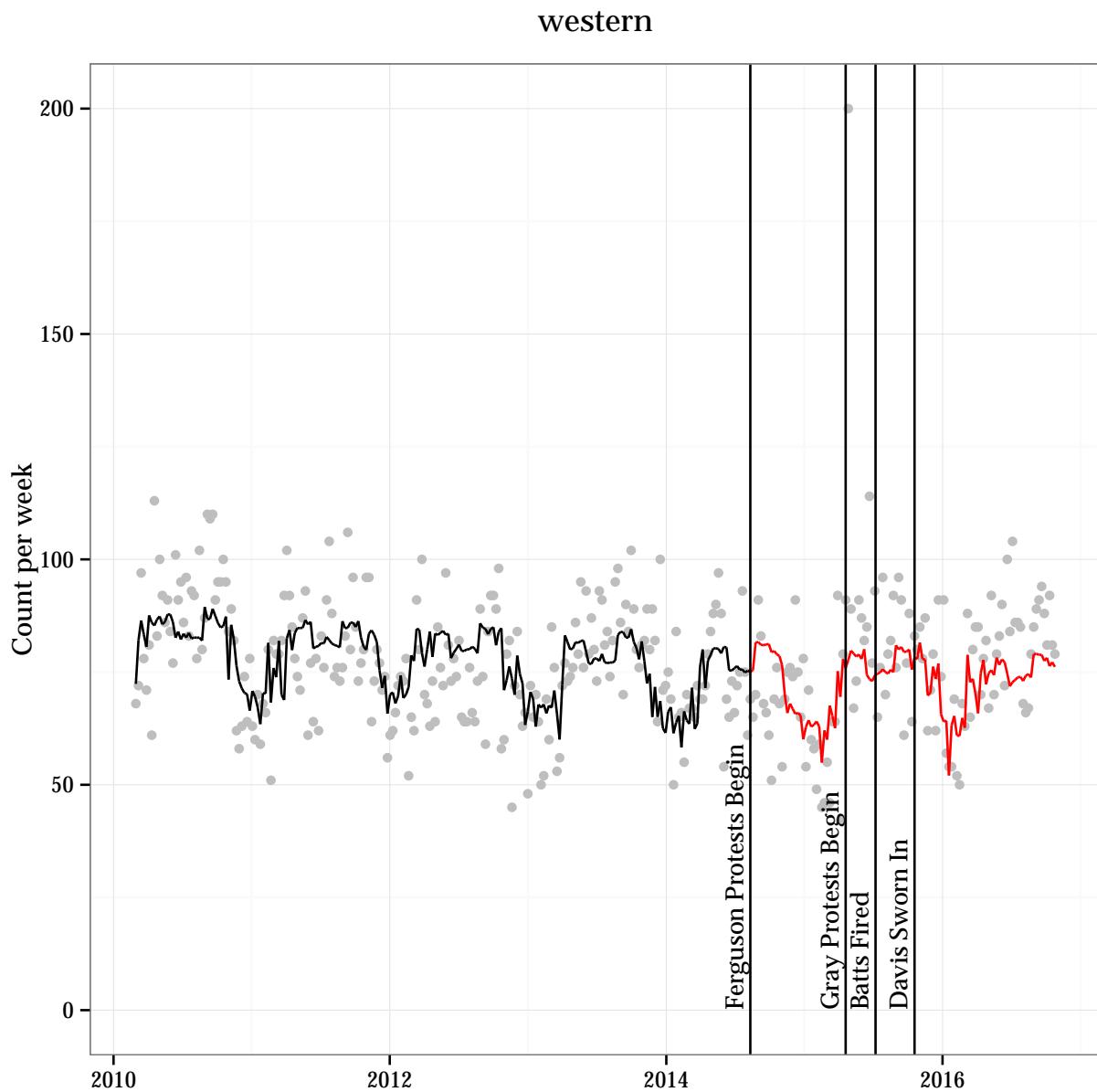
| Statistic | N   | Mean   | St. Dev. | Min | Median | Max |
|-----------|-----|--------|----------|-----|--------|-----|
| western   | 116 | 76.216 | 18.167   | 42  | 76.5   | 200 |

## 22.2 Four Models for western

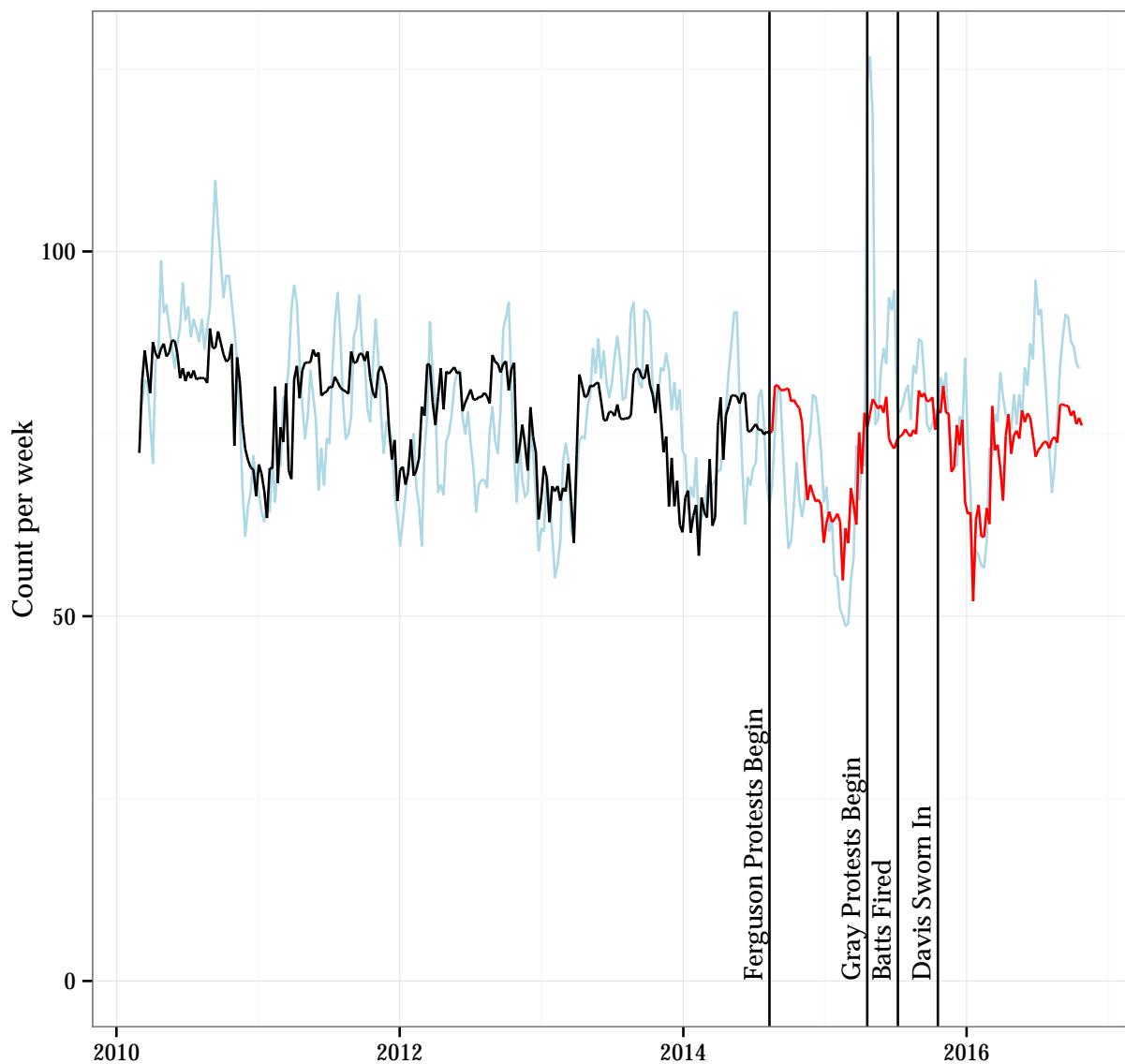
Table 22.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |       |        |        |
|--|-------------------------|-------|--------|--------|
|  | (1)                     | (2)   | (3)    | (4)    |
| Time (counter in weeks)                                | -0.04                   | -0.03 |        | -0.03  |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -6.19                   |       | -4.35  | -4.22  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 21.23                   |       | 13.79  | 13.28  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 113.52                  |       | 112.87 | 115.23 |
| After Batts Fired (week of 7/13/15 onward)             | -6.25                   |       | -7.19  | -7.48  |
| After Davis Sworn In (week of 10/19/15 onward)         | -0.30                   |       | 2.56   | 3.32   |
| Average Maximum Temperature to 50 Degrees              |                         | 0.15  |        | 0.24   |
| Plus Degrees in the 50s                                |                         | 1.10  |        | 0.69   |
| Plus Degrees in the 60s                                |                         | -0.83 |        | -0.39  |
| Plus Degrees in the 70s                                |                         | -0.28 |        | -0.24  |
| Plus Degrees Greater Than 80                           |                         | 0.07  |        | -0.10  |
| Snowfall (inches)                                      |                         | -2.41 |        | -3.65  |
| Precipitation (inches)                                 |                         | -0.10 |        | 3.42   |
| Darkness Before Midnight (hours)                       |                         | 1.36  |        | 1.73   |
| School Days (proportion of week)                       |                         | 7.82  |        | 6.44   |
| Observations   | 348                     | 232   | 348    | 348    |
| R <sup>2</sup>   | 0.28                    | 0.29  | 0.29   | 0.46   |

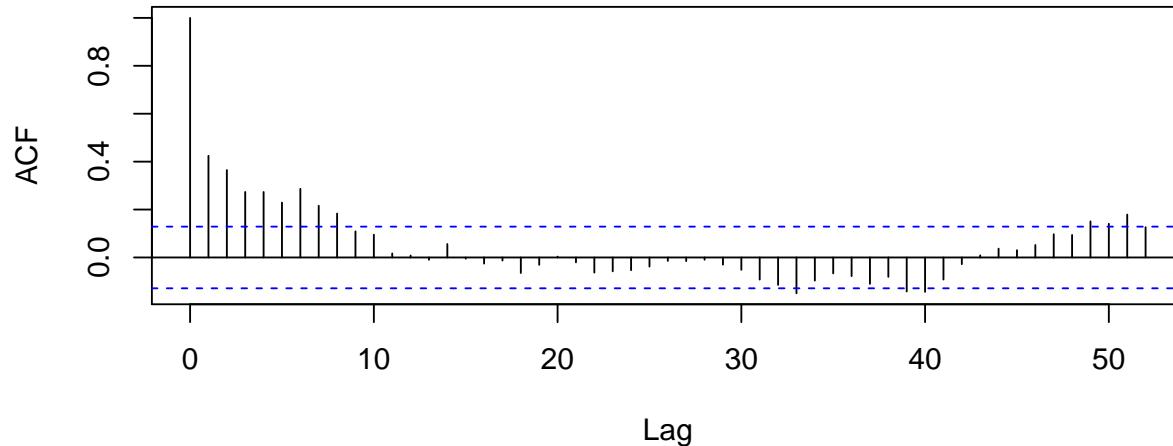
### 22.3 Least Squares Model (2) for western



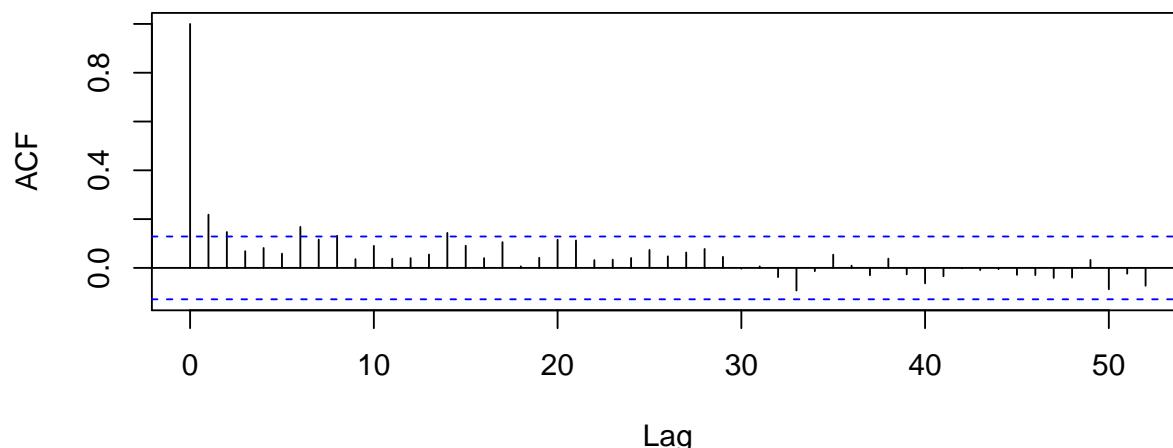
## western



Autocorrelation Function for the Observed Outcome for Model (2)



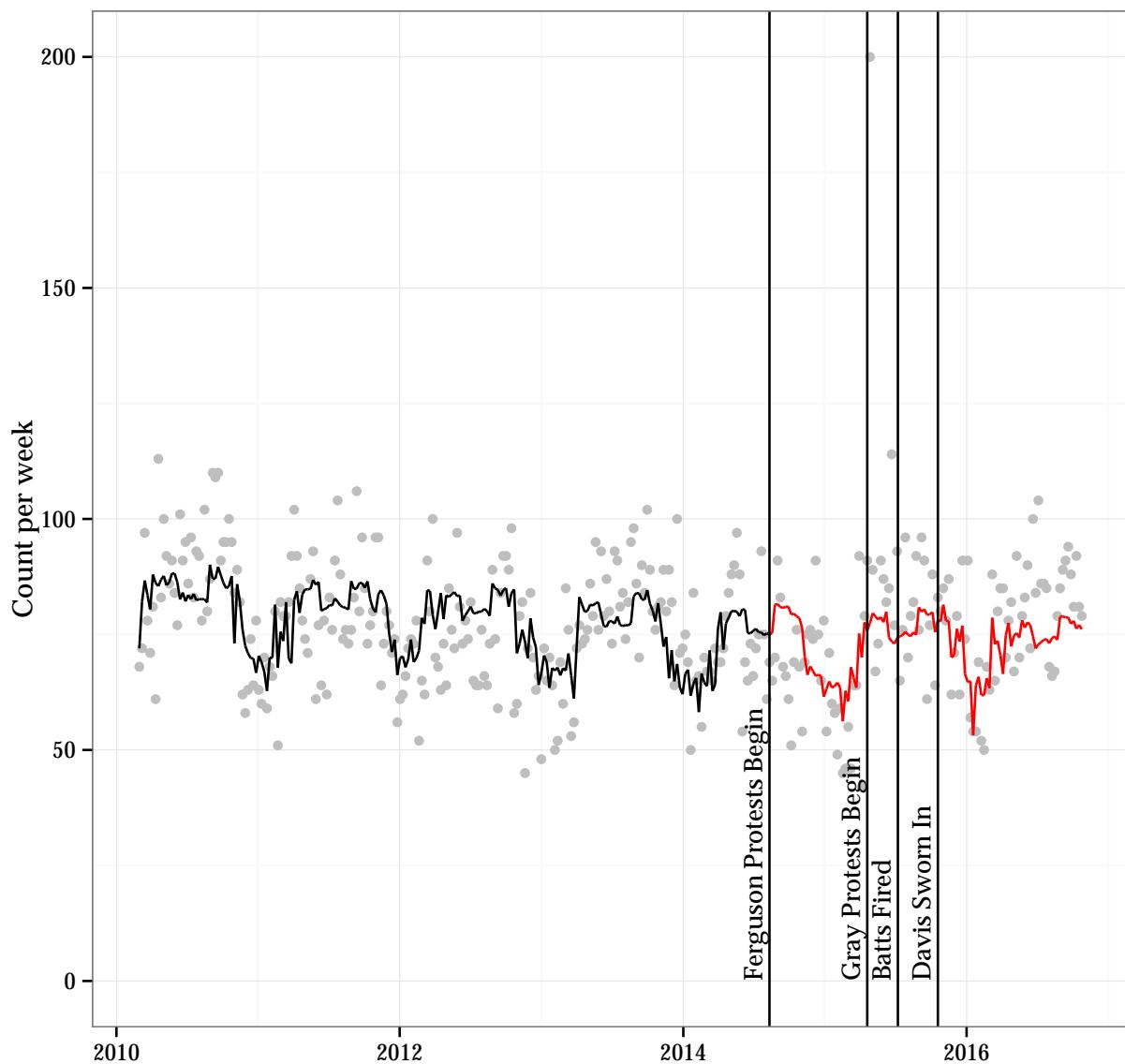
Autocorrelation Function for the Residuals from Model (2)



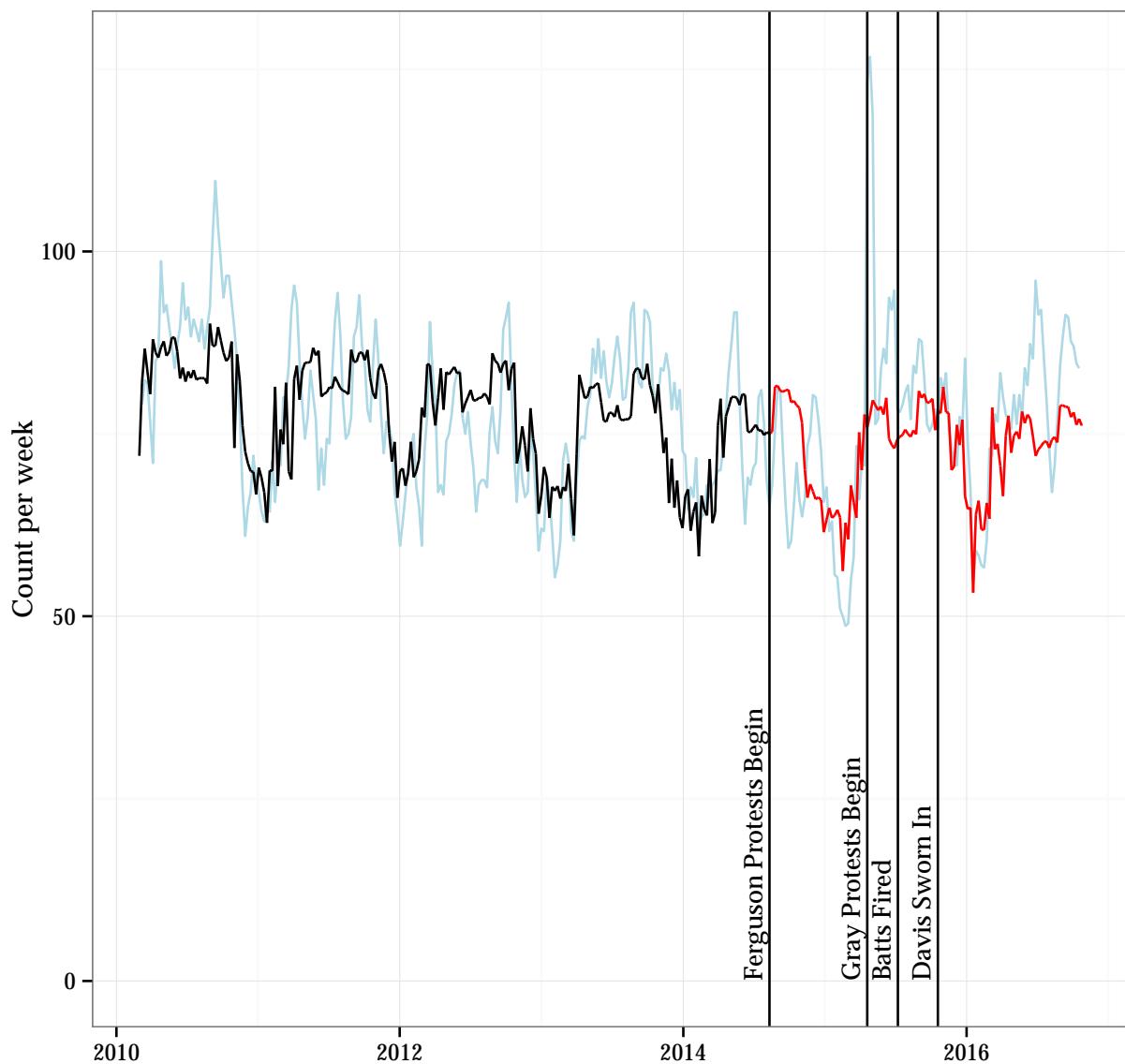
## 22.4 A Poisson Regression Model as an Alternative to Model (2) for western

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-3.5748 -0.8291 -0.0227  0.8029  3.5438  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) 4.0012104 0.1613202 24.803 < 2e-16 ***  
t           -0.0003869 0.0001148 -3.369 0.000754 ***  
tmax.f.spline1 0.0020641 0.0029840  0.692 0.489117  
tmax.f.spline2 0.0147160 0.0059469  2.475 0.013339 *  
tmax.f.spline3 -0.0118170 0.0070350 -1.680 0.093005 .  
tmax.f.spline4 -0.0031444 0.0064916 -0.484 0.628118  
tmax.f.spline5 0.0008207 0.0056902  0.144 0.885317  
snow.in       -0.0422185 0.0401663 -1.051 0.293216  
precip.in      -0.0004484 0.0414236 -0.011 0.991364  
dark.before.12 0.0176653 0.0109055  1.620 0.105264  
school         0.0994027 0.0333475  2.981 0.002875 **  
---  
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 524.95 on 231 degrees of freedom  
Residual deviance: 371.52 on 221 degrees of freedom  
AIC: 1827.1  
  
Number of Fisher Scoring iterations: 4
```

## western



## western



## 23 Results for central

### 23.1 Summary Values for central

Table 23.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic | N   | Mean    | St. Dev. | Min | Median | Max |
|-----------|-----|---------|----------|-----|--------|-----|
| central   | 232 | 116.108 | 23.922   | 52  | 115    | 193 |

Table 23.2: Descriptives for Outcome After Ferguson Protests Begin

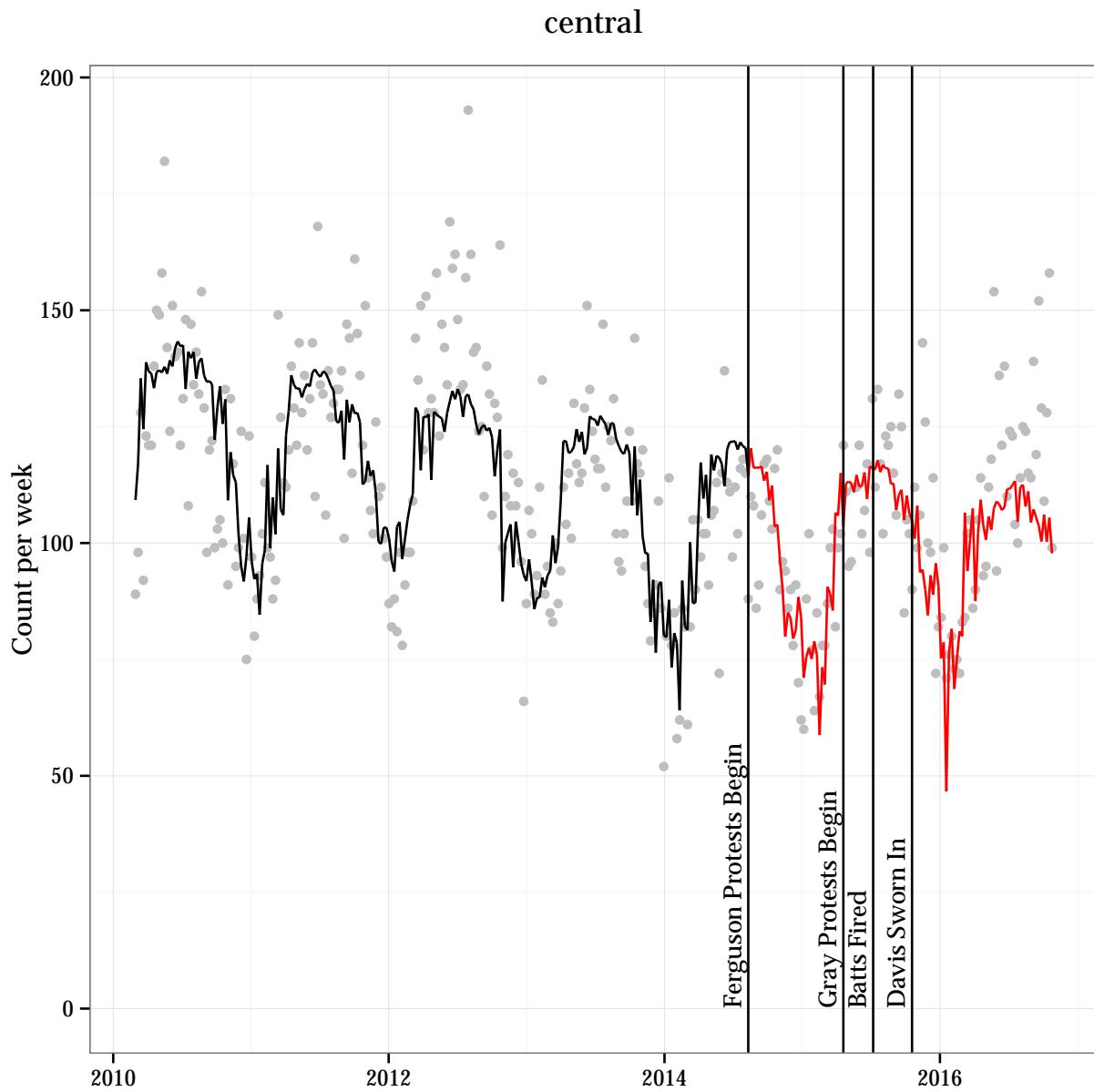
| Statistic | N   | Mean    | St. Dev. | Min | Median | Max |
|-----------|-----|---------|----------|-----|--------|-----|
| central   | 116 | 103.569 | 20.202   | 60  | 103    | 158 |

## 23.2 Four Models for central

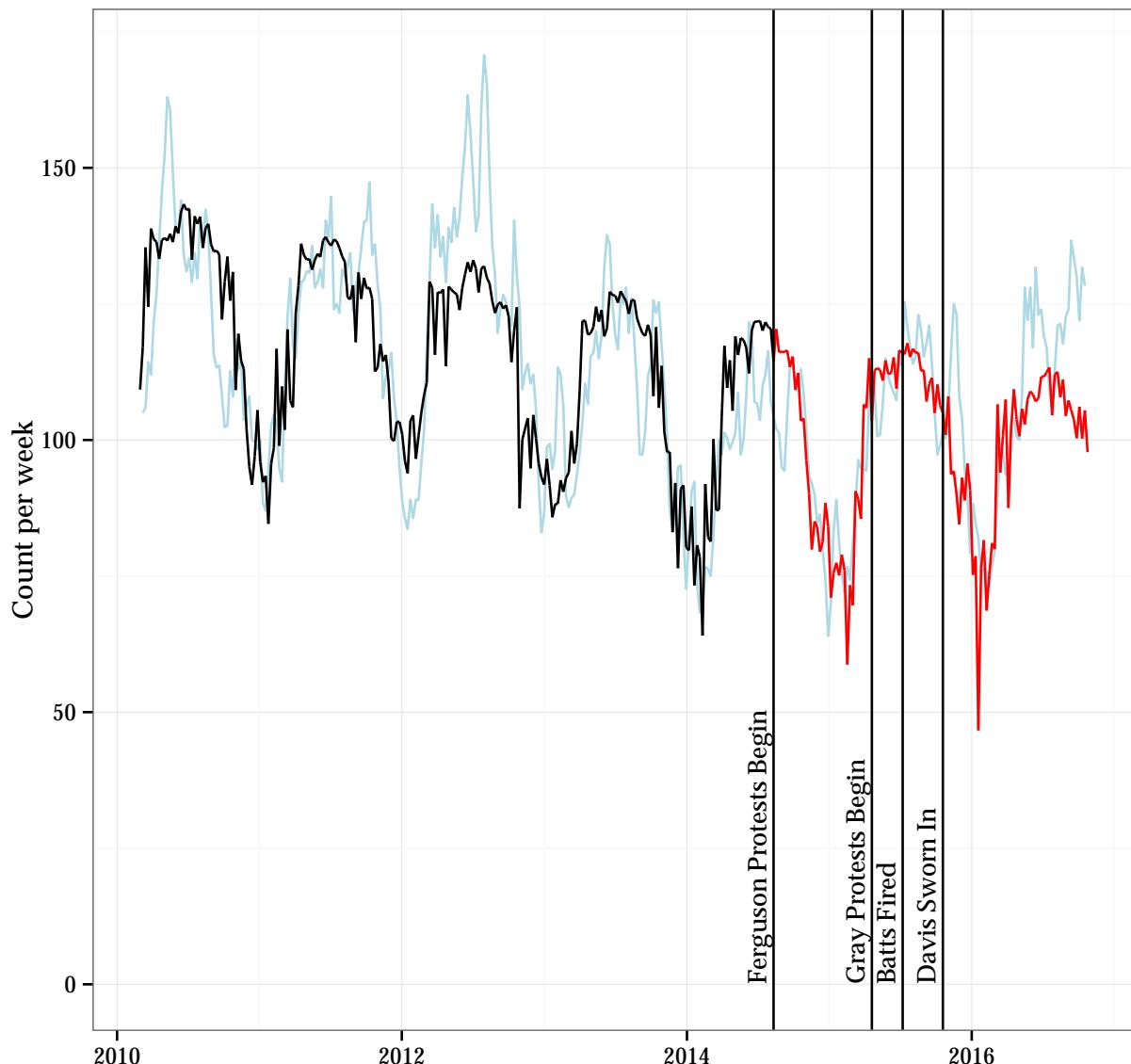
Table 23.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |        |       |        |
|--|-------------------------|--------|-------|--------|
|  | (1)                     | (2)    | (3)   | (4)    |
| Time (counter in weeks)                                | -0.11                   | -0.09  |       | -0.09  |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -10.33                  |        | -2.07 | -3.07  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 21.08                   |        | -0.17 | 0.07   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 0.30                    |        | 0.45  | 2.96   |
| After Batts Fired (week of 7/13/15 onward)             | 5.64                    |        | 4.35  | 4.57   |
| After Davis Sworn In (week of 10/19/15 onward)         | -3.74                   |        | 6.99  | 6.36   |
| Average Maximum Temperature to 50 Degrees              |                         | 0.71   |       | 0.64   |
| Plus Degrees in the 50s                                |                         | 0.64   |       | 0.86   |
| Plus Degrees in the 60s                                |                         | -0.06  |       | -0.59  |
| Plus Degrees in the 70s                                |                         | -1.52  |       | -0.51  |
| Plus Degrees Greater Than 80                           |                         | 0.33   |       | -0.21  |
| Snowfall (inches)                                      |                         | -5.11  |       | -2.67  |
| Precipitation (inches)                                 |                         | -12.63 |       | -12.17 |
| Darkness Before Midnight (hours)                       |                         | -1.40  |       | -0.94  |
| School Days (proportion of week)                       |                         | -6.15  |       | 0.18   |
| Observations   | 348                     | 232    | 348   | 348    |
| R <sup>2</sup>   | 0.17                    | 0.51   | 0.04  | 0.53   |

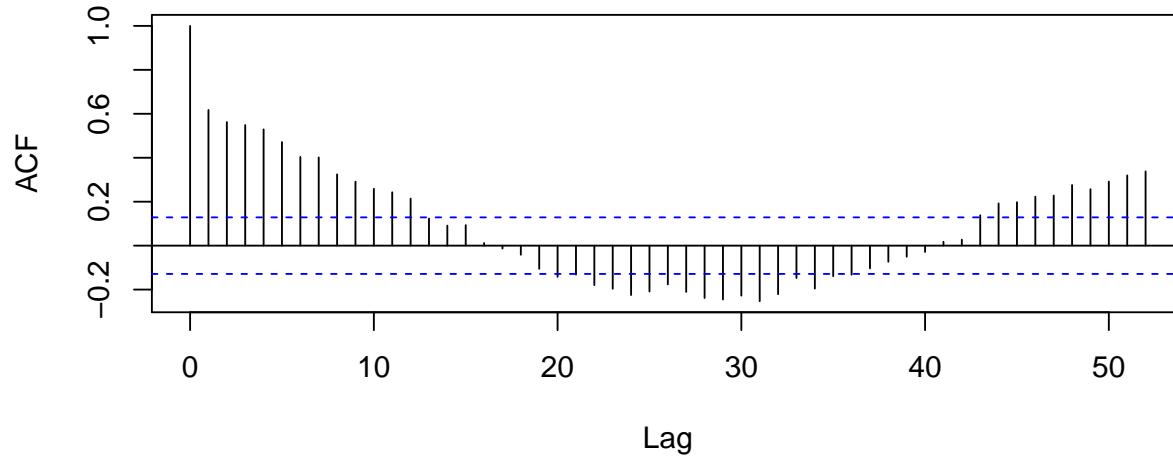
### 23.3 Least Squares Model (2) for central



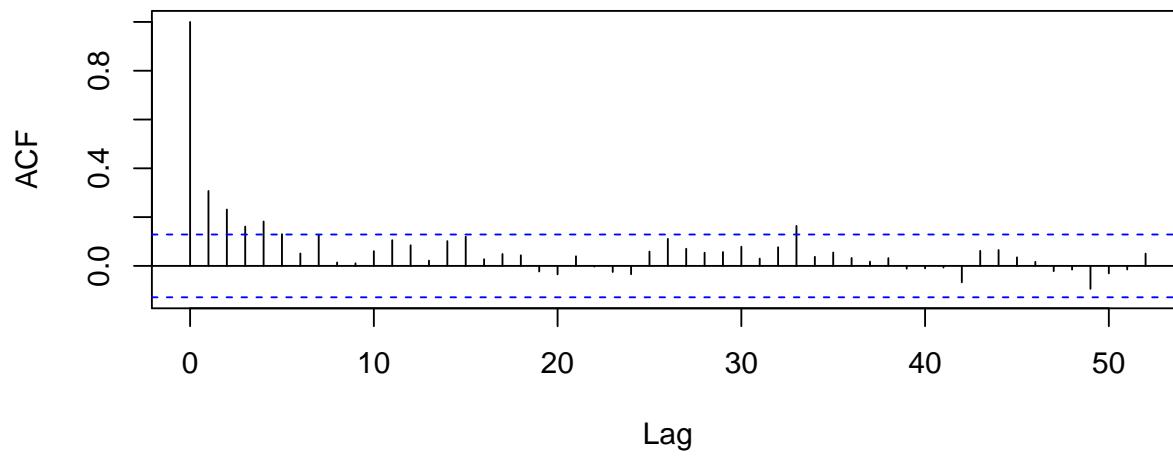
## central



Autocorrelation Function for the Observed Outcome for Model (2)



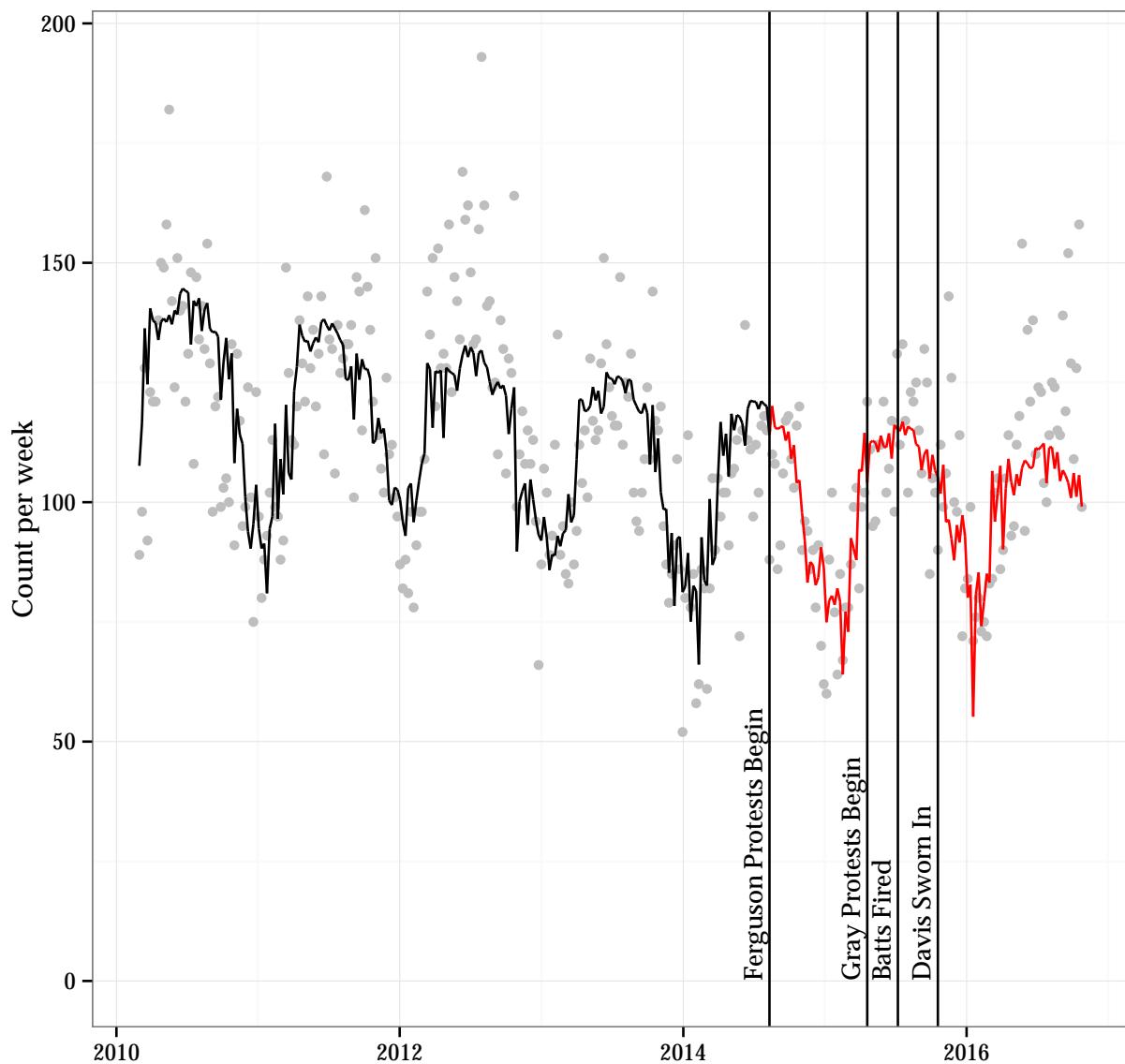
Autocorrelation Function for the Residuals from Model (2)



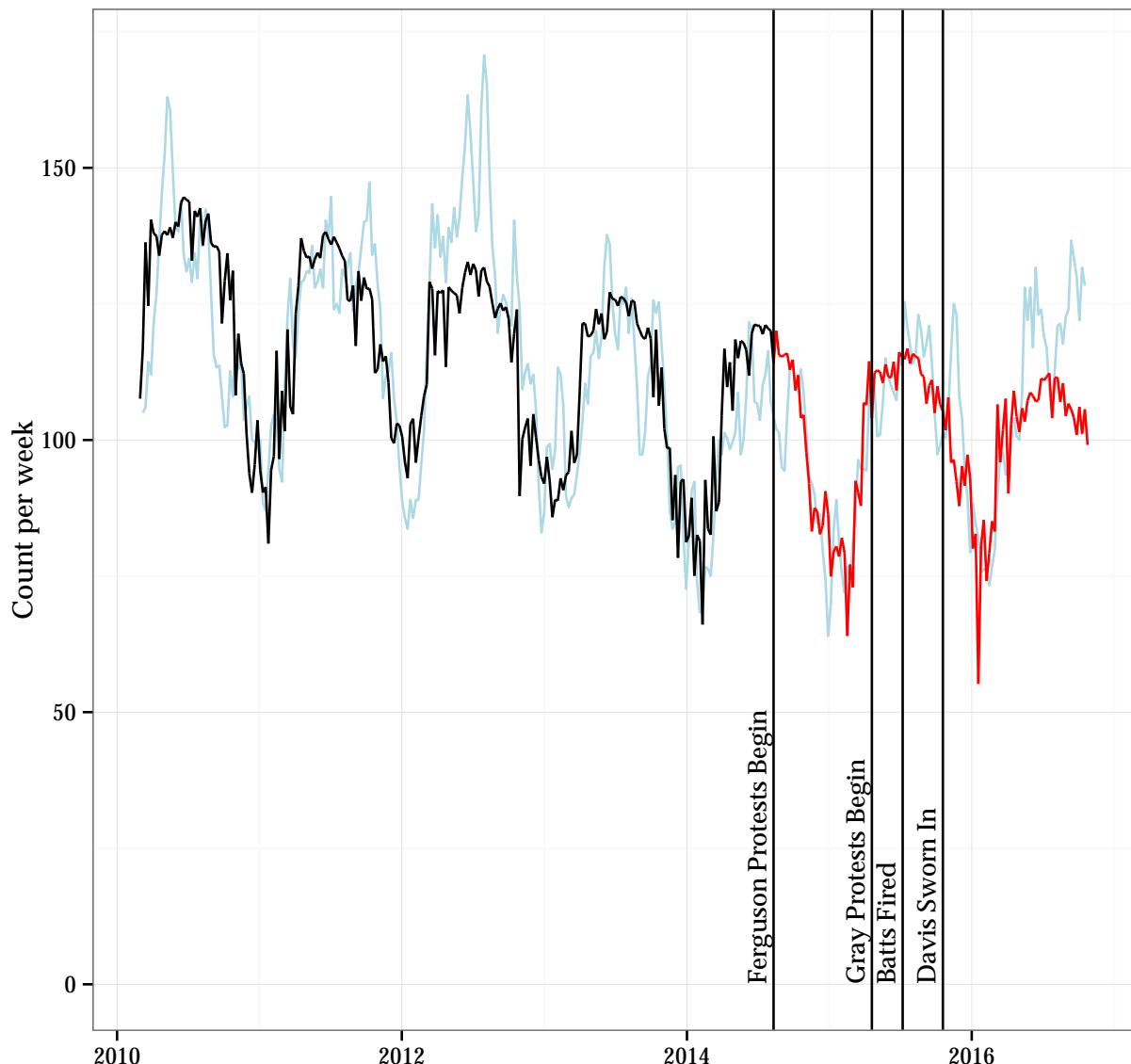
## 23.4 A Poisson Regression Model as an Alternative to Model (2) for central

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-4.5560 -1.0789 -0.1847  0.9649  4.9906  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) 4.431e+00 1.380e-01 32.101 < 2e-16 ***  
t           -7.883e-04 9.368e-05 -8.415 < 2e-16 ***  
tmax.f.spline1 7.499e-03 2.566e-03  2.923 0.00347 **  
tmax.f.spline2 5.508e-03 5.026e-03  1.096 0.27310  
tmax.f.spline3 -2.492e-03 5.871e-03 -0.425 0.67120  
tmax.f.spline4 -1.223e-02 5.312e-03 -2.302 0.02136 *  
tmax.f.spline5 1.948e-03 4.543e-03  0.429 0.66812  
snow.in       -7.469e-02 3.597e-02 -2.076 0.03786 *  
precip.in      -1.095e-01 3.461e-02 -3.163 0.00156 **  
dark.before.12 -1.188e-02 9.066e-03 -1.310 0.19003  
school        -5.383e-02 2.682e-02 -2.007 0.04477 *  
---  
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 1150.80 on 231 degrees of freedom  
Residual deviance: 547.31 on 221 degrees of freedom  
AIC: 2094  
  
Number of Fisher Scoring iterations: 4
```

## central



## central



## 24 Results for eastern

### 24.1 Summary Values for eastern

Table 24.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic | N   | Mean   | St. Dev. | Min | Median | Max |
|-----------|-----|--------|----------|-----|--------|-----|
| eastern   | 232 | 79.069 | 13.914   | 41  | 78     | 116 |

Table 24.2: Descriptives for Outcome After Ferguson Protests Begin

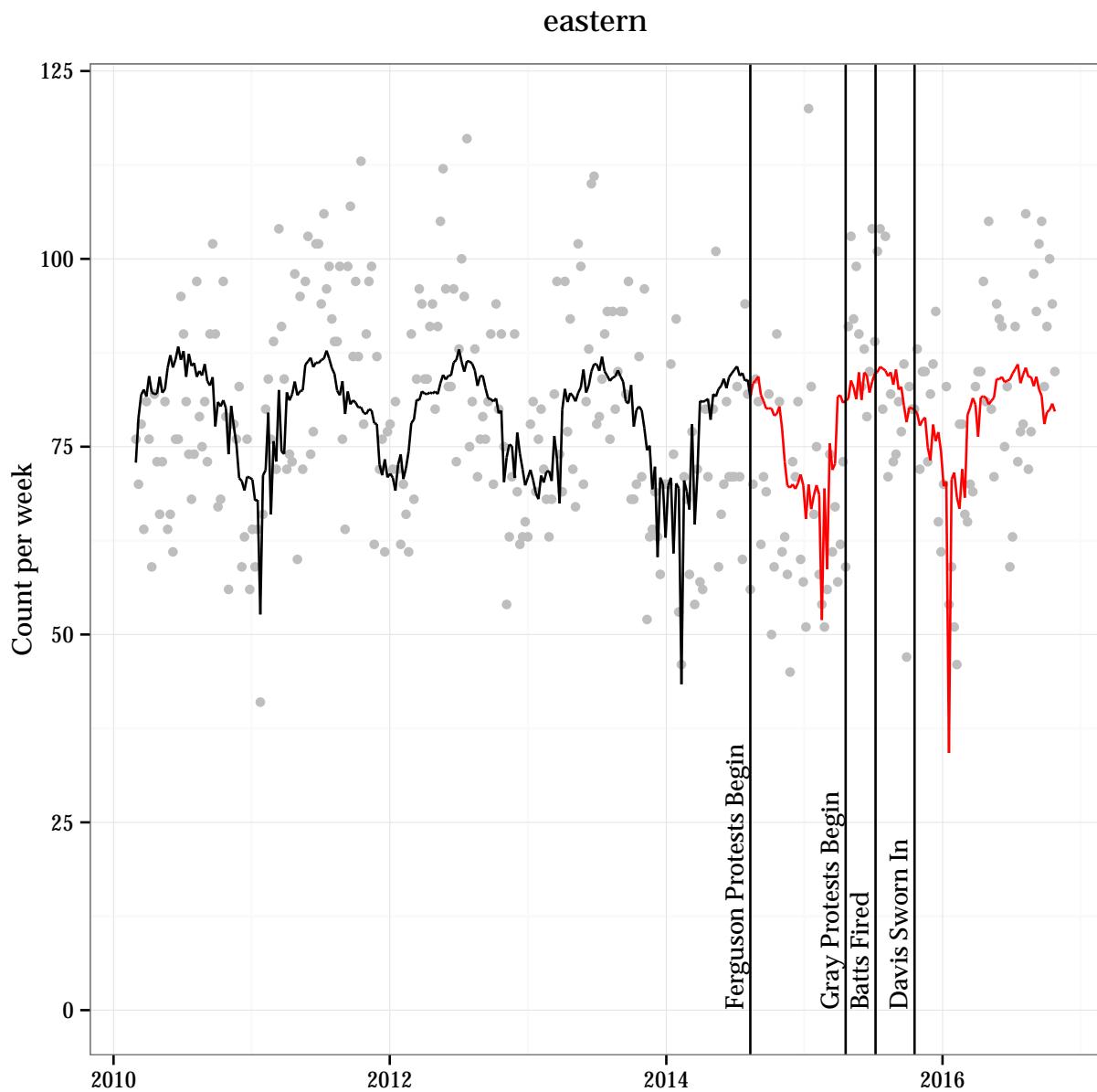
| Statistic | N   | Mean   | St. Dev. | Min | Median | Max |
|-----------|-----|--------|----------|-----|--------|-----|
| eastern   | 116 | 77.276 | 15.523   | 45  | 78.5   | 120 |

## 24.2 Four Models for eastern

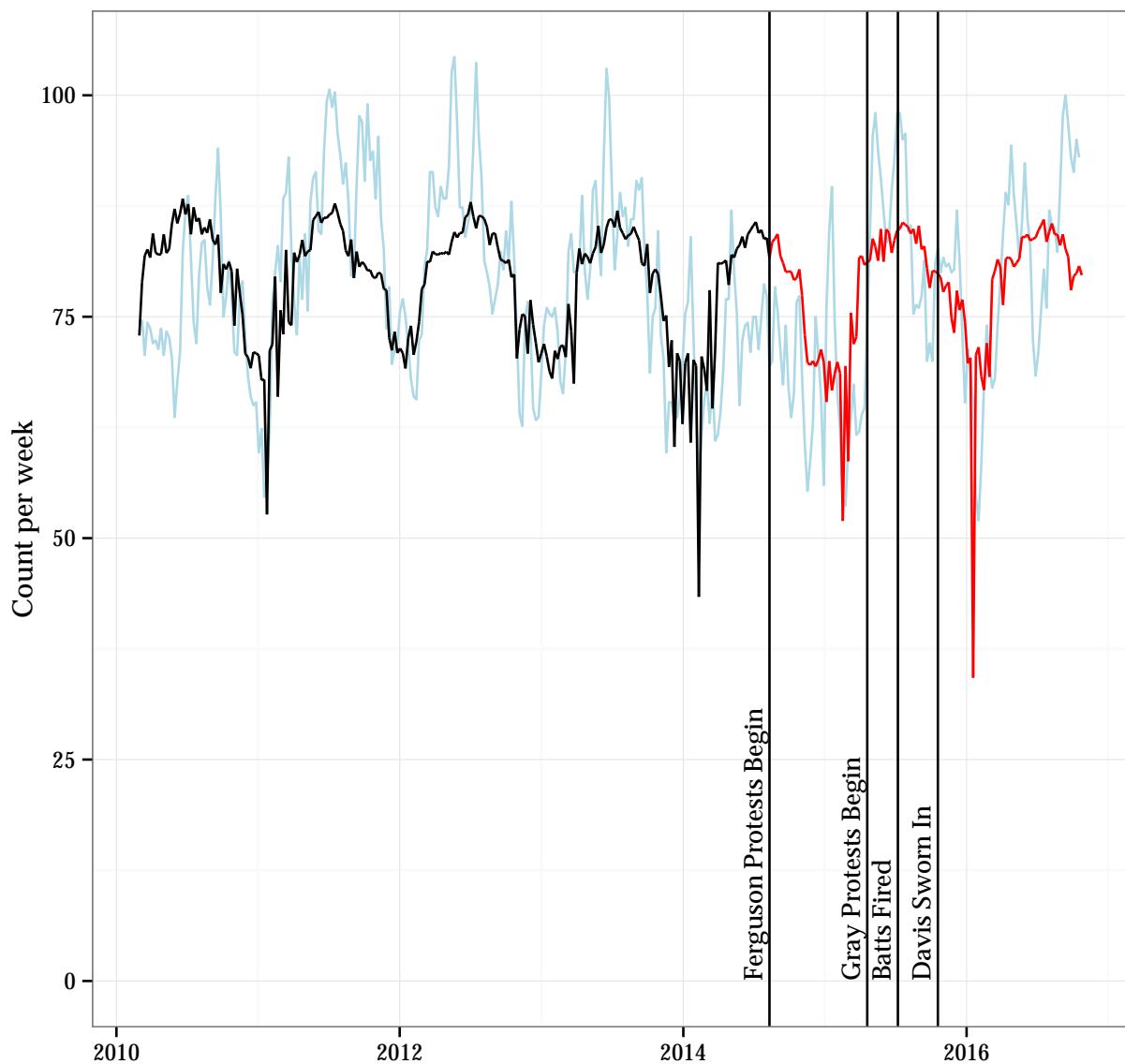
Table 24.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |        |       |        |
|--|-------------------------|--------|-------|--------|
|  | (1)                     | (2)    | (3)   | (4)    |
| Time (counter in weeks)                                | -0.01                   | -0.004 |       | -0.003 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -9.75                   |        | -6.59 | -7.24  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 21.04                   |        | 11.66 | 12.23  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 2.66                    |        | 4.56  | 5.24   |
| After Batts Fired (week of 7/13/15 onward)             | -6.54                   |        | -6.61 | -6.76  |
| After Davis Sworn In (week of 10/19/15 onward)         | -0.98                   |        | 3.23  | 3.05   |
| Average Maximum Temperature to 50 Degrees              | 0.04                    |        |       | -0.003 |
| Plus Degrees in the 50s                                | 0.84                    |        |       | 0.81   |
| Plus Degrees in the 60s                                |                         | -1.04  |       | -0.92  |
| Plus Degrees in the 70s                                | 0.41                    |        |       | 0.68   |
| Plus Degrees Greater Than 80                           | -0.05                   |        |       | -0.37  |
| Snowfall (inches)                                      | -10.12                  |        |       | -7.76  |
| Precipitation (inches)                                 | -3.59                   |        |       | -6.08  |
| Darkness Before Midnight (hours)                       | -1.06                   |        |       | -0.52  |
| School Days (proportion of week)                       | 0.03                    |        |       | 4.08   |
| Observations   | 348                     | 232    | 348   | 348    |
| R <sup>2</sup>   | 0.08                    | 0.24   | 0.04  | 0.27   |

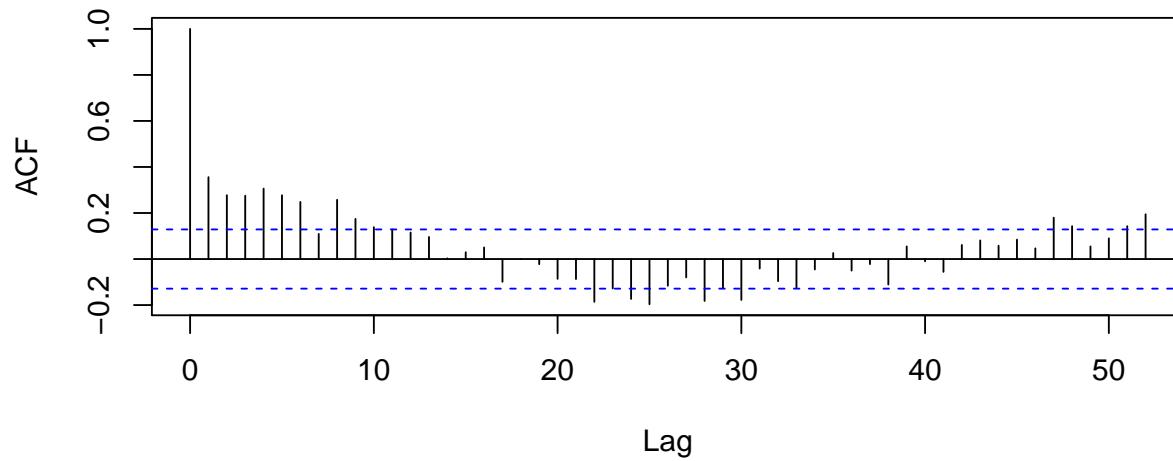
### 24.3 Least Squares Model (2) for eastern



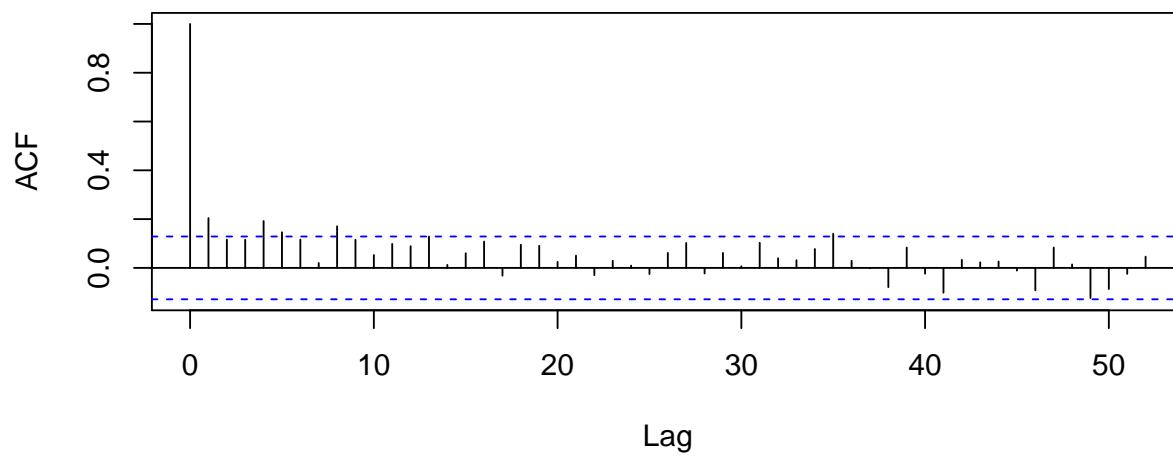
## eastern



Autocorrelation Function for the Observed Outcome for Model (2)



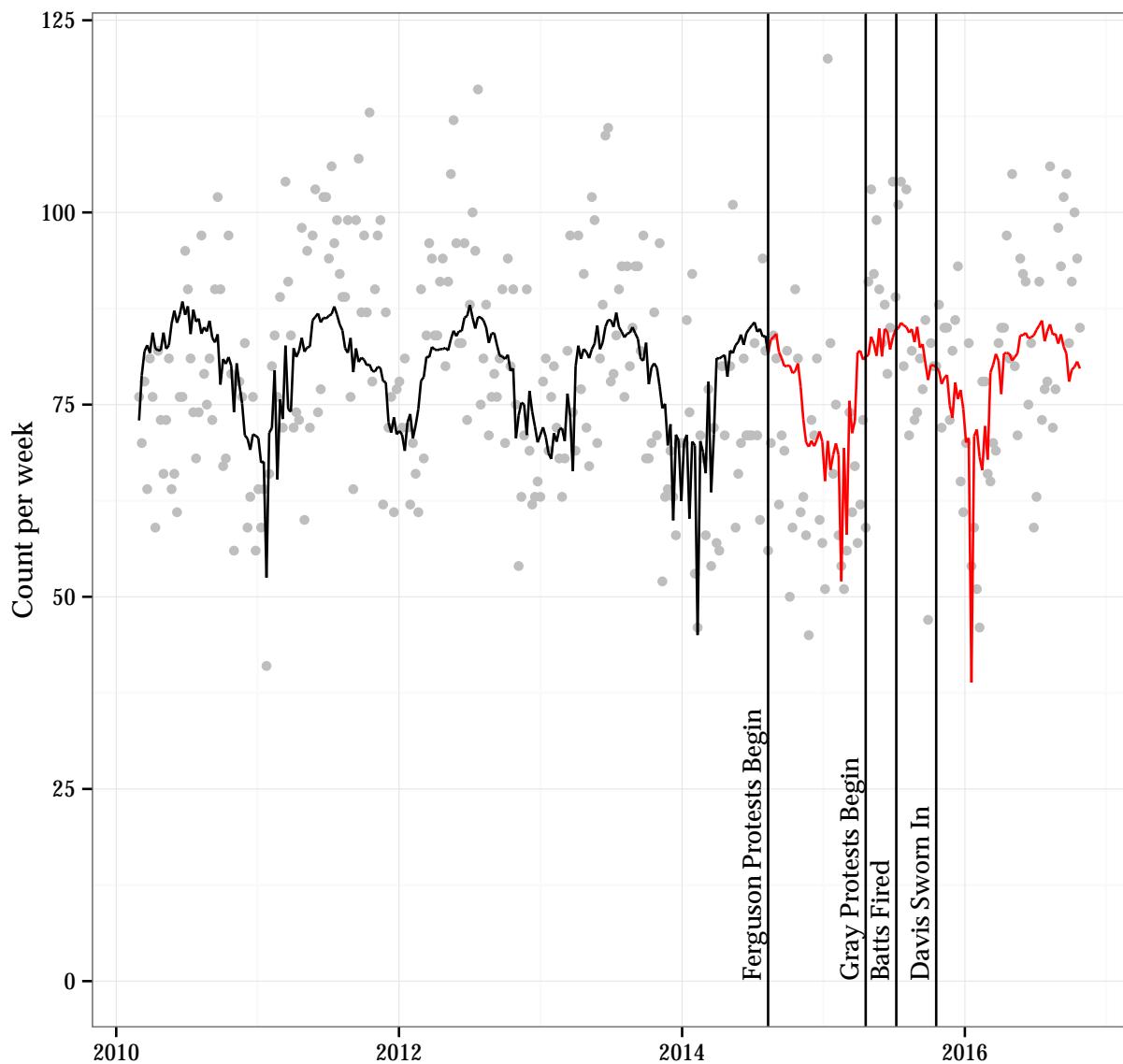
Autocorrelation Function for the Residuals from Model (2)



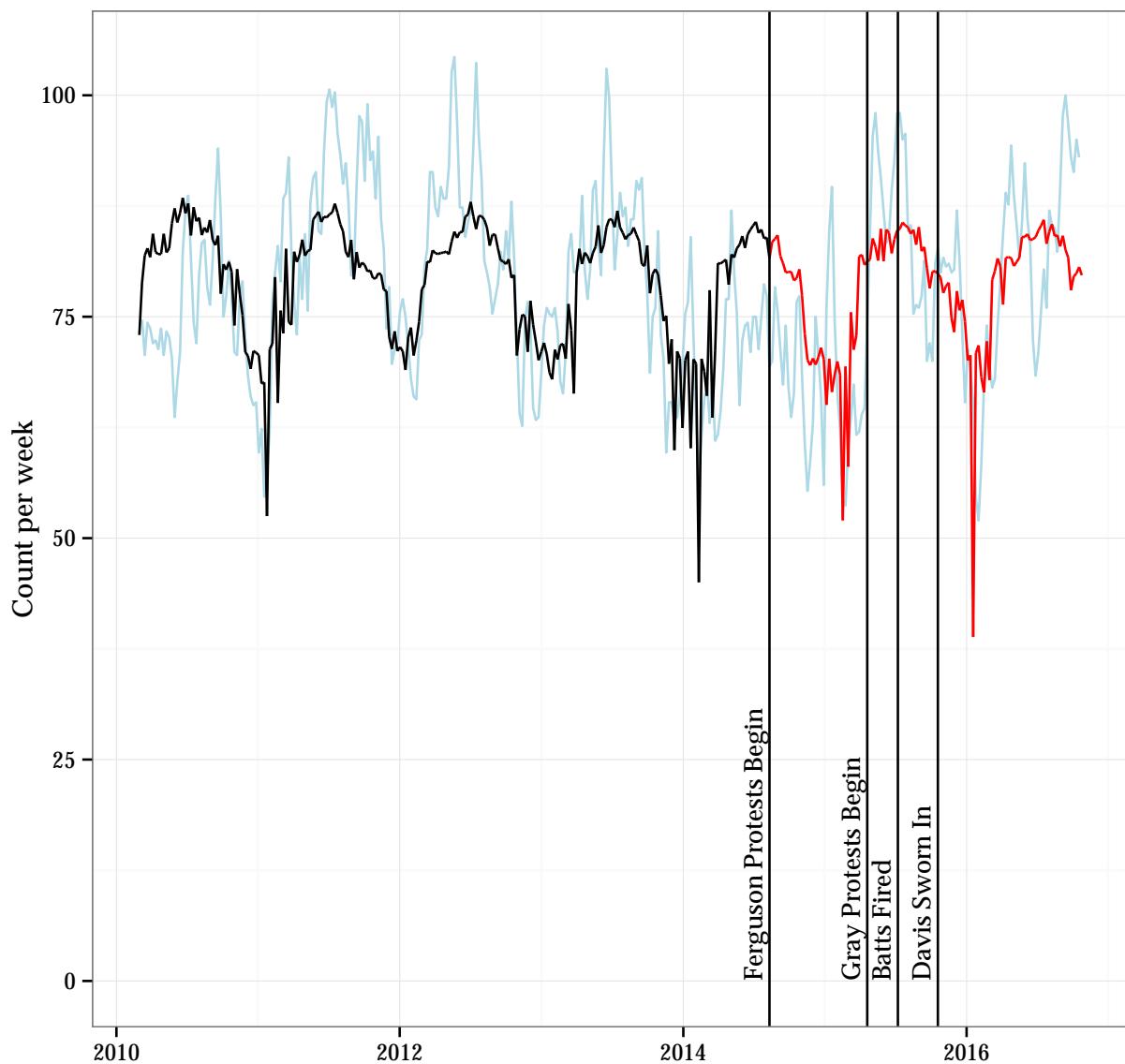
## 24.4 A Poisson Regression Model as an Alternative to Model (2) for eastern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-2.9428 -1.1036 -0.0811  1.0114  3.4445  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) 4.347e+00 1.599e-01 27.190 < 2e-16 ***  
t           -5.502e-05 1.138e-04 -0.483  0.6289  
tmax.f.spline1 5.597e-04 2.945e-03  0.190  0.8493  
tmax.f.spline2 1.078e-02 5.884e-03  1.833  0.0669 .  
tmax.f.spline3 -1.353e-02 7.017e-03 -1.928  0.0539 .  
tmax.f.spline4 5.206e-03 6.518e-03  0.799  0.4244  
tmax.f.spline5 -7.431e-04 5.622e-03 -0.132  0.8948  
snow.in       -1.690e-01 4.293e-02 -3.937 8.24e-05 ***  
precip.in      -4.557e-02 4.171e-02 -1.092  0.2746  
dark.before.12 -1.401e-02 1.085e-02 -1.291  0.1967  
school         3.270e-05 3.276e-02  0.001  0.9992  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 566.51 on 231 degrees of freedom  
Residual deviance: 424.37 on 221 degrees of freedom  
AIC: 1883.5  
  
Number of Fisher Scoring iterations: 4
```

## eastern



## eastern



## 25 Results for southwestern

### 25.1 Summary Values for southwestern

Table 25.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic    | N   | Mean   | St. Dev. | Min | Median | Max |
|--------------|-----|--------|----------|-----|--------|-----|
| southwestern | 232 | 83.849 | 13.489   | 51  | 83     | 121 |

Table 25.2: Descriptives for Outcome After Ferguson Protests Begin

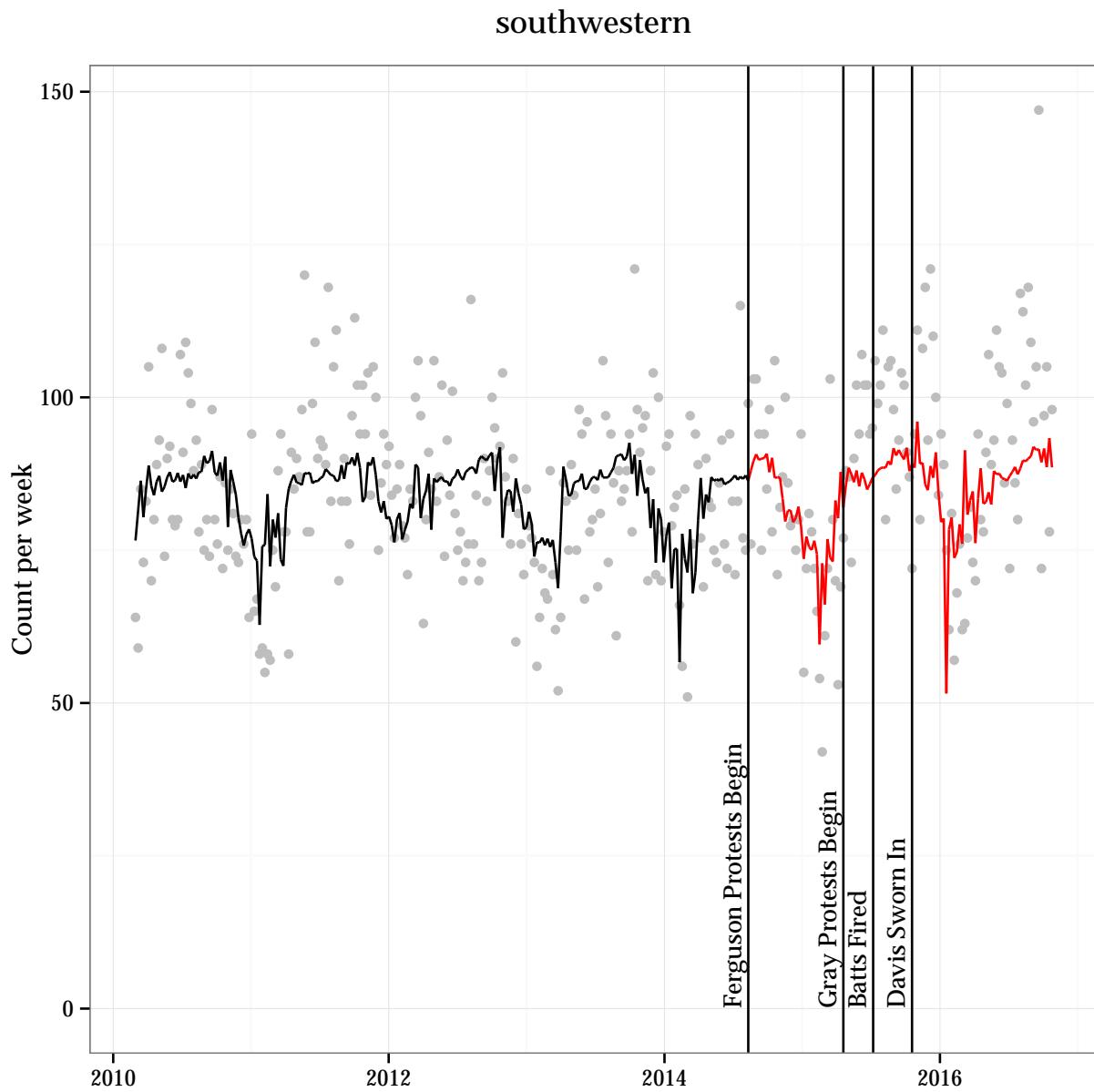
| Statistic    | N   | Mean   | St. Dev. | Min | Median | Max |
|--------------|-----|--------|----------|-----|--------|-----|
| southwestern | 116 | 88.776 | 16.978   | 42  | 89.5   | 147 |

## 25.2 Four Models for southwestern

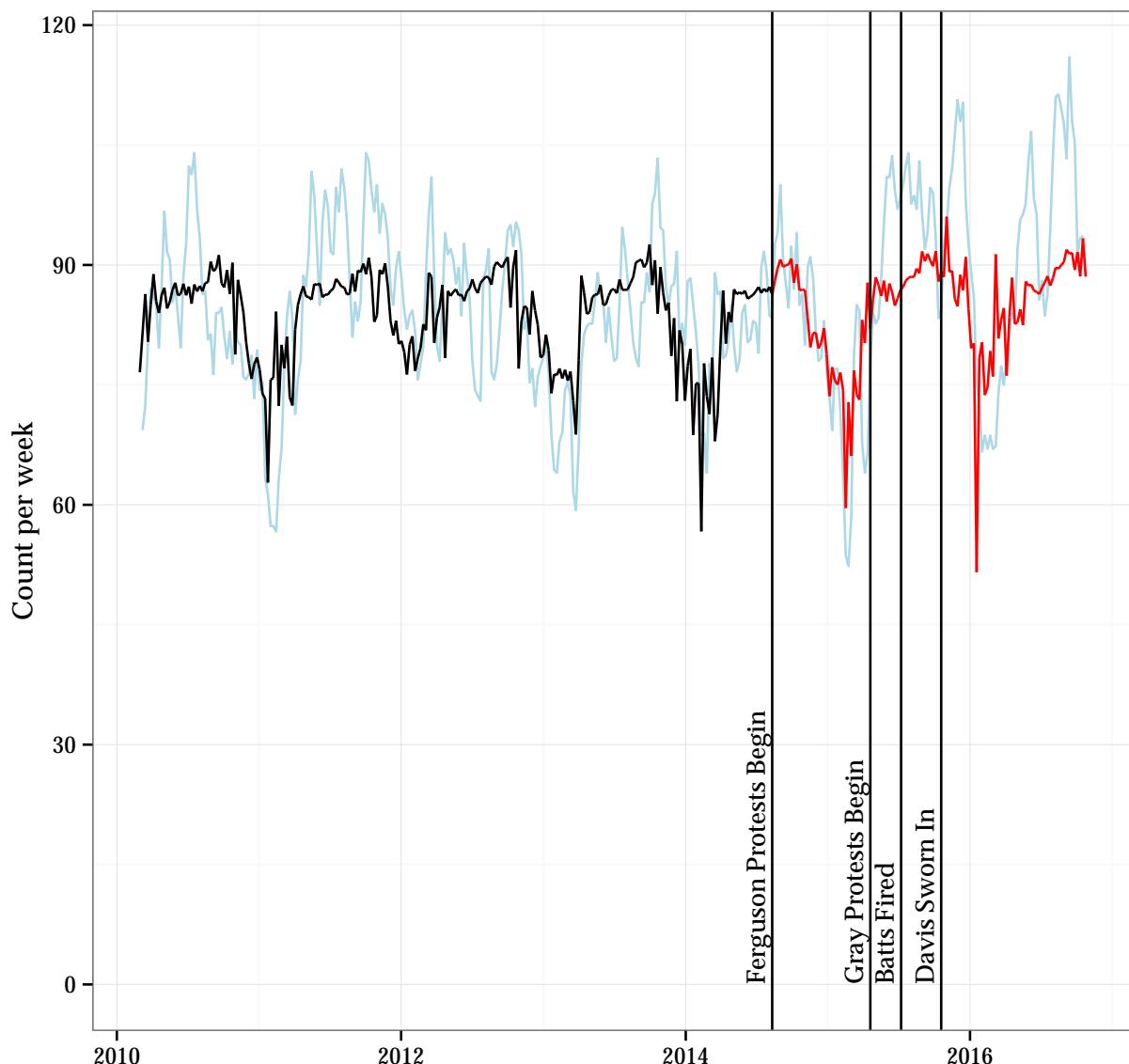
Table 25.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |       |       |       |
|--|-------------------------|-------|-------|-------|
|  | (1)                     | (2)   | (3)   | (4)   |
| Time (counter in weeks)                                | -0.01                   | 0.004 |       | 0.003 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -2.80                   |       | -1.51 | -0.69 |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 13.45                   |       | 8.21  | 7.11  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -5.05                   |       | -4.44 | -0.82 |
| After Batts Fired (week of 7/13/15 onward)             | 4.91                    |       | 1.60  | 1.02  |
| After Davis Sworn In (week of 10/19/15 onward)         | -5.87                   |       | -2.18 | -1.51 |
| Average Maximum Temperature to 50 Degrees              |                         | 0.26  |       | 0.65  |
| Plus Degrees in the 50s                                |                         | 0.49  |       | 0.04  |
| Plus Degrees in the 60s                                |                         | 0.001 |       | -0.07 |
| Plus Degrees in the 70s                                |                         | -0.60 |       | 0.15  |
| Plus Degrees Greater Than 80                           |                         | 0.02  |       | -0.63 |
| Snowfall (inches)                                      |                         | -6.71 |       | -2.81 |
| Precipitation (inches)                                 |                         | -2.31 |       | -1.67 |
| Darkness Before Midnight (hours)                       |                         | 3.05  |       | 4.15  |
| School Days (proportion of week)                       |                         | 0.90  |       | 2.60  |
| Observations   | 348                     | 232   | 348   | 348   |
| R <sup>2</sup>   | 0.09                    | 0.18  | 0.05  | 0.28  |

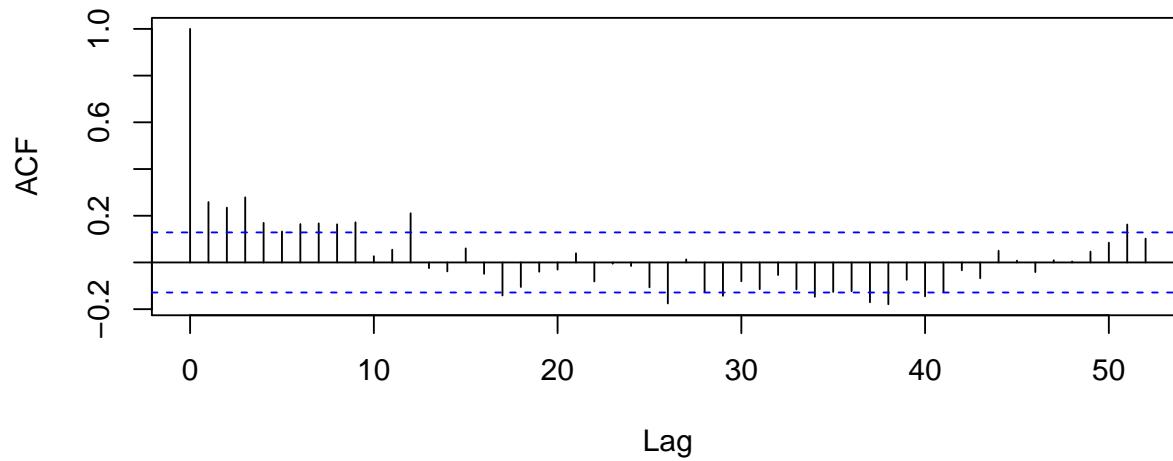
### 25.3 Least Squares Model (2) for southwestern



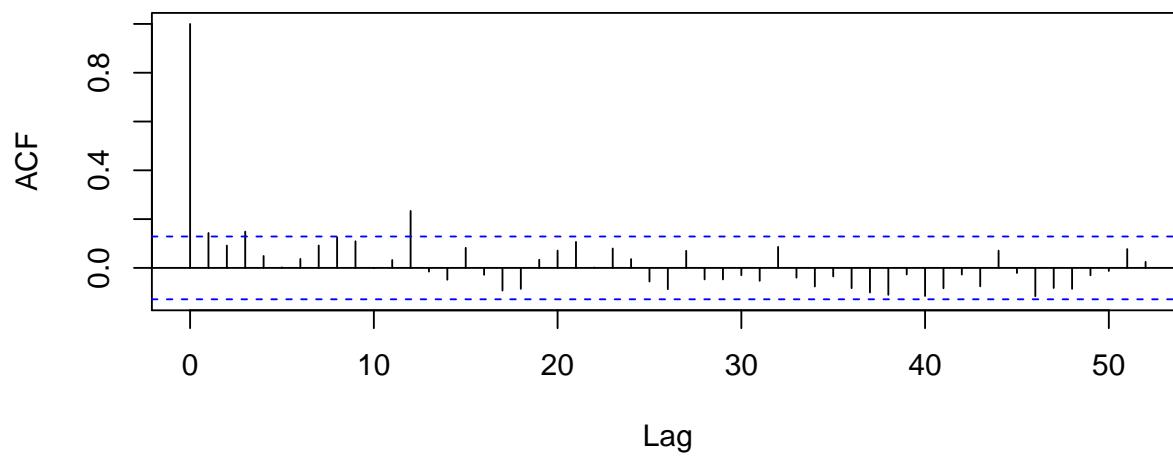
## southwestern



Autocorrelation Function for the Observed Outcome for Model (2)



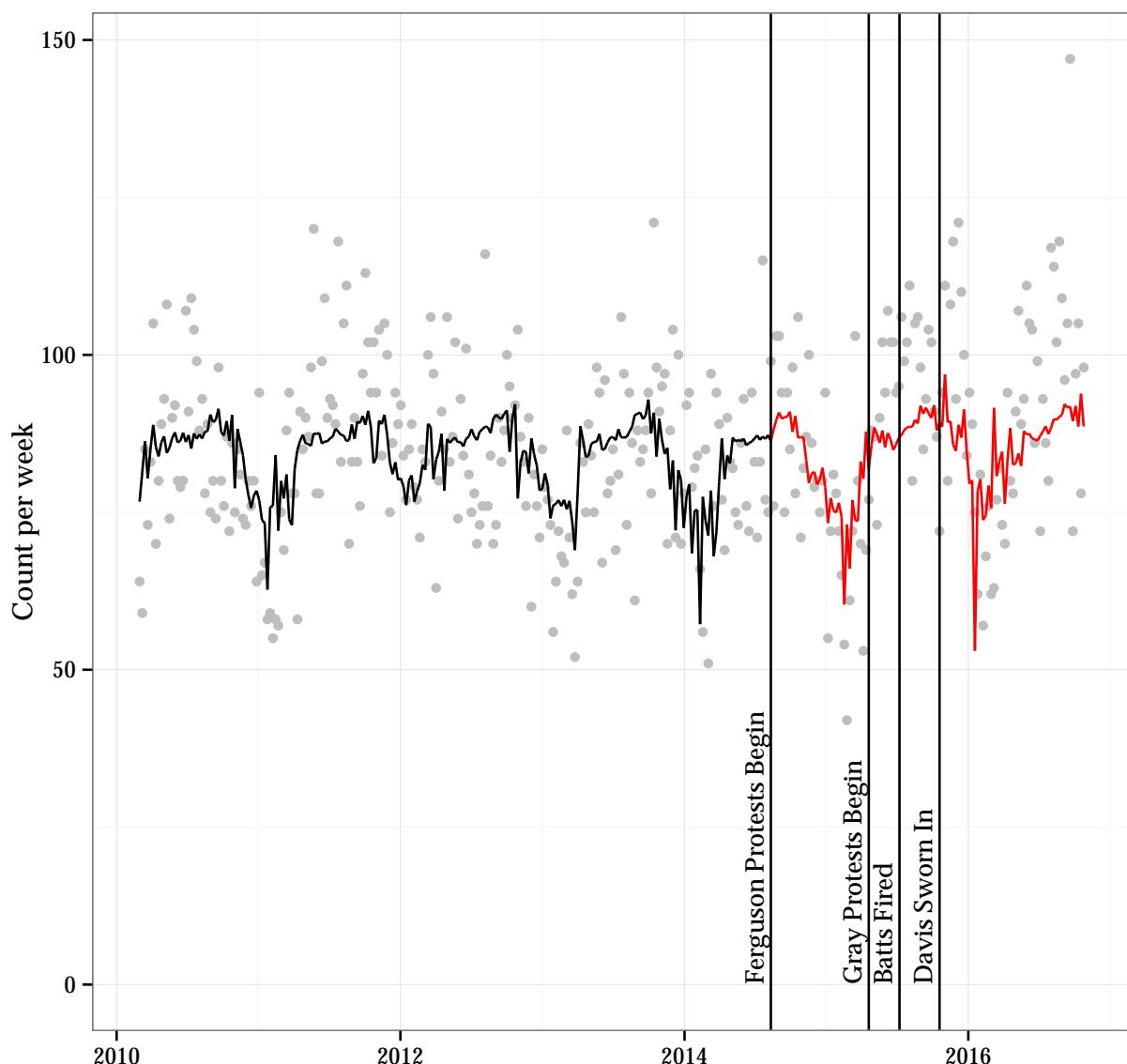
Autocorrelation Function for the Residuals from Model (2)



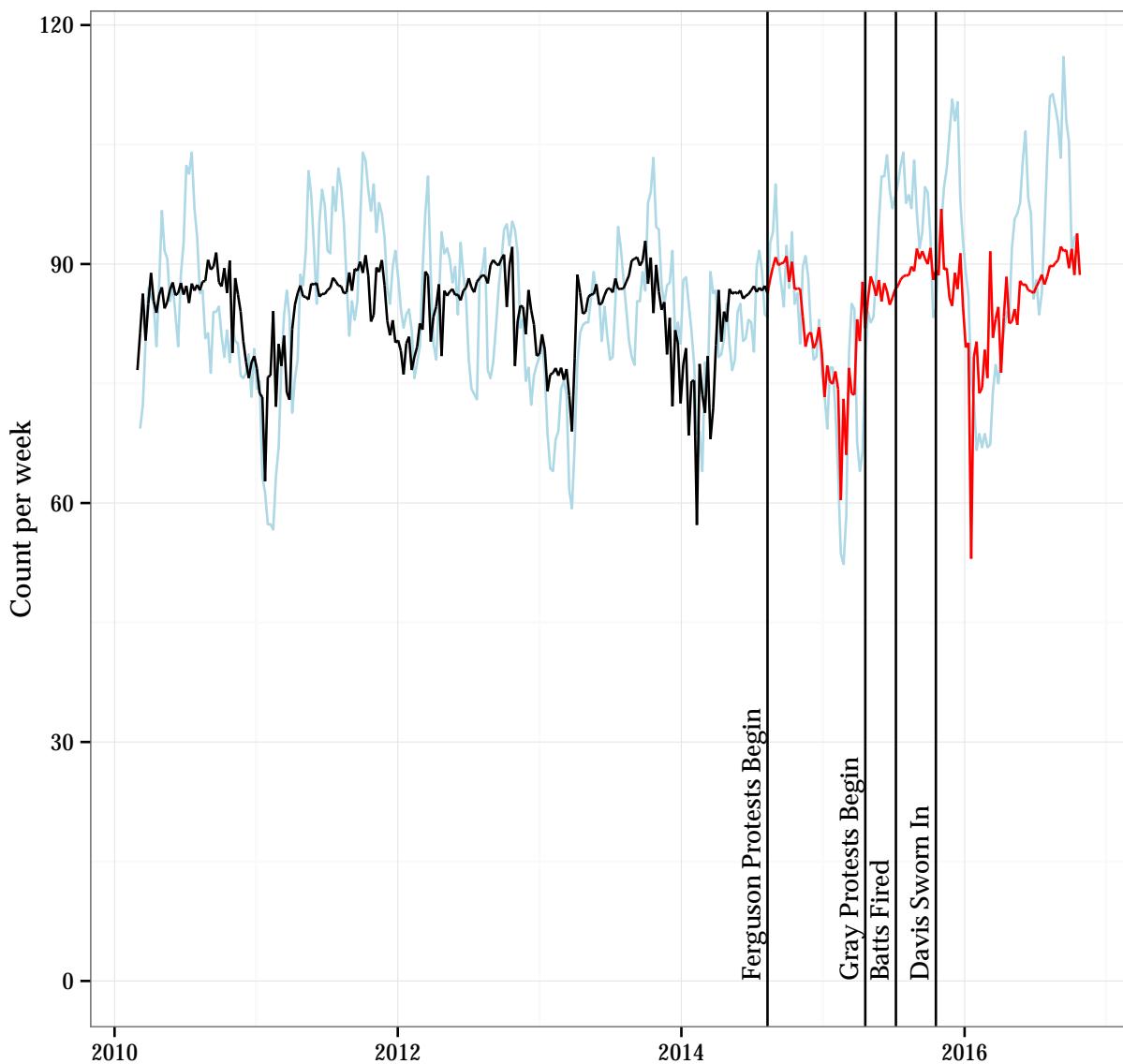
## 25.4 A Poisson Regression Model as an Alternative to Model (2) for southwestern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-3.2923 -0.9845 -0.1546  0.9012  3.2835  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) 3.963e+00 1.533e-01 25.851 < 2e-16 ***  
t            4.242e-05 1.109e-04  0.383 0.702013  
tmax.f.spline1 3.153e-03 2.820e-03  1.118 0.263637  
tmax.f.spline2 5.994e-03 5.675e-03  1.056 0.290844  
tmax.f.spline3 -2.342e-04 6.835e-03 -0.034 0.972669  
tmax.f.spline4 -7.111e-03 6.331e-03 -1.123 0.261291  
tmax.f.spline5 1.688e-04 5.511e-03  0.031 0.975562  
snow.in      -1.006e-01 3.946e-02 -2.549 0.010800 *  
precip.in     -2.707e-02 4.026e-02 -0.672 0.501295  
dark.before.12 3.667e-02 1.052e-02  3.485 0.000492 ***  
school        9.227e-03 3.192e-02  0.289 0.772517  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 503.78 on 231 degrees of freedom  
Residual deviance: 412.89 on 221 degrees of freedom  
AIC: 1886.2  
  
Number of Fisher Scoring iterations: 4
```

## southwestern



## southwestern



## 26 Results for southern

### 26.1 Summary Values for southern

Table 26.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic | N   | Mean    | St. Dev. | Min | Median | Max |
|-----------|-----|---------|----------|-----|--------|-----|
| southern  | 232 | 113.591 | 20.501   | 57  | 112    | 185 |

Table 26.2: Descriptives for Outcome After Ferguson Protests Begin

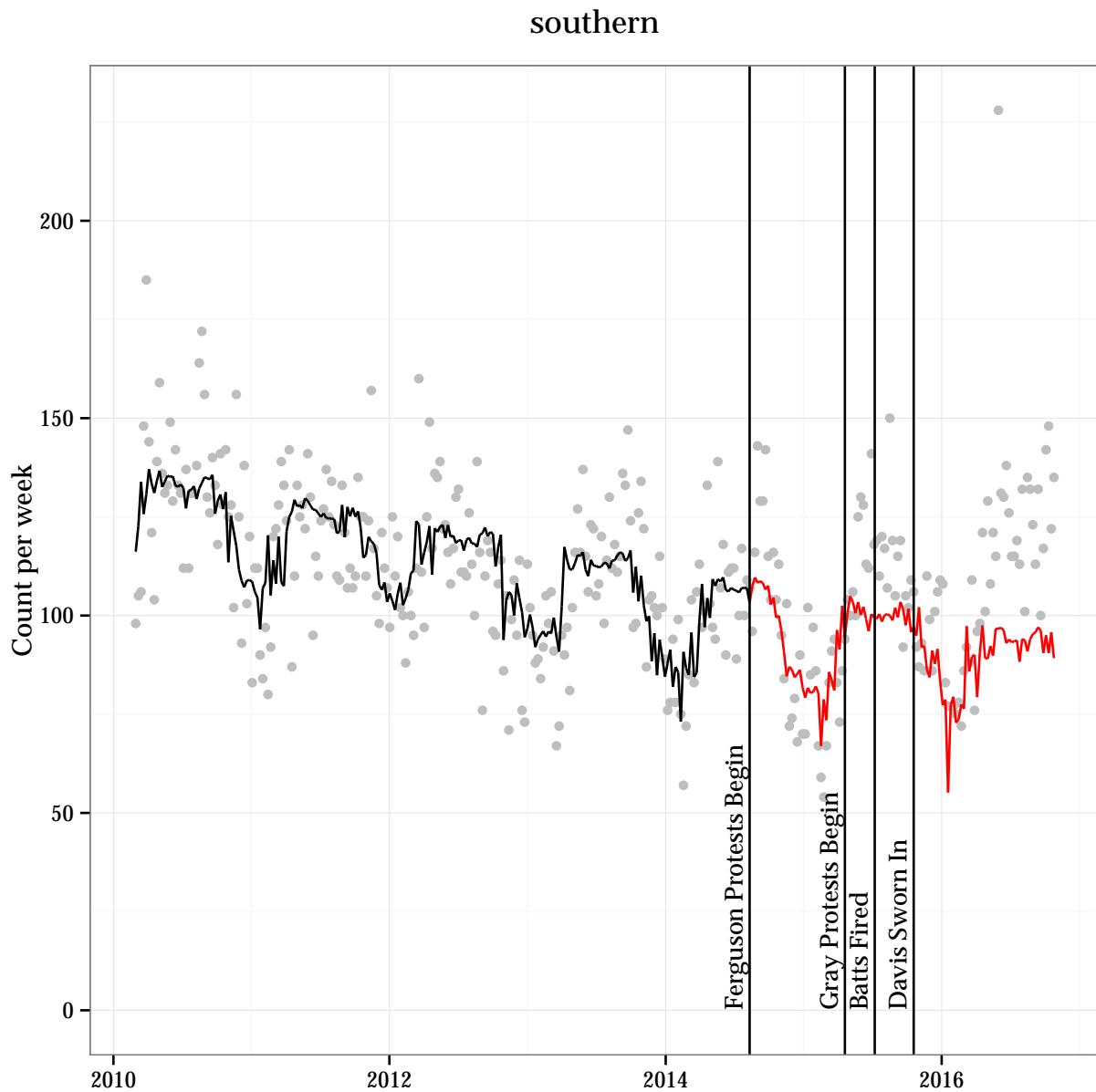
| Statistic | N   | Mean    | St. Dev. | Min | Median | Max |
|-----------|-----|---------|----------|-----|--------|-----|
| southern  | 116 | 105.302 | 23.957   | 54  | 105.5  | 228 |

## 26.2 Four Models for southern

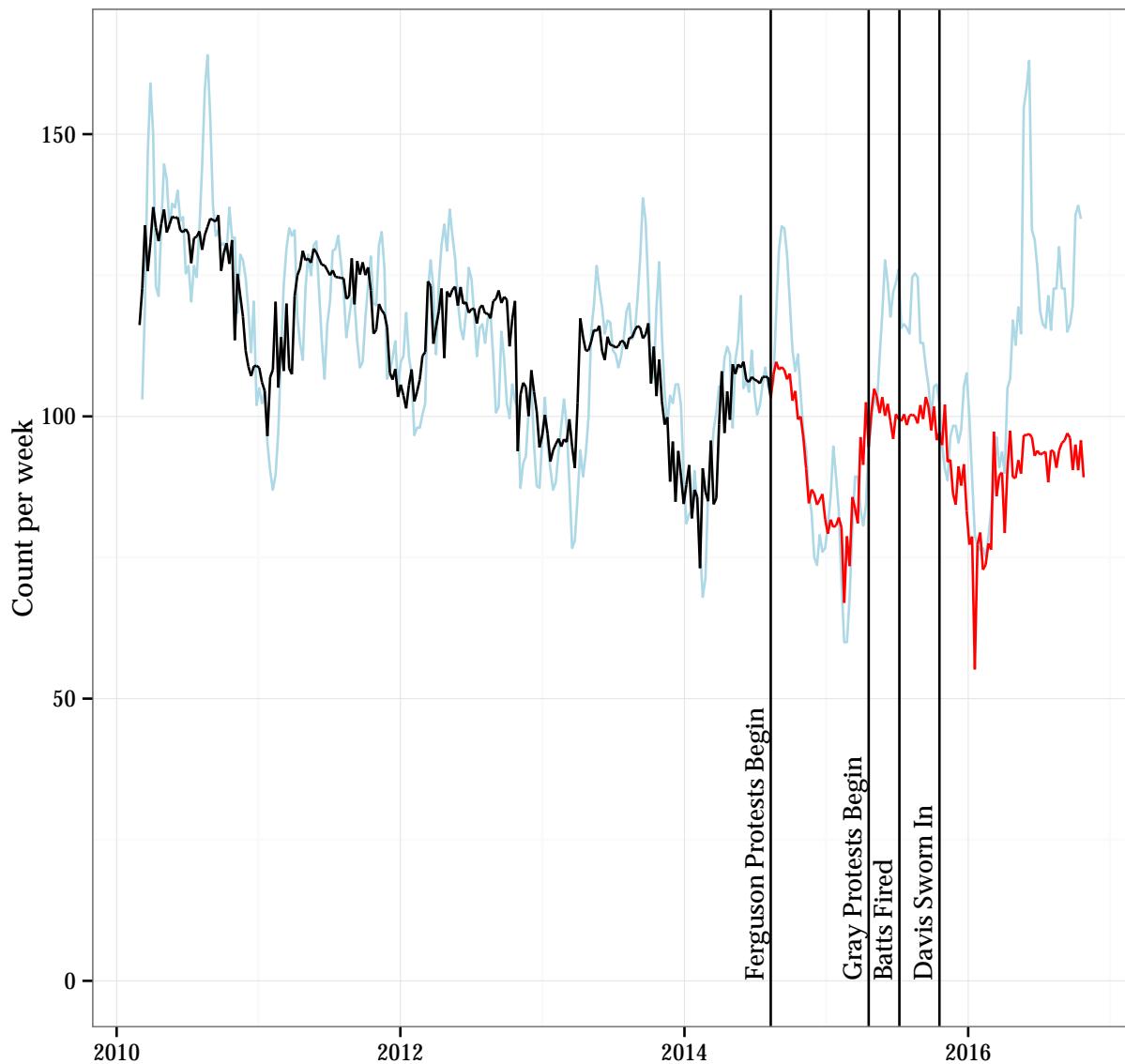
Table 26.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |       |        |       |
|--|-------------------------|-------|--------|-------|
|  | (1)                     | (2)   | (3)    | (4)   |
| Time (counter in weeks)                                | -0.13                   | -0.12 |        | -0.12 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -3.05                   |       | 1.47   | 2.09  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 25.44                   |       | 13.31  | 9.14  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -11.83                  |       | -11.56 | -8.45 |
| After Batts Fired (week of 7/13/15 onward)             | -0.03                   |       | -1.21  | -0.27 |
| After Davis Sworn In (week of 10/19/15 onward)         | 0.39                    |       | 6.56   | 8.37  |
| Average Maximum Temperature to 50 Degrees              |                         | 0.29  |        | 0.37  |
| Plus Degrees in the 50s                                |                         | 0.87  |        | 0.53  |
| Plus Degrees in the 60s                                |                         | -0.20 |        | 0.26  |
| Plus Degrees in the 70s                                |                         | -0.70 |        | -0.48 |
| Plus Degrees Greater Than 80                           |                         | -0.34 |        | -0.84 |
| Snowfall (inches)                                      |                         | -4.62 |        | -4.55 |
| Precipitation (inches)                                 |                         | -7.93 |        | -7.50 |
| Darkness Before Midnight (hours)                       |                         | 1.10  |        | 0.37  |
| School Days (proportion of week)                       |                         | 2.83  |        | 5.41  |
| Observations   | 348                     | 232   | 348    | 348   |
| R <sup>2</sup>   | 0.19                    | 0.42  | 0.18   | 0.44  |

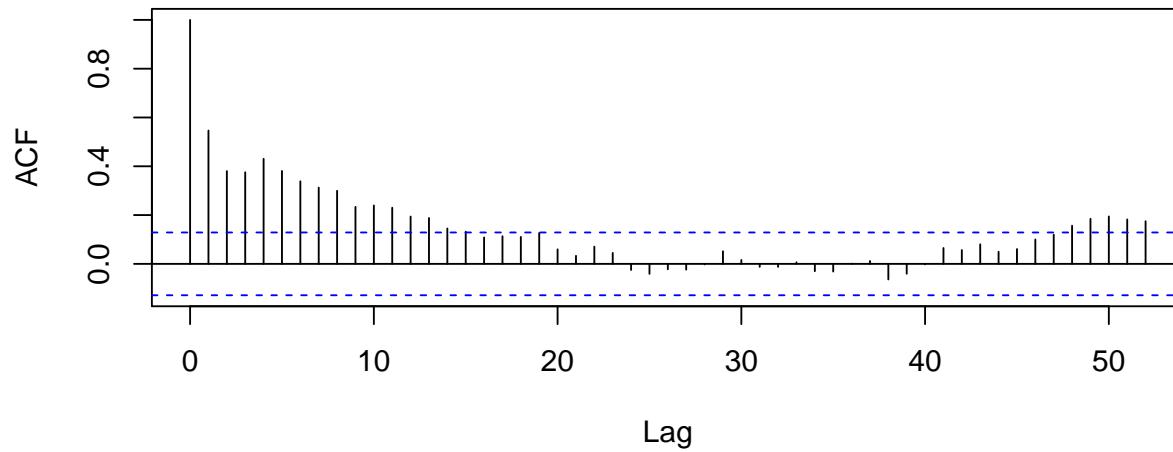
### 26.3 Least Squares Model (2) for southern



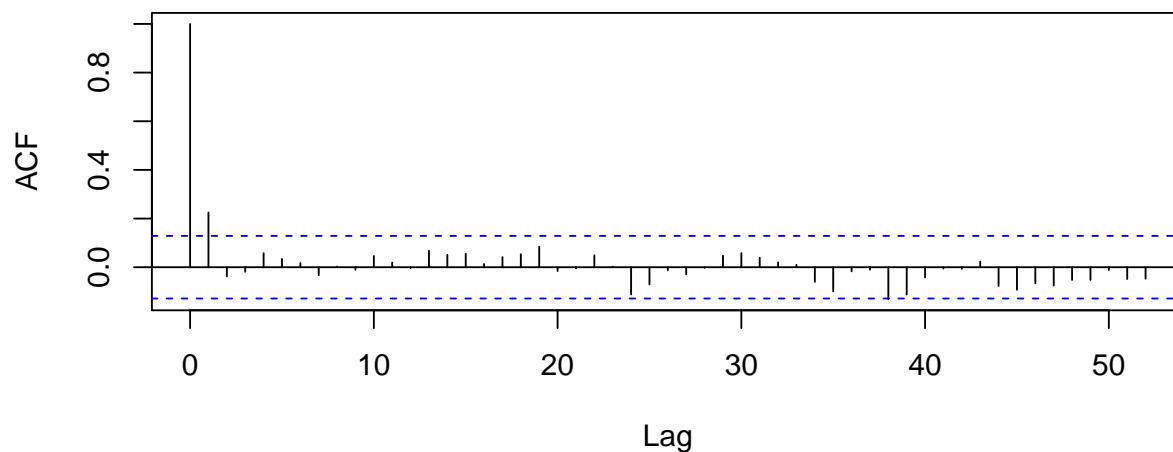
## southern



Autocorrelation Function for the Observed Outcome for Model (2)



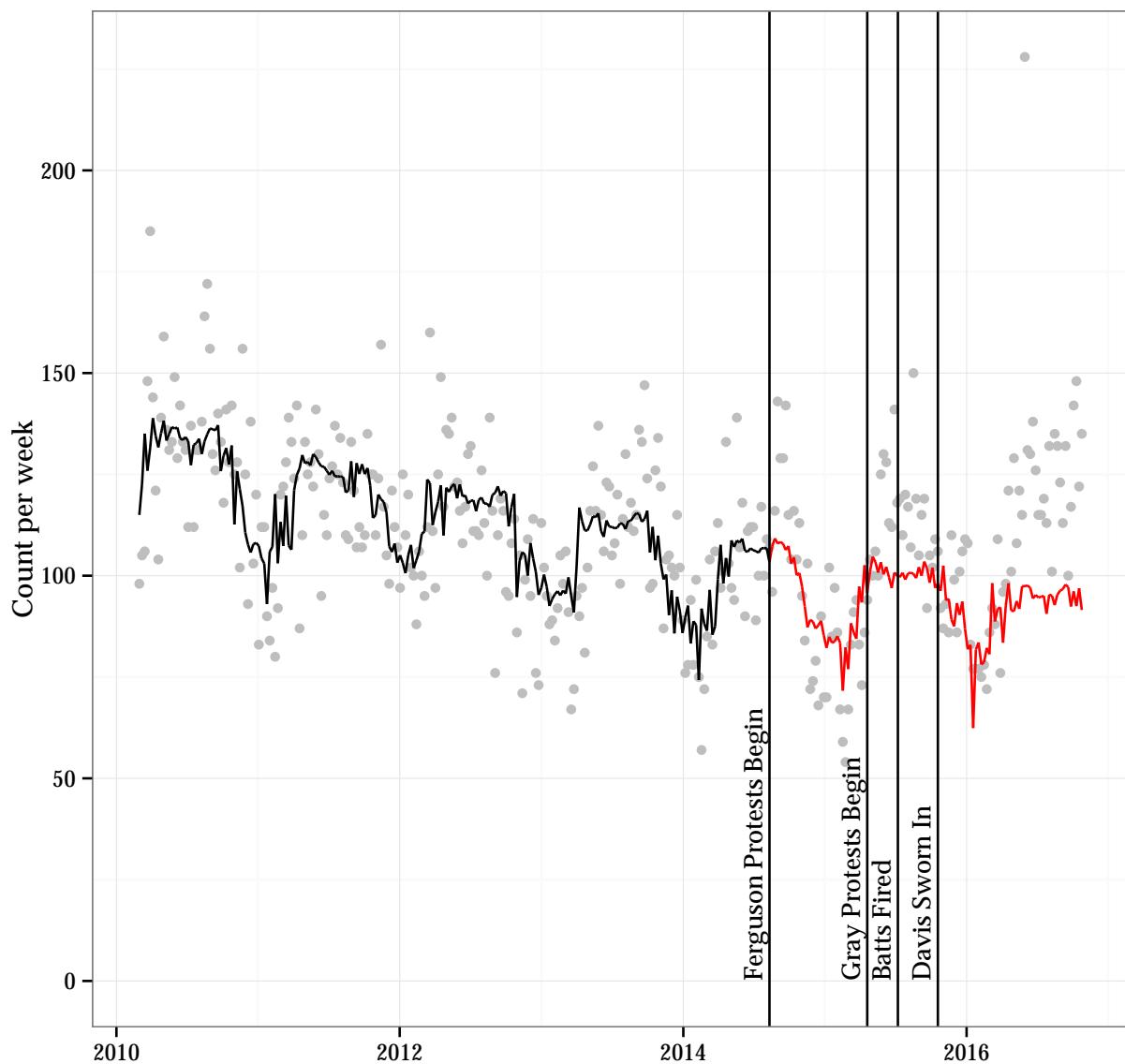
Autocorrelation Function for the Residuals from Model (2)



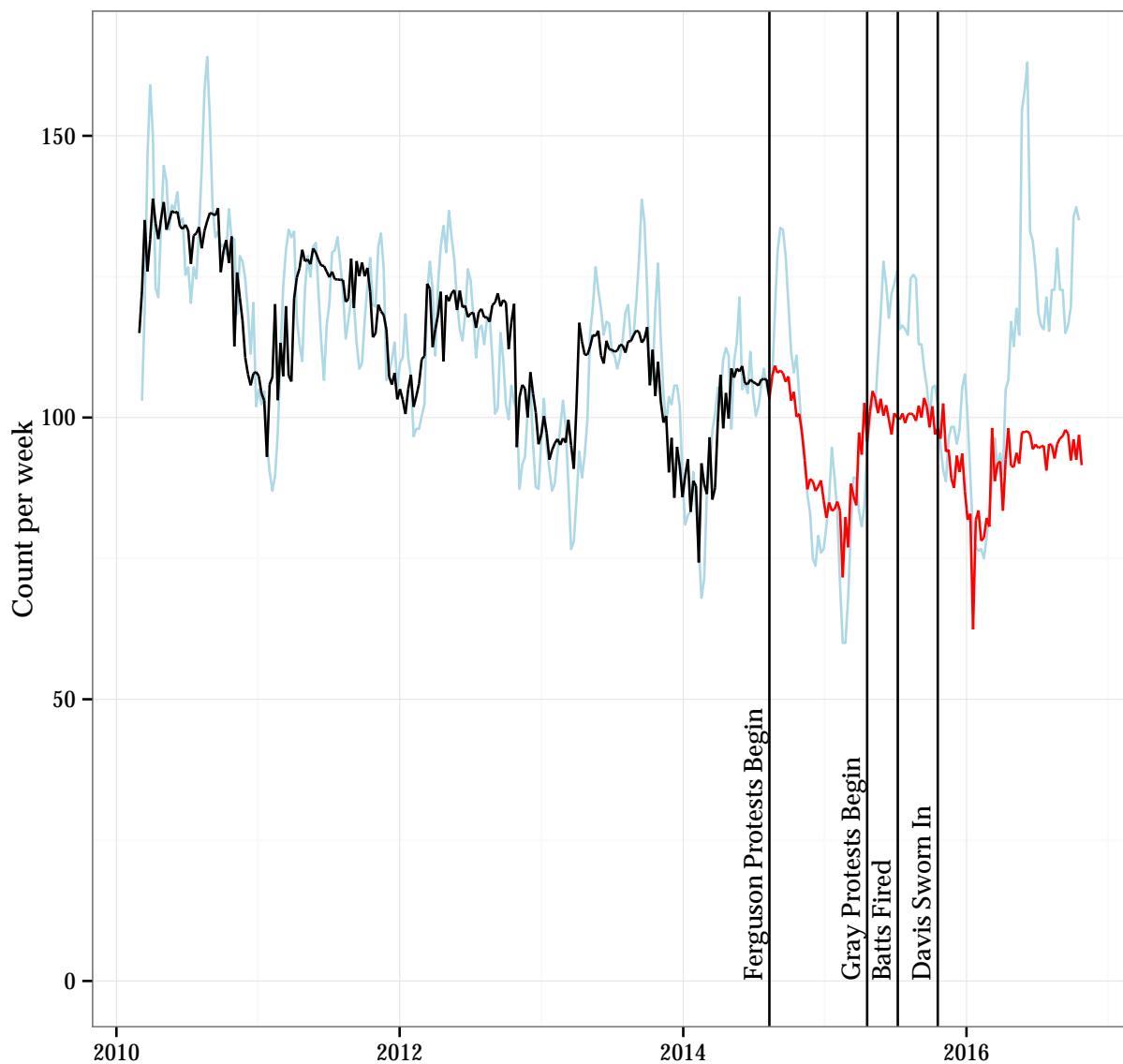
## 26.4 A Poisson Regression Model as an Alternative to Model (2) for southern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-4.3446 -1.0016 -0.0202  0.8755  4.3849  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) 4.533e+00 1.342e-01 33.780 <2e-16 ***  
t           -1.086e-03 9.497e-05 -11.434 <2e-16 ***  
tmax.f.spline1 2.799e-03 2.476e-03  1.130  0.2583  
tmax.f.spline2 8.228e-03 4.942e-03  1.665  0.0959 .  
tmax.f.spline3 -2.833e-03 5.873e-03 -0.482  0.6295  
tmax.f.spline4 -5.896e-03 5.386e-03 -1.095  0.2736  
tmax.f.spline5 -3.119e-03 4.676e-03 -0.667  0.5048  
snow.in       -6.211e-02 3.433e-02 -1.809  0.0704 .  
precip.in      -6.967e-02 3.477e-02 -2.003  0.0451 *  
dark.before.12 1.077e-02 9.098e-03  1.184  0.2363  
school         2.236e-02 2.737e-02  0.817  0.4140  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 860.35 on 231 degrees of freedom  
Residual deviance: 493.96 on 221 degrees of freedom  
AIC: 2036.8  
  
Number of Fisher Scoring iterations: 4
```

## southern



## southern



## 27 Results for southeastern

### 27.1 Summary Values for southeastern

Table 27.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic    | N   | Mean    | St. Dev. | Min | Median | Max |
|--------------|-----|---------|----------|-----|--------|-----|
| southeastern | 232 | 126.595 | 20.132   | 82  | 126    | 181 |

Table 27.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic    | N   | Mean    | St. Dev. | Min | Median | Max |
|--------------|-----|---------|----------|-----|--------|-----|
| southeastern | 116 | 129.500 | 26.020   | 62  | 126.5  | 187 |

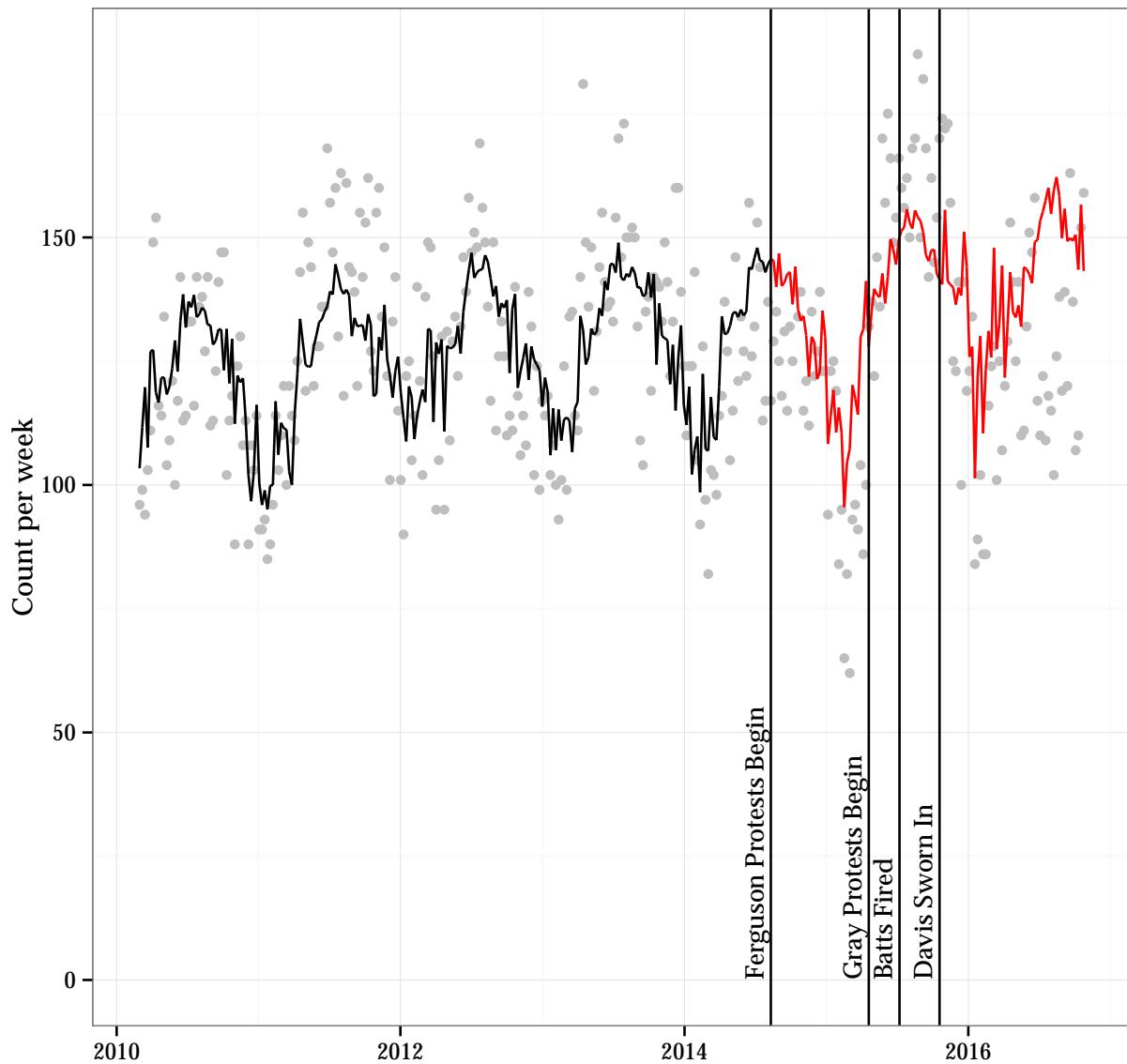
## 27.2 Four Models for southeastern

Table 27.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

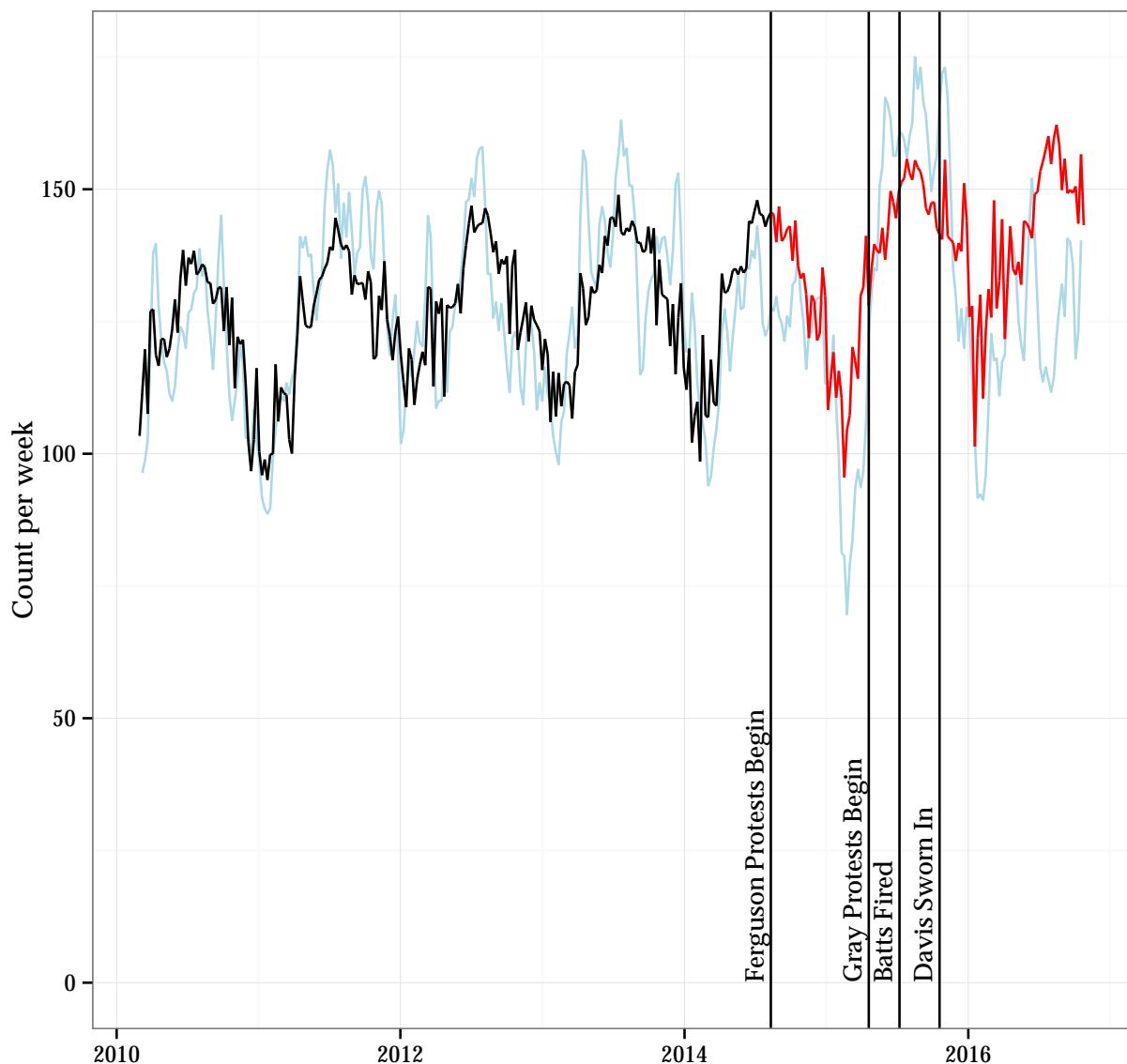
|  | Outcome: Count Per Week |        |        |        |
|--|-------------------------|--------|--------|--------|
|  | (1)                     | (2)    | (3)    | (4)    |
| Time (counter in weeks)                                | 0.04                    | 0.07   |        | 0.06   |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -18.50                  |        | -14.24 | -14.36 |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 37.97                   |        | 24.81  | 26.68  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -14.90                  |        | -8.45  | -8.54  |
| After Batts Fired (week of 7/13/15 onward)             | 8.57                    |        | 0.06   | 0.05   |
| After Davis Sworn In (week of 10/19/15 onward)         | -35.01                  |        | -24.53 | -25.85 |
| Average Maximum Temperature to 50 Degrees              |                         | 1.08   |        | 1.06   |
| Plus Degrees in the 50s                                |                         | -0.26  |        | 0.18   |
| Plus Degrees in the 60s                                |                         | 0.90   |        | 0.30   |
| Plus Degrees in the 70s                                |                         | -1.57  |        | -1.01  |
| Plus Degrees Greater Than 80                           |                         | 0.65   |        | -0.01  |
| Snowfall (inches)                                      |                         | -2.66  |        | -4.99  |
| Precipitation (inches)                                 |                         | 2.52   |        | 2.72   |
| Darkness Before Midnight (hours)                       |                         | 5.44   |        | 7.30   |
| School Days (proportion of week)                       |                         | -10.65 |        | -5.66  |
| Observations   | 348                     | 232    | 348    | 348    |
| R <sup>2</sup>   | 0.18                    | 0.38   | 0.16   | 0.46   |

### 27.3 Least Squares Model (2) for southeastern

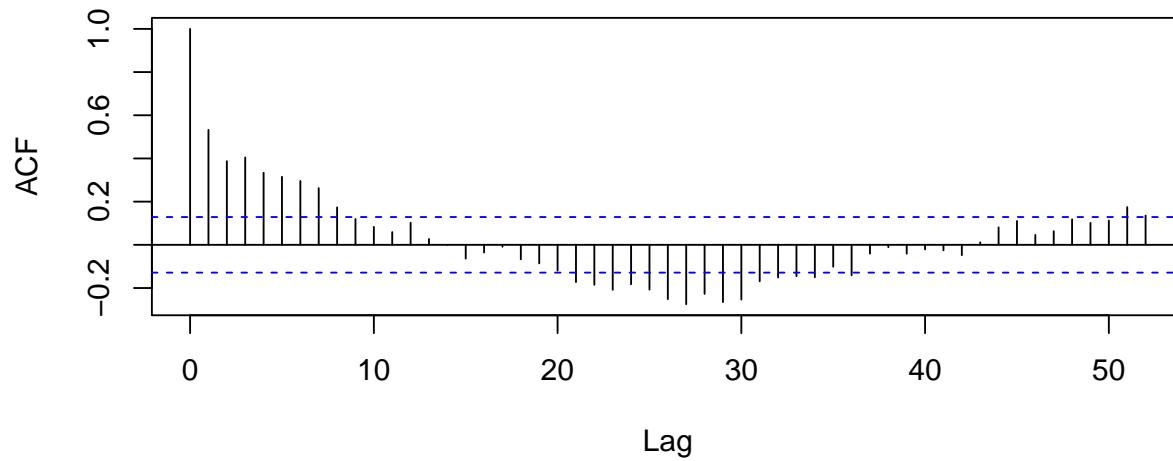
southeastern



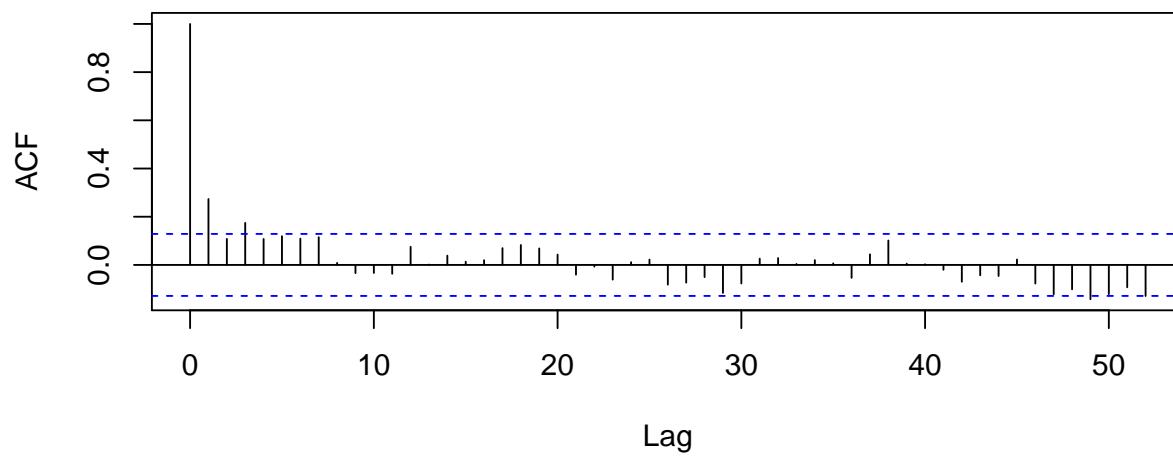
## southeastern



Autocorrelation Function for the Observed Outcome for Model (2)



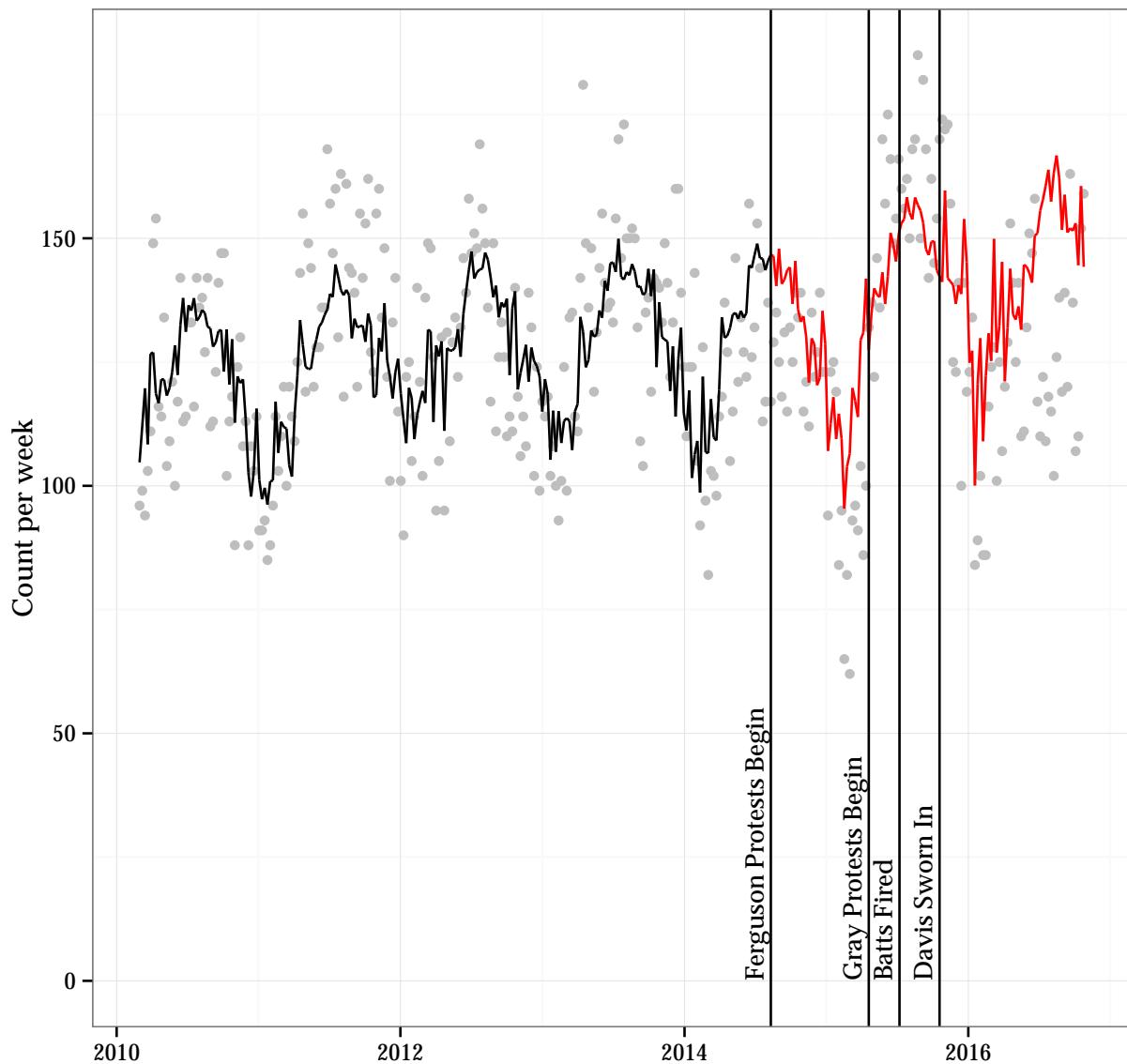
Autocorrelation Function for the Residuals from Model (2)



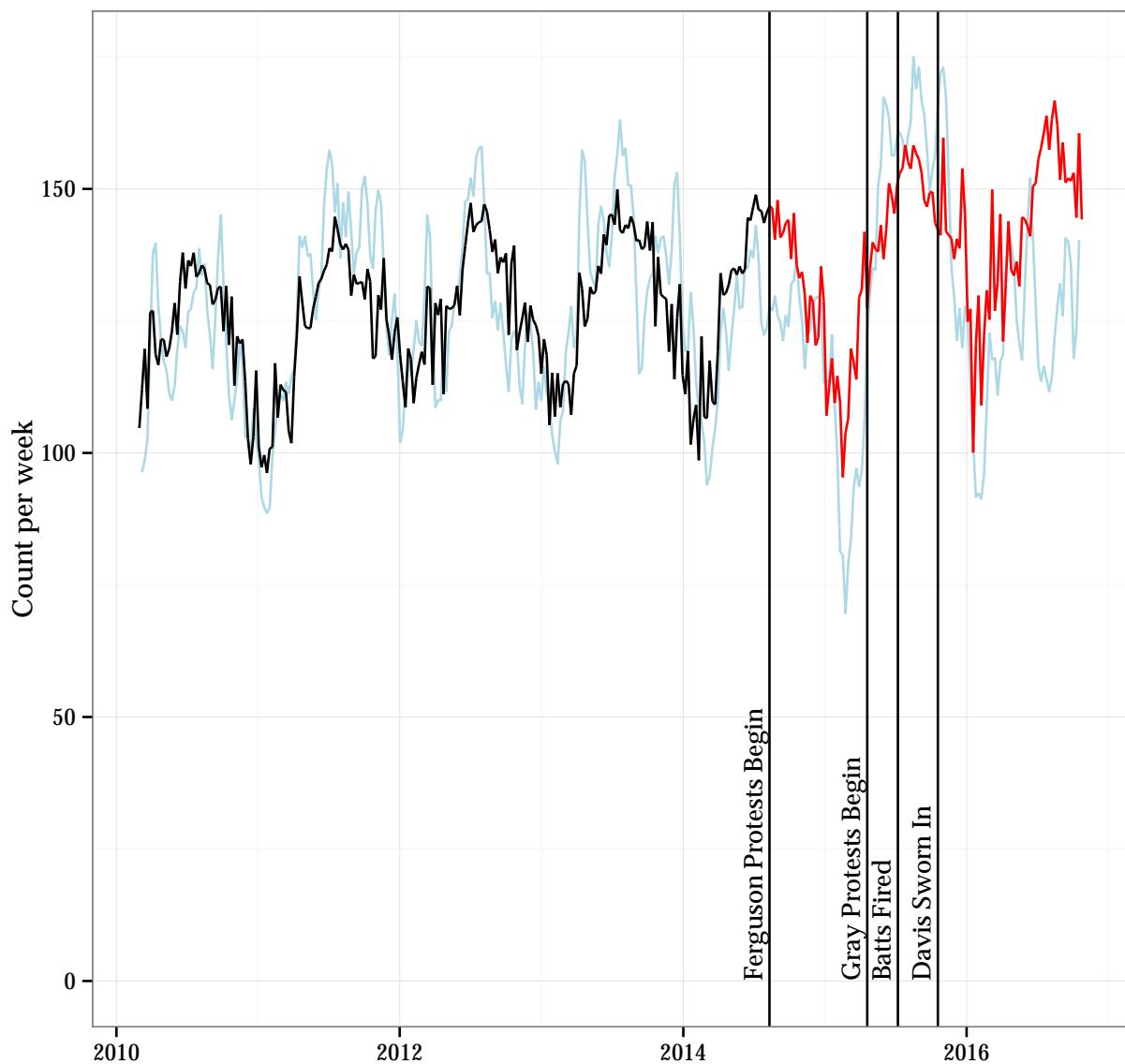
## 27.4 A Poisson Regression Model as an Alternative to Model (2) for southeastern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-3.0903 -1.0030 -0.0793  0.8500  4.1192  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) 3.980e+00 1.279e-01 31.121 < 2e-16 ***  
t           5.265e-04 9.037e-05  5.827 5.65e-09 ***  
tmax.f.spline1 9.664e-03 2.357e-03  4.100 4.14e-05 ***  
tmax.f.spline2 -3.086e-03 4.698e-03 -0.657  0.51130  
tmax.f.spline3 7.384e-03 5.664e-03  1.304  0.19231  
tmax.f.spline4 -1.288e-02 5.201e-03 -2.477  0.01324 *  
tmax.f.spline5 4.906e-03 4.428e-03  1.108  0.26792  
snow.in      -2.392e-02 3.124e-02 -0.766  0.44397  
precip.in     2.016e-02 3.240e-02  0.622  0.53383  
dark.before.12 4.463e-02 8.639e-03  5.166 2.40e-07 ***  
school        -8.382e-02 2.572e-02 -3.259  0.00112 **  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 744.55 on 231 degrees of freedom  
Residual deviance: 454.97 on 221 degrees of freedom  
AIC: 2023.8  
  
Number of Fisher Scoring iterations: 4
```

## southeastern



## southeastern



## 28 Results for homicide.northwestern

### 28.1 Summary Values for homicide.northwestern

Table 28.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic             | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------------------|-----|-------|----------|-----|--------|-----|
| homicide.northwestern | 232 | 0.539 | 0.749    | 0   | 0      | 4   |

Table 28.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic             | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------------------|-----|-------|----------|-----|--------|-----|
| homicide.northwestern | 116 | 0.759 | 0.861    | 0   | 1      | 3   |

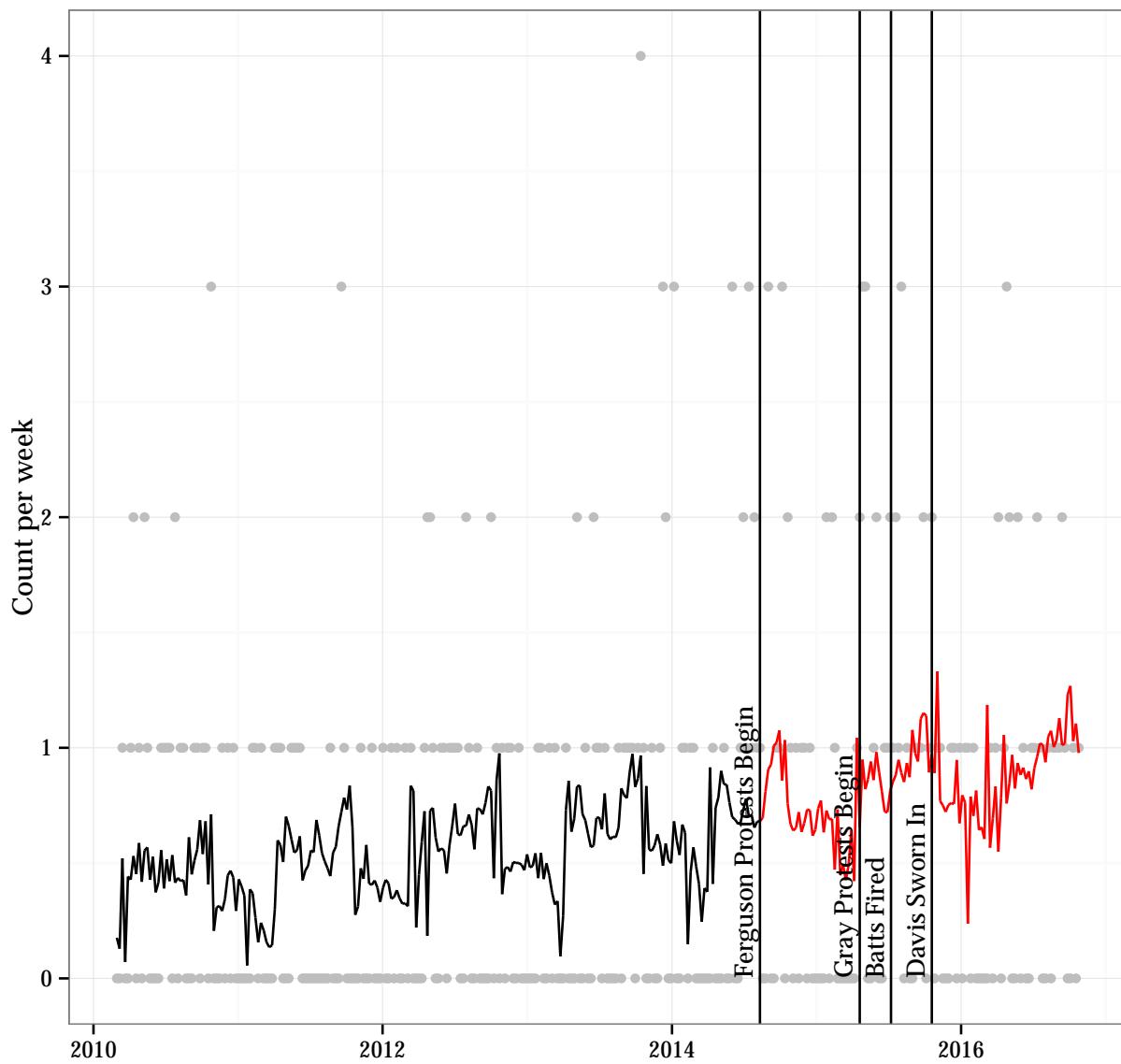
## 28.2 Four Models for homicide.northwestern

Table 28.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

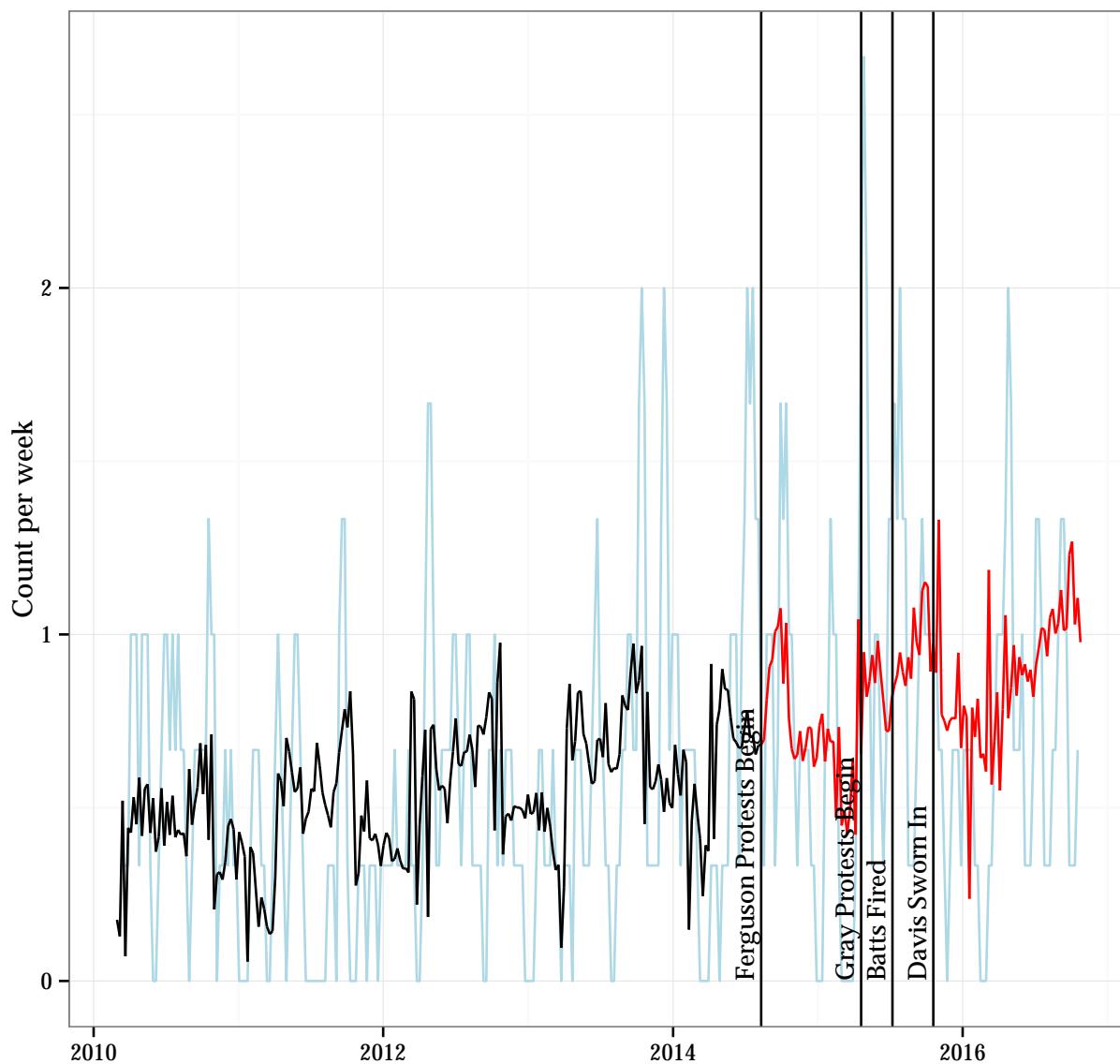
|  | Outcome: Count Per Week |       |       |       |
|--|-------------------------|-------|-------|-------|
|  | (1)                     | (2)   | (3)   | (4)   |
| Time (counter in weeks)                                | 0.001                   | 0.002 |       | 0.001 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.08                   |       | -0.11 | -0.08 |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 0.45                    |       | 0.37  | 0.35  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 1.91                    |       | 1.79  | 1.79  |
| After Batts Fired (week of 7/13/15 onward)             | -0.11                   |       | -0.23 | -0.19 |
| After Davis Sworn In (week of 10/19/15 onward)         | -0.35                   |       | -0.23 | -0.26 |
| Average Maximum Temperature to 50 Degrees              |                         | -0.01 |       | -0.01 |
| Plus Degrees in the 50s                                |                         | 0.01  |       | 0.03  |
| Plus Degrees in the 60s                                |                         | 0.06  |       | 0.01  |
| Plus Degrees in the 70s                                |                         | -0.09 |       | -0.05 |
| Plus Degrees Greater Than 80                           |                         | 0.04  |       | 0.04  |
| Snowfall (inches)                                      |                         | -0.19 |       | -0.03 |
| Precipitation (inches)                                 |                         | -0.03 |       | -0.13 |
| Darkness Before Midnight (hours)                       |                         | 0.08  |       | 0.03  |
| School Days (proportion of week)                       |                         | 0.10  |       | 0.13  |
| Observations   | 348                     | 232   | 348   | 348   |
| R <sup>2</sup>   | 0.06                    | 0.06  | 0.03  | 0.09  |

### 28.3 Least Squares Model (2) for homicide.northwestern

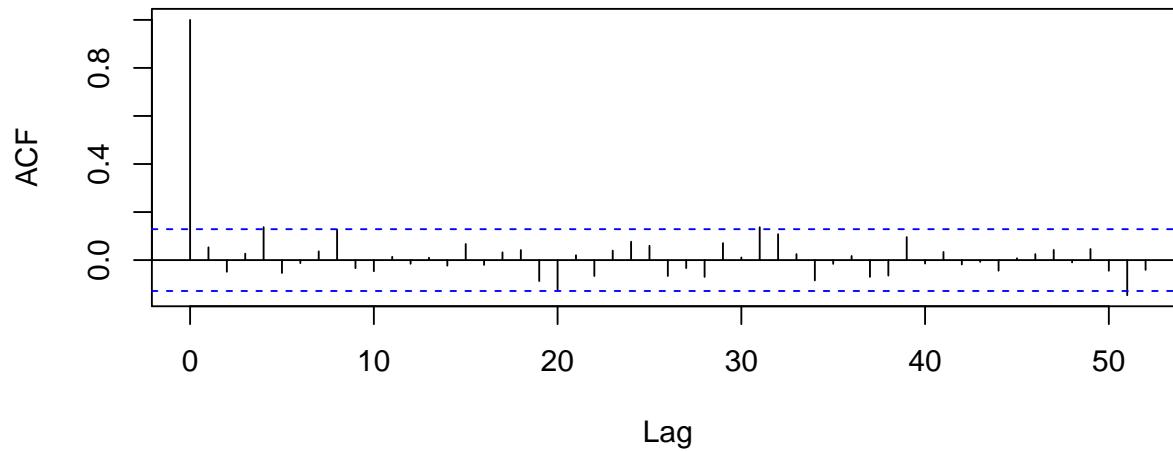
homicide.northwestern



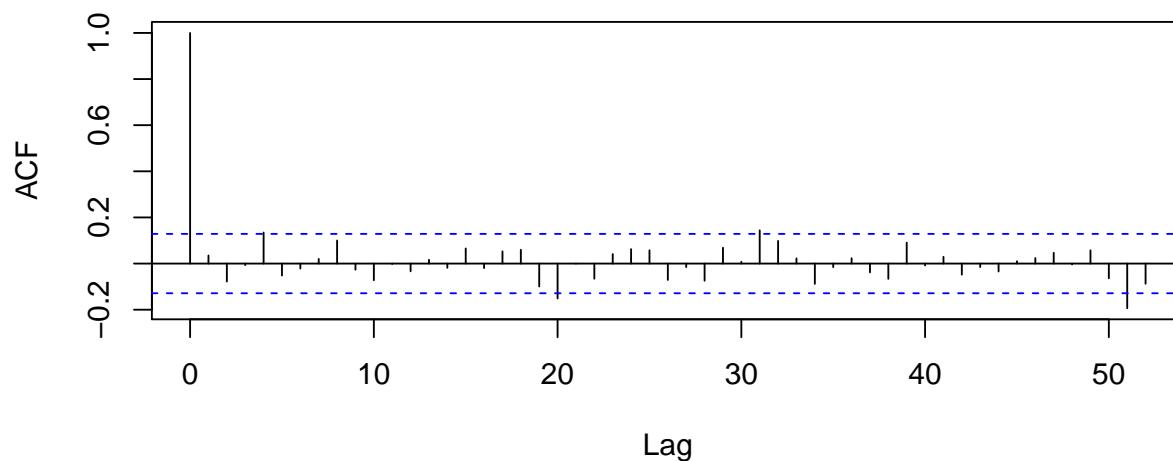
## homicide.northwestern



Autocorrelation Function for the Observed Outcome for Model (2)



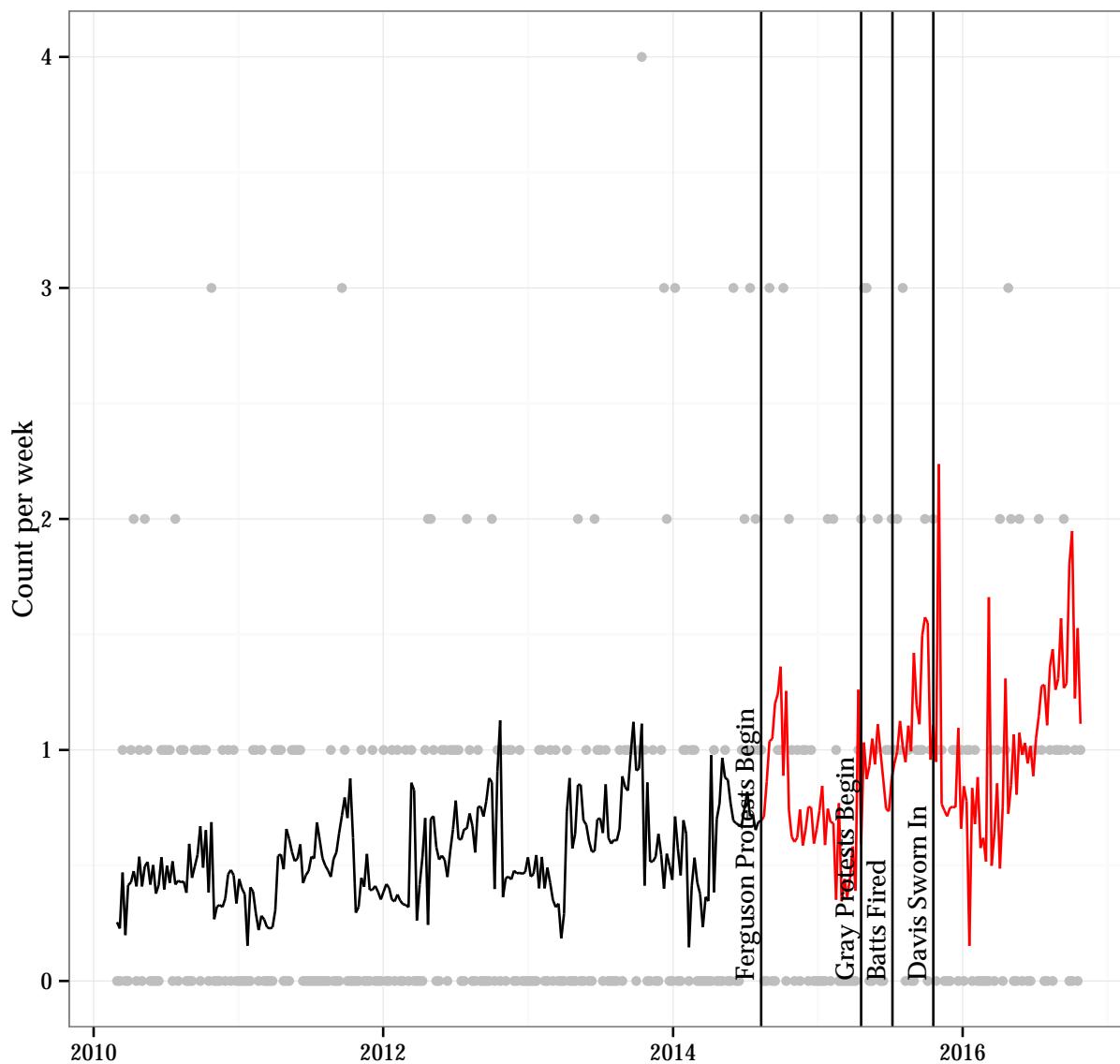
Autocorrelation Function for the Residuals from Model (2)



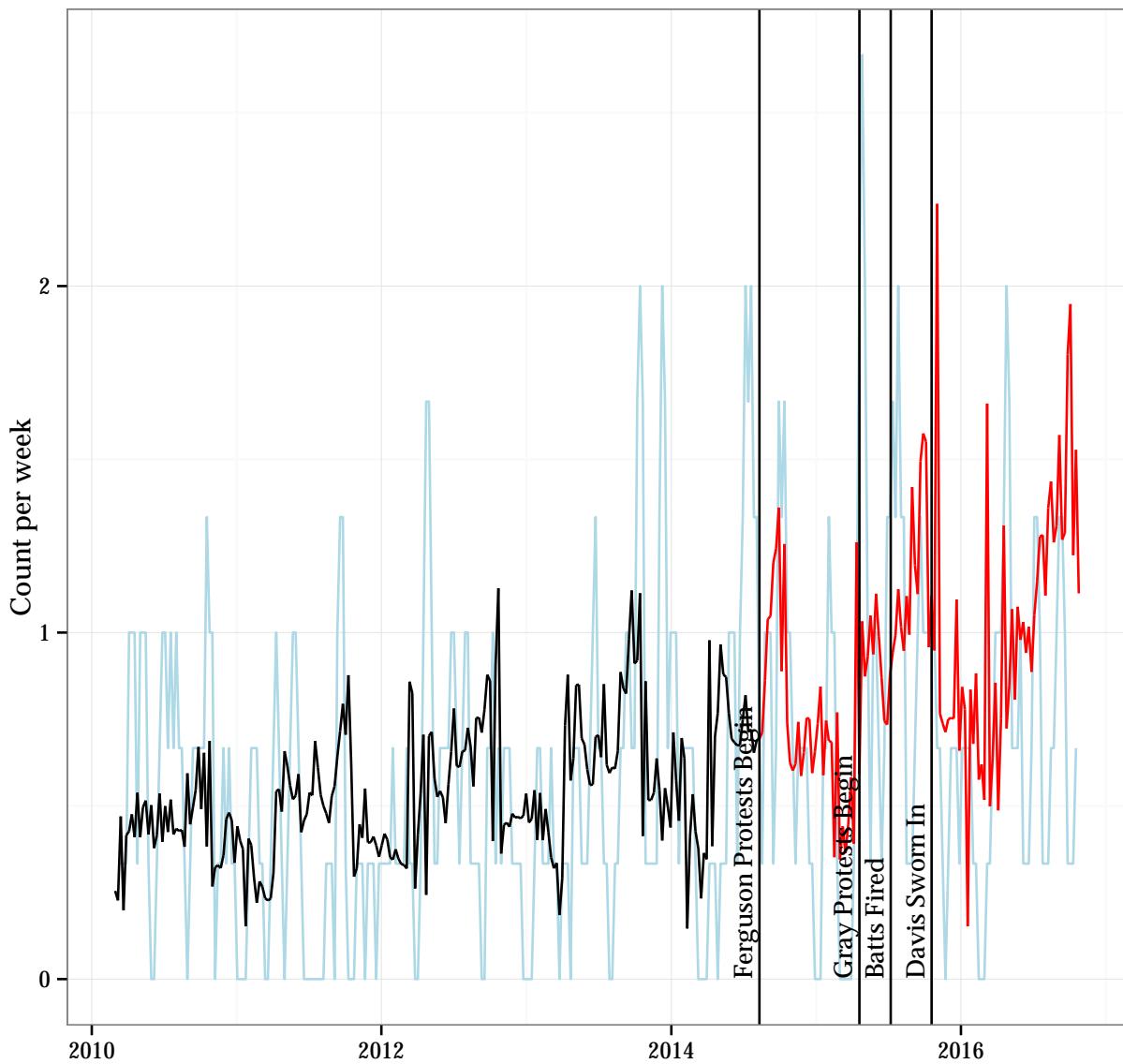
## 28.4 A Poisson Regression Model as an Alternative to Model (2) for homicide.northwestern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-1.5021 -1.0167 -0.8016  0.5661  2.6247  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) -1.302540  1.968442 -0.662   0.5082  
t             0.003071  0.001402  2.190   0.0285 *  
tmax.f.spline1 -0.024925  0.037128 -0.671   0.5020  
tmax.f.spline2  0.023839  0.080920  0.295   0.7683  
tmax.f.spline3  0.120834  0.099023  1.220   0.2224  
tmax.f.spline4 -0.160211  0.079543 -2.014   0.0440 *  
tmax.f.spline5  0.076042  0.065554  1.160   0.2460  
snow.in        -0.588518  0.666476 -0.883   0.3772  
precip.in       -0.036131  0.496019 -0.073   0.9419  
dark.before.12  0.169068  0.139761  1.210   0.2264  
school          0.160949  0.404798  0.398   0.6909  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 238.52 on 231 degrees of freedom  
Residual deviance: 223.03 on 221 degrees of freedom  
AIC: 455.61  
  
Number of Fisher Scoring iterations: 6
```

## homicide.northwestern



## homicide.northwestern



## 29 Results for homicide.northern

### 29.1 Summary Values for homicide.northern

Table 29.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic         | N   | Mean  | St. Dev. | Min | Median | Max |
|-------------------|-----|-------|----------|-----|--------|-----|
| homicide.northern | 232 | 0.345 | 0.612    | 0   | 0      | 3   |

Table 29.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic         | N   | Mean  | St. Dev. | Min | Median | Max |
|-------------------|-----|-------|----------|-----|--------|-----|
| homicide.northern | 116 | 0.362 | 0.610    | 0   | 0      | 3   |

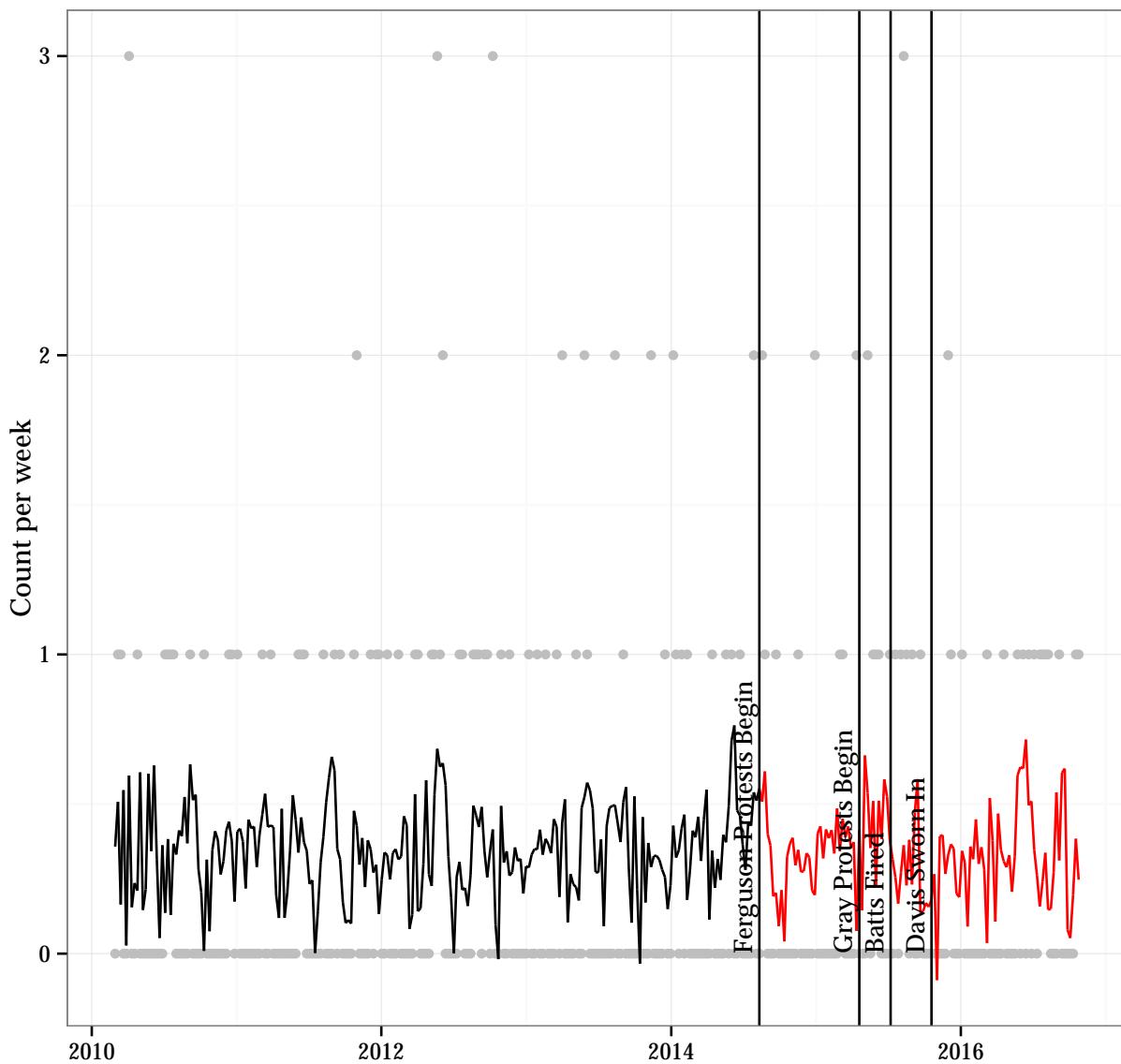
## 29.2 Four Models for homicide.northern

Table 29.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

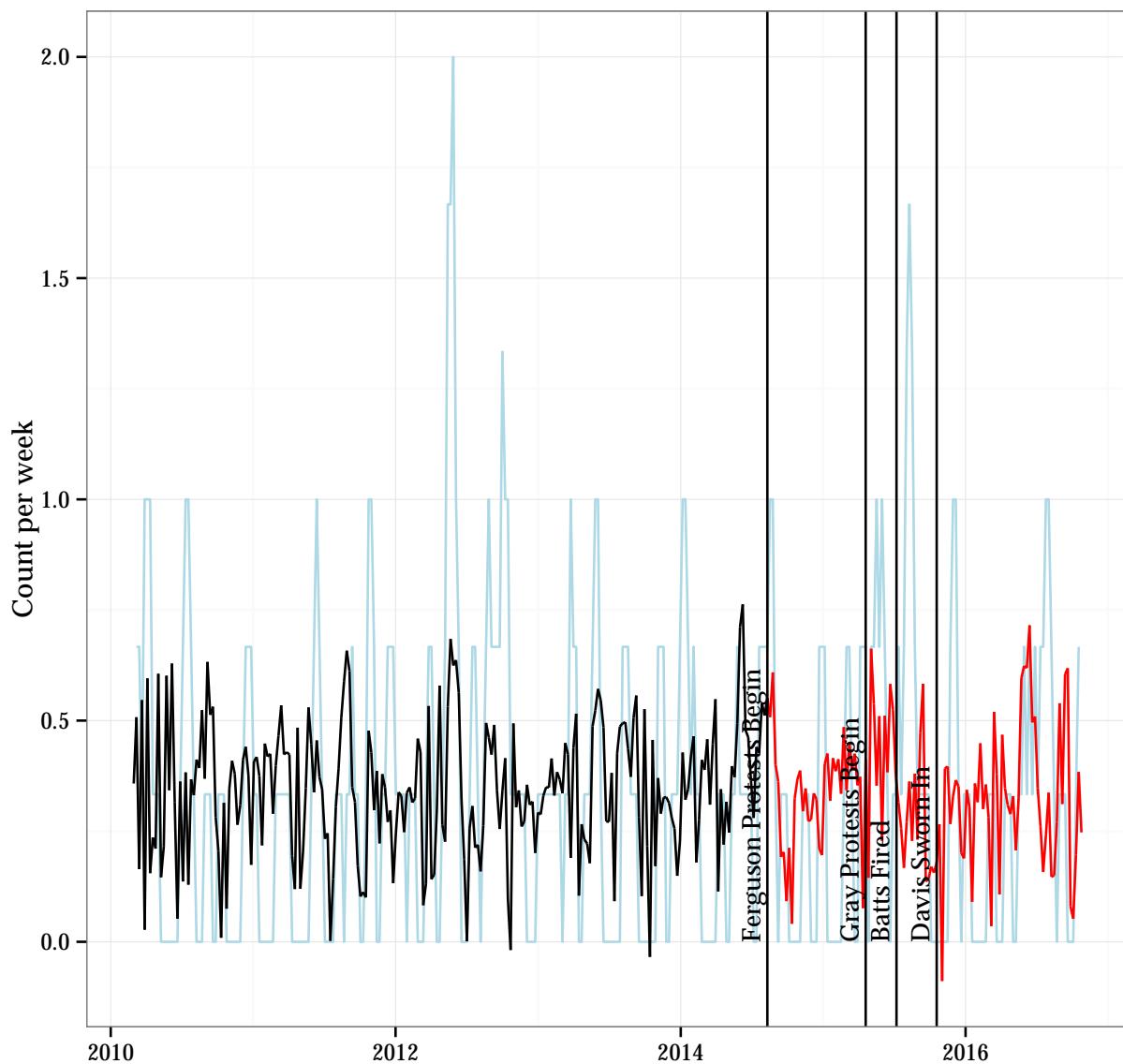
|  | Outcome: Count Per Week |         |       |        |
|--|-------------------------|---------|-------|--------|
|  | (1)                     | (2)     | (3)   | (4)    |
| Time (counter in weeks)                                | 0.0002                  | -0.0001 |       | 0.0001 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.07                   |         | -0.03 | -0.02  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 0.23                    |         | 0.11  | 0.11   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -0.54                   |         | -0.23 | -0.29  |
| After Batts Fired (week of 7/13/15 onward)             | 0.02                    |         | 0.21  | 0.12   |
| After Davis Sworn In (week of 10/19/15 onward)         | -0.26                   |         | -0.30 | -0.23  |
| Average Maximum Temperature to 50 Degrees              |                         | -0.01   |       | -0.001 |
| Plus Degrees in the 50s                                |                         | 0.02    |       | -0.001 |
| Plus Degrees in the 60s                                |                         | -0.06   |       | -0.02  |
| Plus Degrees in the 70s                                |                         | 0.11    |       | 0.07   |
| Plus Degrees Greater Than 80                           |                         | -0.10   |       | -0.07  |
| Snowfall (inches)                                      |                         | -0.12   |       | -0.08  |
| Precipitation (inches)                                 |                         | 0.14    |       | -0.01  |
| Darkness Before Midnight (hours)                       |                         | -0.05   |       | -0.02  |
| School Days (proportion of week)                       |                         | 0.21    |       | 0.09   |
| Observations   | 348                     | 232     | 348   | 348    |
| R <sup>2</sup>   | 0.01                    | 0.06    | 0.01  | 0.05   |

### 29.3 Least Squares Model (2) for homicide.northern

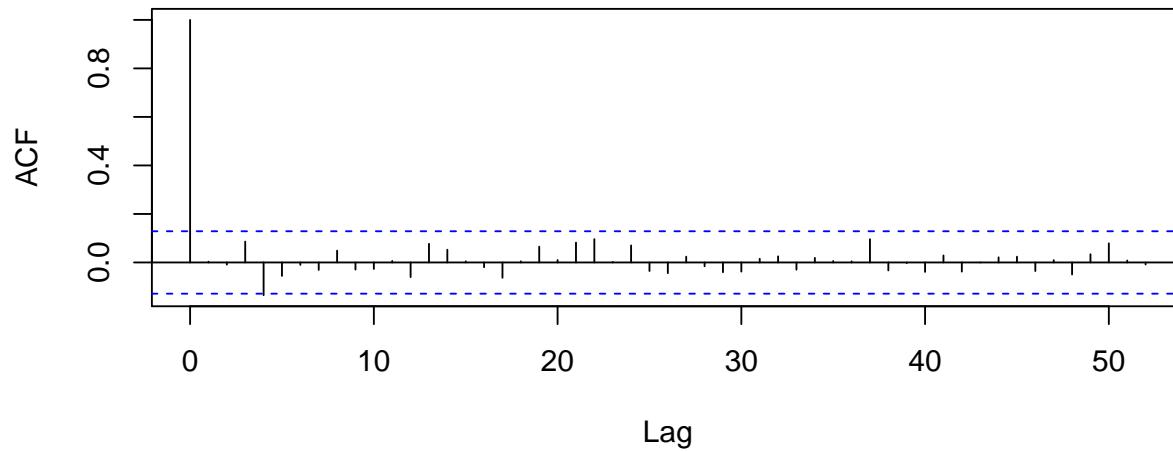
homicide.northern



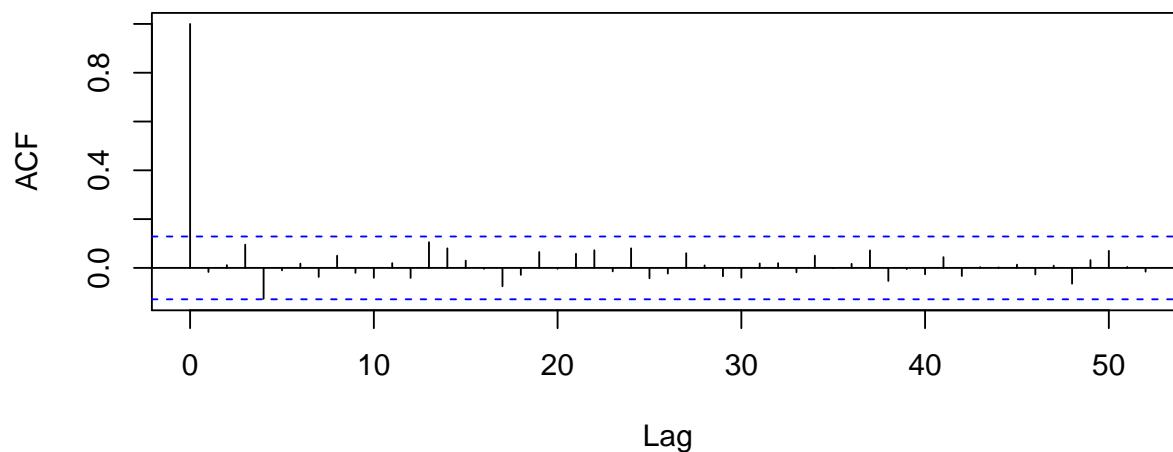
## homicide.northern



Autocorrelation Function for the Observed Outcome for Model (2)



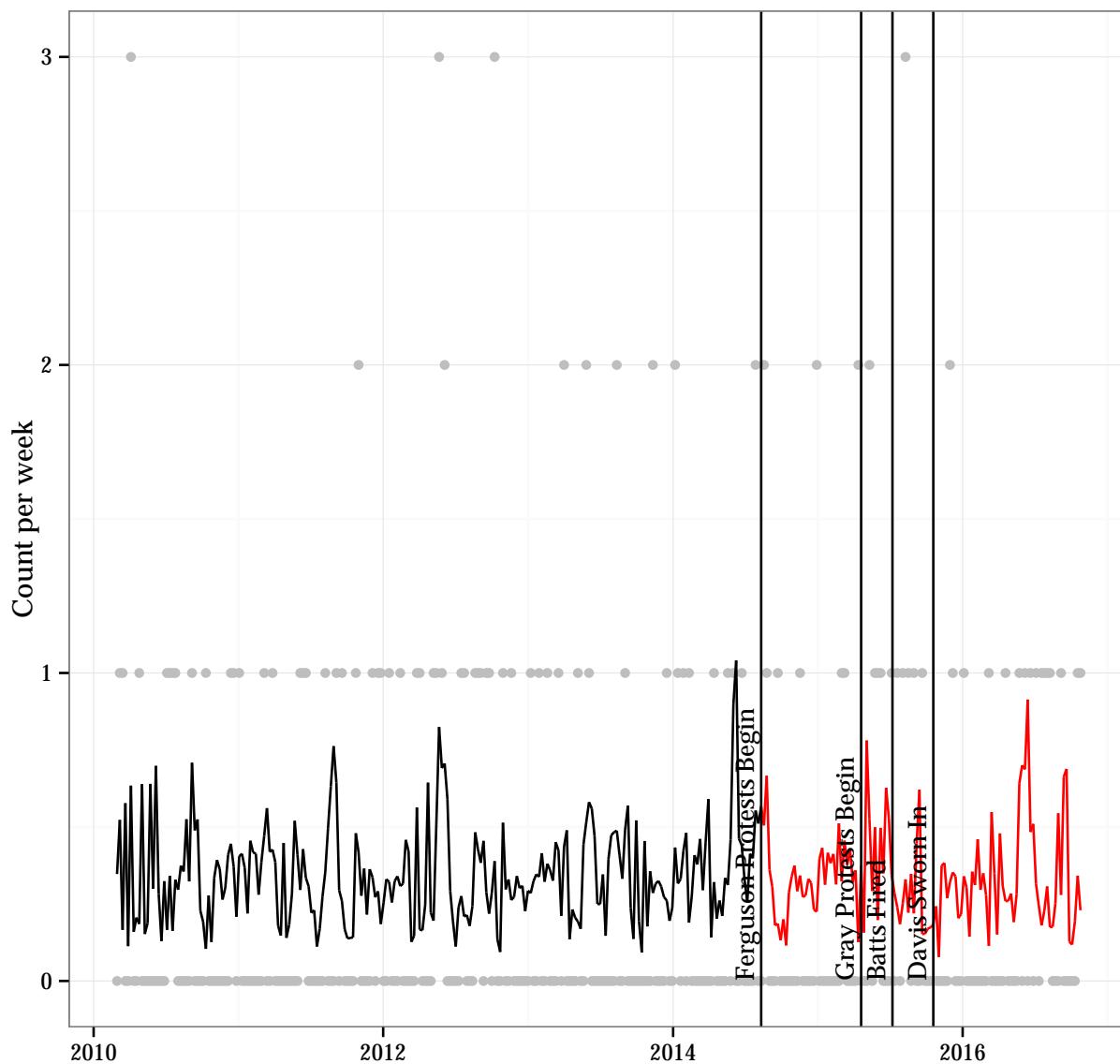
Autocorrelation Function for the Residuals from Model (2)



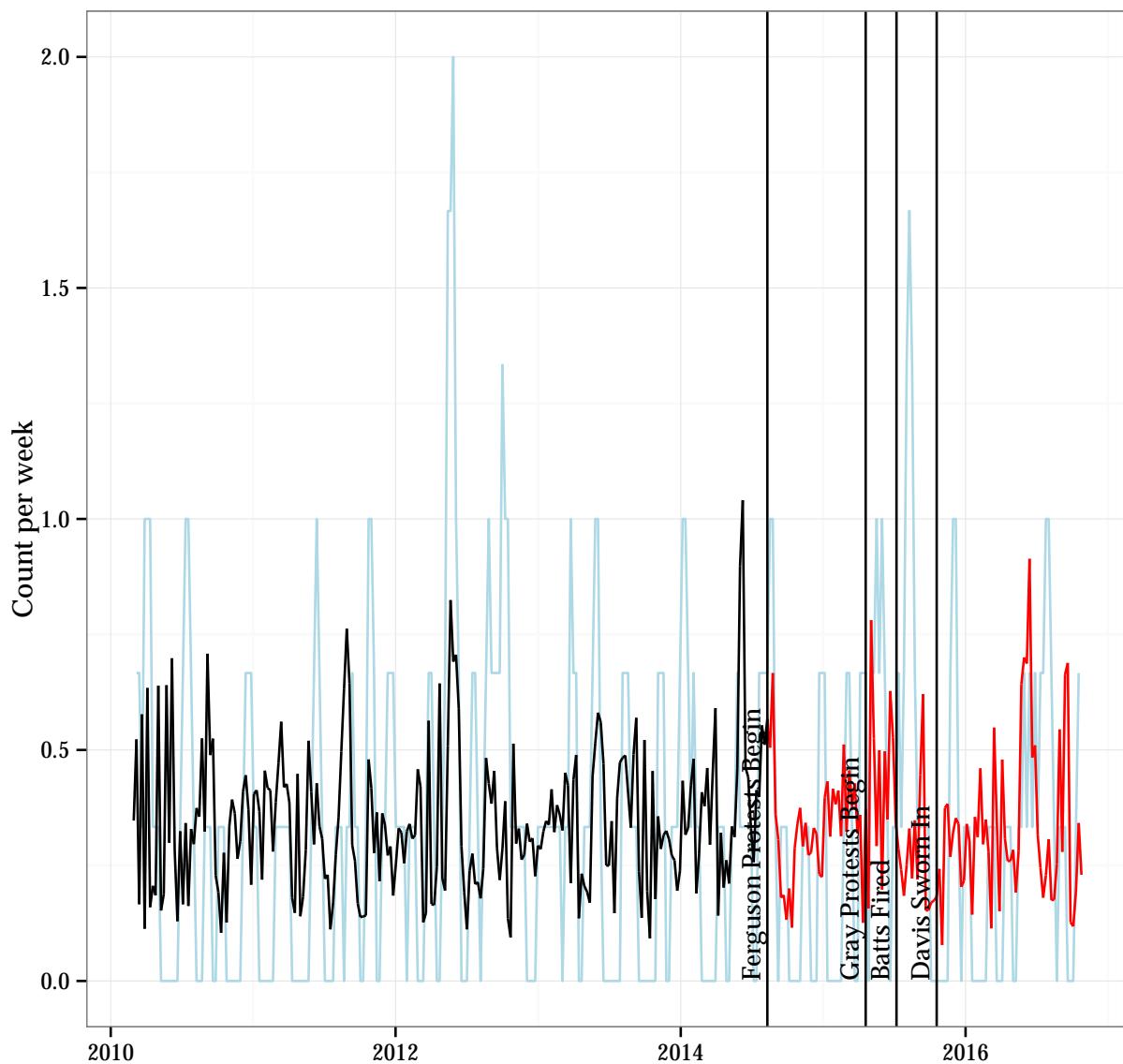
## 29.4 A Poisson Regression Model as an Alternative to Model (2) for homicide.northern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-1.4426 -0.8489 -0.6897  0.6018  2.6525  
  
Coefficients:  
             Estimate Std. Error z value Pr(>|z|)  
(Intercept) 0.9442832 2.2765476  0.415  0.67830  
t          -0.0001292 0.0016963 -0.076  0.93927  
tmax.f.spline1 -0.0321513 0.0412131 -0.780  0.43532  
tmax.f.spline2  0.0691718 0.0846606  0.817  0.41390  
tmax.f.spline3 -0.2038400 0.1051112 -1.939  0.05247 .  
tmax.f.spline4  0.3644634 0.1153810  3.159  0.00158 **  
tmax.f.spline5 -0.3043986 0.0946333 -3.217  0.00130 **  
snow.in       -0.3905750 0.6428697 -0.608  0.54349  
precip.in      0.4066041 0.5767222  0.705  0.48079  
dark.before.12 -0.1488985 0.1625209 -0.916  0.35957  
school        0.5911381 0.4893379  1.208  0.22703  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 212.31 on 231 degrees of freedom  
Residual deviance: 196.76 on 221 degrees of freedom  
AIC: 358.64  
  
Number of Fisher Scoring iterations: 6
```

## homicide.northern



## homicide.northern



## 30 Results for homicide.northeastern

### 30.1 Summary Values for homicide.northeastern

Table 30.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic             | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------------------|-----|-------|----------|-----|--------|-----|
| homicide.northeastern | 232 | 0.625 | 0.849    | 0   | 0      | 5   |

Table 30.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic             | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------------------|-----|-------|----------|-----|--------|-----|
| homicide.northeastern | 116 | 0.897 | 1.033    | 0   | 1      | 5   |

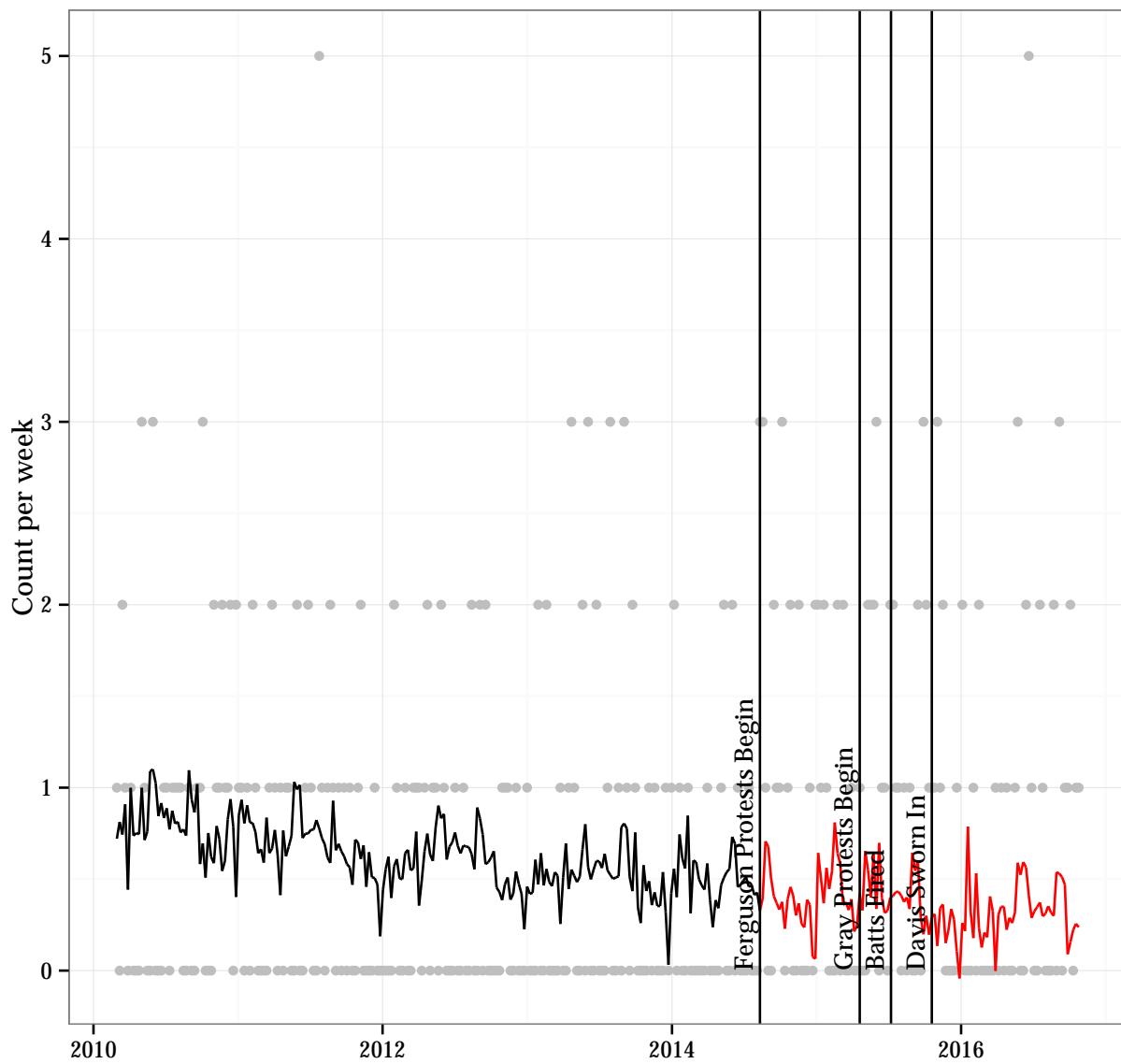
## 30.2 Four Models for homicide.northeastern

Table 30.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

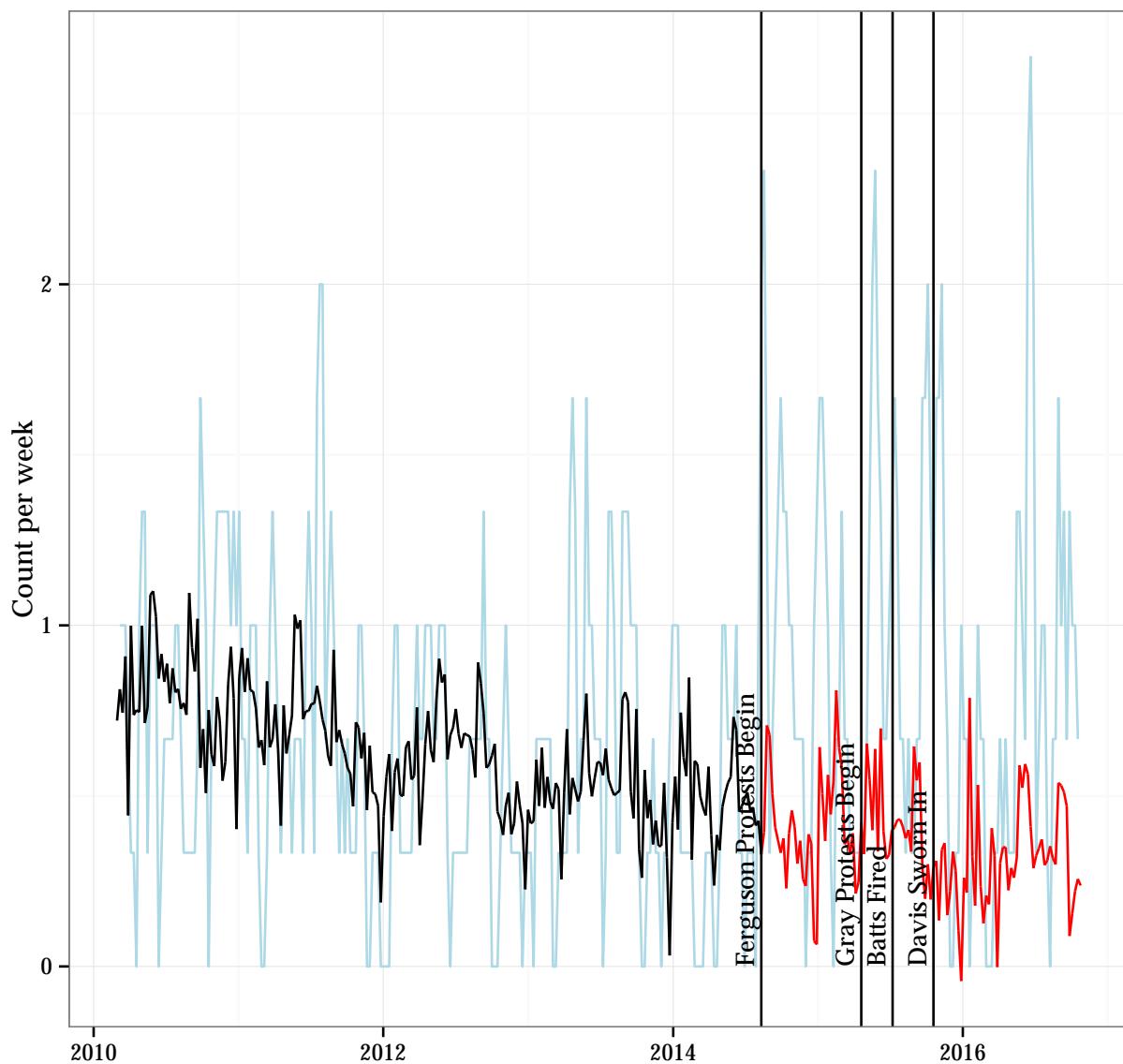
|  | Outcome: Count Per Week |        |       |        |
|--|-------------------------|--------|-------|--------|
|  | (1)                     | (2)    | (3)   | (4)    |
| Time (counter in weeks)                                | -0.002                  | -0.002 |       | -0.002 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | 0.52                    |        | 0.51  | 0.52   |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 0.40                    |        | 0.30  | 0.25   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -1.28                   |        | -1.14 | -1.15  |
| After Batts Fired (week of 7/13/15 onward)             | -0.25                   |        | -0.20 | -0.22  |
| After Davis Sworn In (week of 10/19/15 onward)         | -0.15                   |        | -0.12 | -0.06  |
| Average Maximum Temperature to 50 Degrees              |                         | -0.02  |       | -0.03  |
| Plus Degrees in the 50s                                |                         | 0.04   |       | 0.05   |
| Plus Degrees in the 60s                                |                         | -0.05  |       | -0.01  |
| Plus Degrees in the 70s                                |                         | 0.06   |       | 0.01   |
| Plus Degrees Greater Than 80                           |                         | -0.03  |       | -0.03  |
| Snowfall (inches)                                      |                         | 0.08   |       | -0.20  |
| Precipitation (inches)                                 |                         | -0.11  |       | 0.14   |
| Darkness Before Midnight (hours)                       |                         | -0.04  |       | 0.01   |
| School Days (proportion of week)                       |                         | 0.40   |       | 0.22   |
| Observations   | 348                     | 232    | 348   | 348    |
| R <sup>2</sup>   | 0.04                    | 0.05   | 0.08  | 0.06   |

### 30.3 Least Squares Model (2) for homicide.northeastern

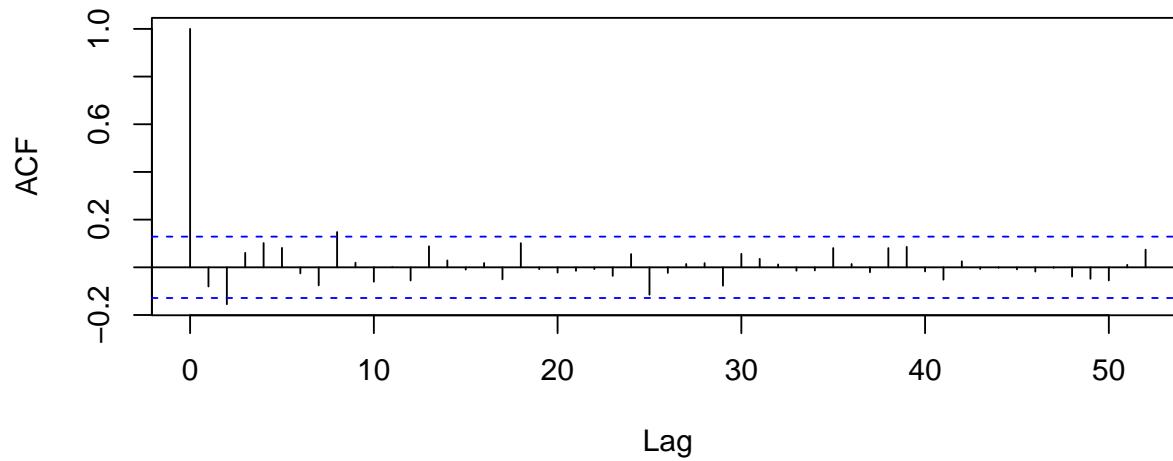
homicide.northeastern



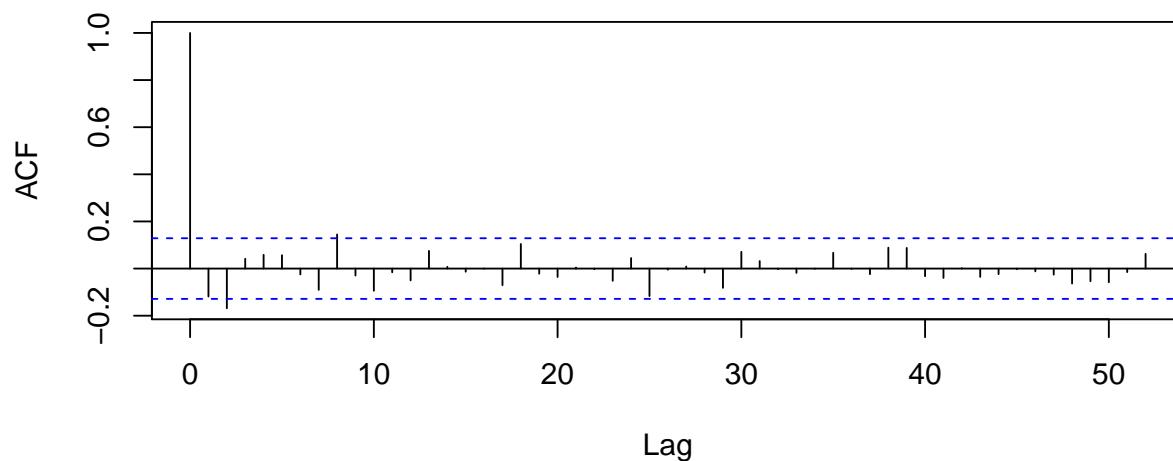
## homicide.northeastern



Autocorrelation Function for the Observed Outcome for Model (2)



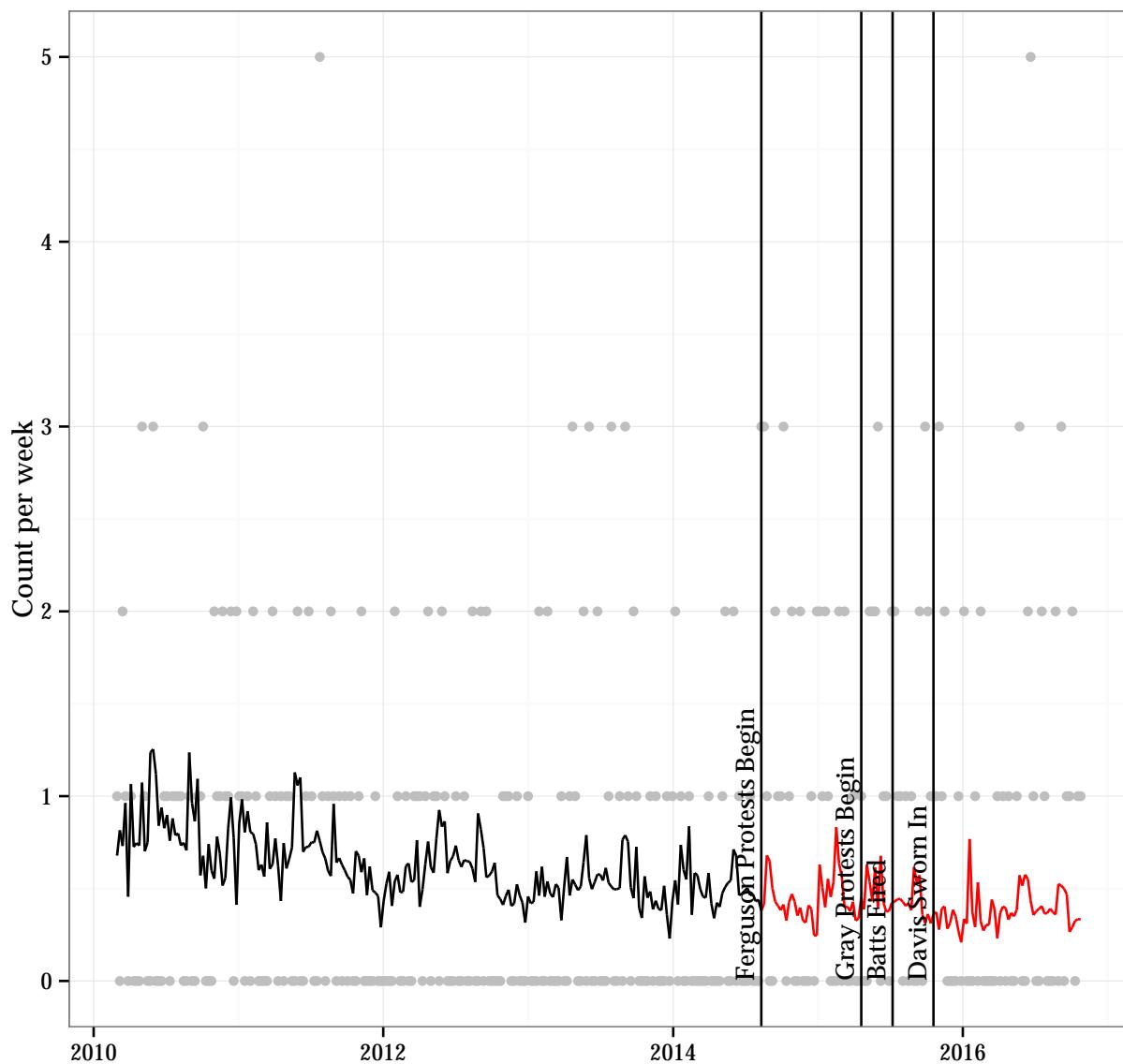
Autocorrelation Function for the Residuals from Model (2)



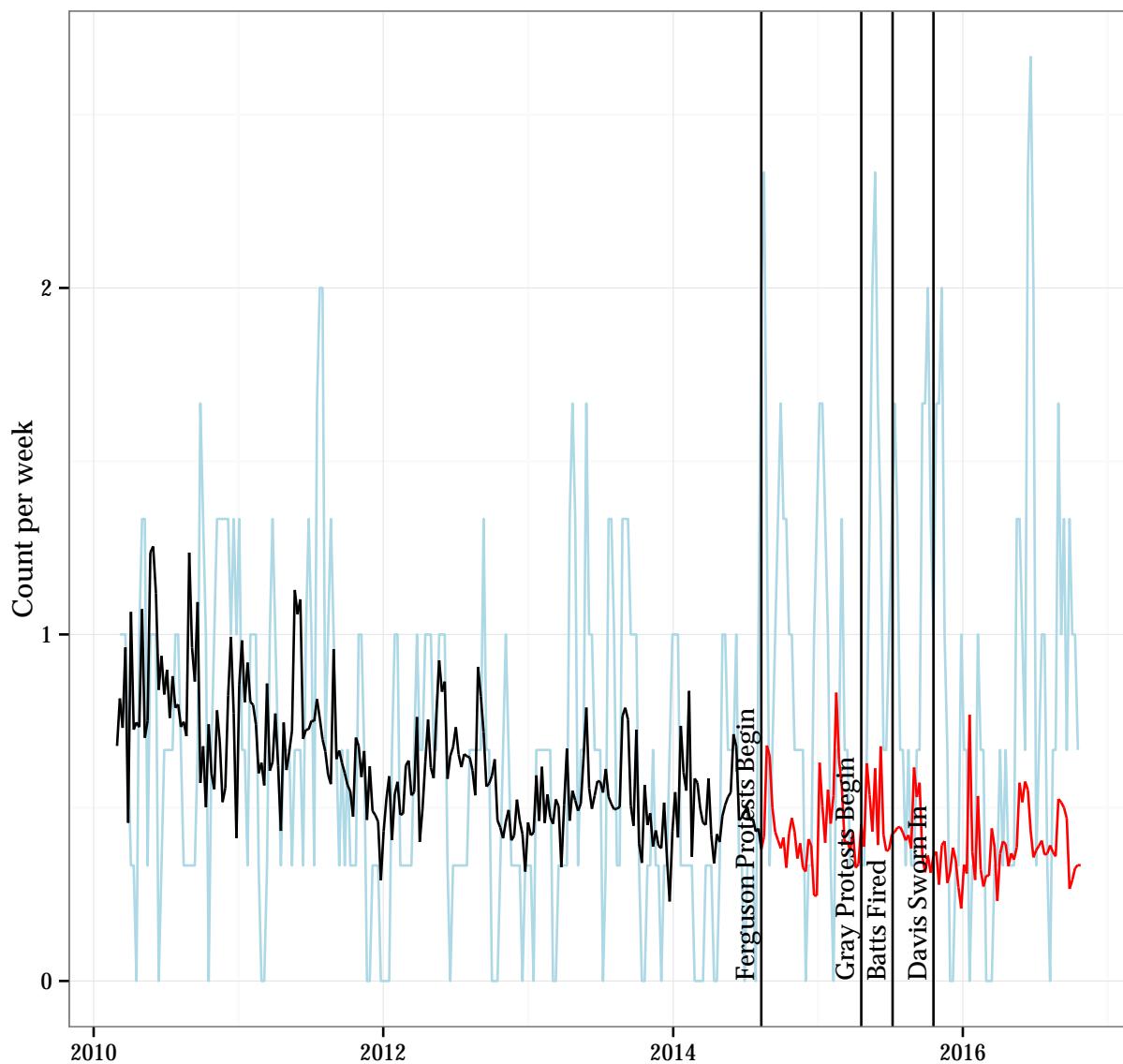
### 30.4 A Poisson Regression Model as an Alternative to Model (2) for homicide.northeastern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-1.5725 -1.0827 -0.9128  0.4964  3.2224  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) 1.347176  1.726529  0.780  0.4352  
t            -0.002445  0.001277 -1.914  0.0556 .  
tmax.f.spline1 -0.037289  0.031561 -1.182  0.2374  
tmax.f.spline2  0.075319  0.066991  1.124  0.2609  
tmax.f.spline3 -0.079920  0.079694 -1.003  0.3159  
tmax.f.spline4  0.096912  0.074896  1.294  0.1957  
tmax.f.spline5 -0.040680  0.062204 -0.654  0.5131  
snow.in        0.108237  0.365943  0.296  0.7674  
precip.in      -0.146959  0.494548 -0.297  0.7663  
dark.before.12 -0.066507  0.126035 -0.528  0.5977  
school         0.637035  0.378731  1.682  0.0926 .  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 267.85 on 231 degrees of freedom  
Residual deviance: 255.64 on 221 degrees of freedom  
AIC: 505.4  
  
Number of Fisher Scoring iterations: 6
```

## homicide.northeastern



## homicide.northeastern



## 31 Results for homicide.western

### 31.1 Summary Values for homicide.western

Table 31.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic        | N   | Mean  | St. Dev. | Min | Median | Max |
|------------------|-----|-------|----------|-----|--------|-----|
| homicide.western | 232 | 0.621 | 0.813    | 0   | 0      | 3   |

Table 31.2: Descriptives for Outcome After Ferguson Protests Begin

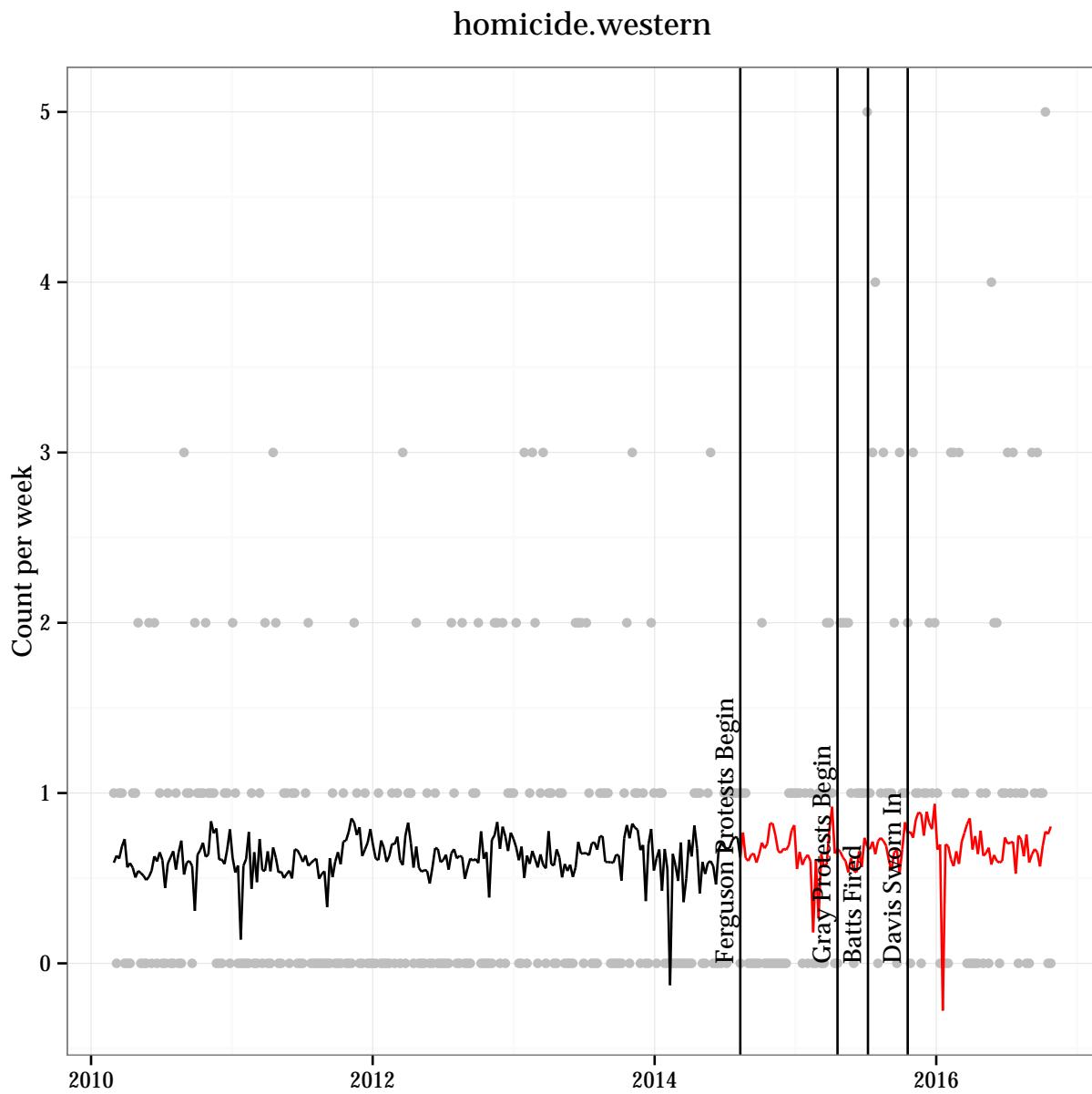
| Statistic        | N   | Mean  | St. Dev. | Min | Median | Max |
|------------------|-----|-------|----------|-----|--------|-----|
| homicide.western | 116 | 1.034 | 1.149    | 0   | 1      | 5   |

### 31.2 Four Models for homicide.western

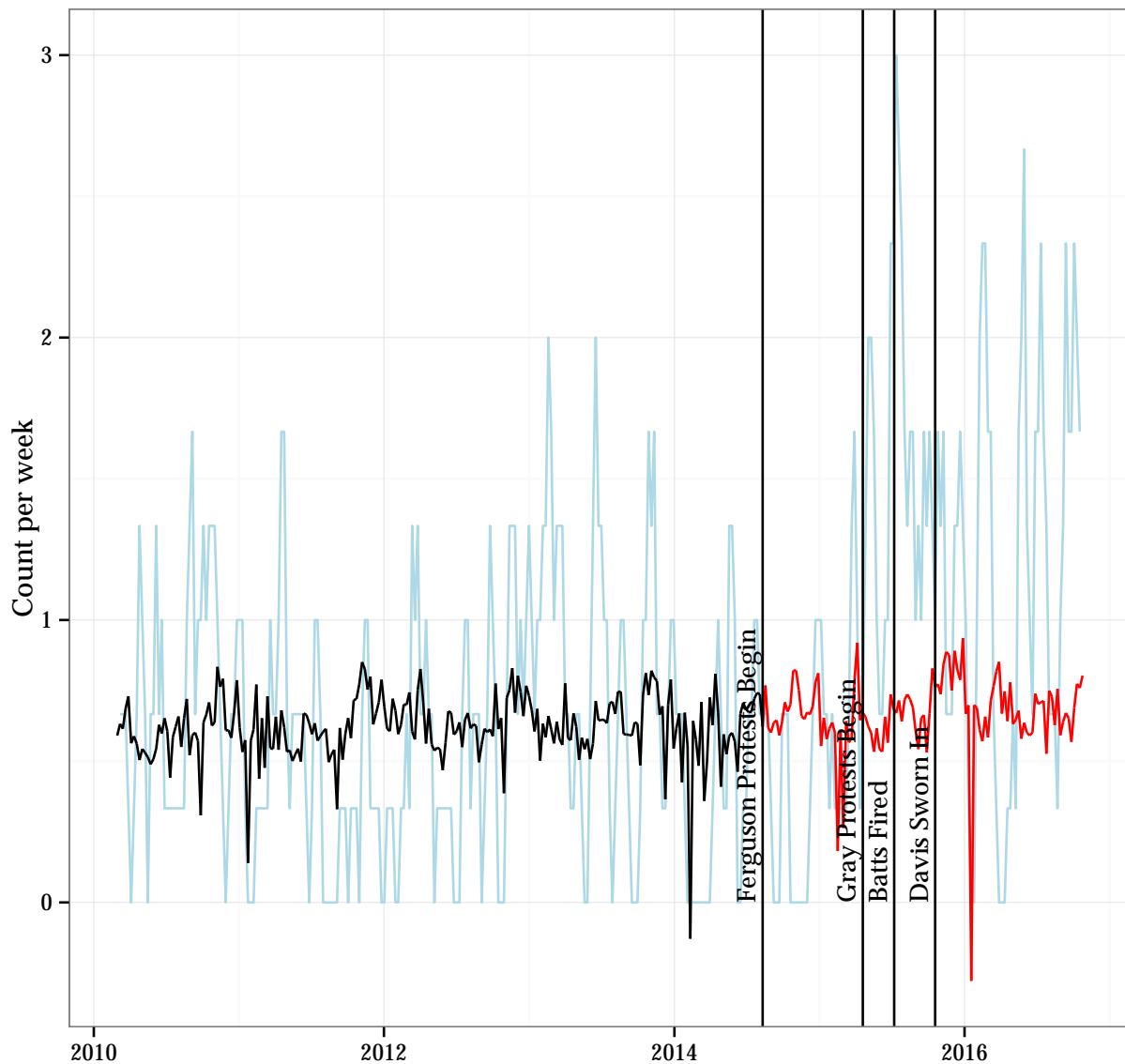
Table 31.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |        |         |       |
|--|-------------------------|--------|---------|-------|
|  | (1)                     | (2)    | (3)     | (4)   |
| Time (counter in weeks)                                | 0.0003                  | 0.0003 | 0.0004  |       |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.19                   |        | -0.18   | -0.20 |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 0.98                    |        | 1.02    | 1.00  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 0.55                    |        | 0.50    | 0.59  |
| After Batts Fired (week of 7/13/15 onward)             | 0.11                    |        | 0.06    | 0.01  |
| After Davis Sworn In (week of 10/19/15 onward)         | -0.41                   |        | -0.43   | -0.36 |
| Average Maximum Temperature to 50 Degrees              | 0.001                   |        | -0.01   |       |
| Plus Degrees in the 50s                                | 0.02                    |        | 0.01    |       |
| Plus Degrees in the 60s                                | -0.04                   |        | -0.01   |       |
| Plus Degrees in the 70s                                | 0.02                    |        | 0.01    |       |
| Plus Degrees Greater Than 80                           | -0.01                   |        | -0.0003 |       |
| Snowfall (inches)                                      | -0.27                   |        | -0.25   |       |
| Precipitation (inches)                                 | -0.28                   |        | -0.32   |       |
| Darkness Before Midnight (hours)                       | 0.04                    |        | 0.05    |       |
| School Days (proportion of week)                       | -0.22                   |        | -0.12   |       |
| Observations   | 348                     | 232    | 348     | 348   |
| R <sup>2</sup>   | 0.10                    | 0.02   | 0.09    | 0.12  |

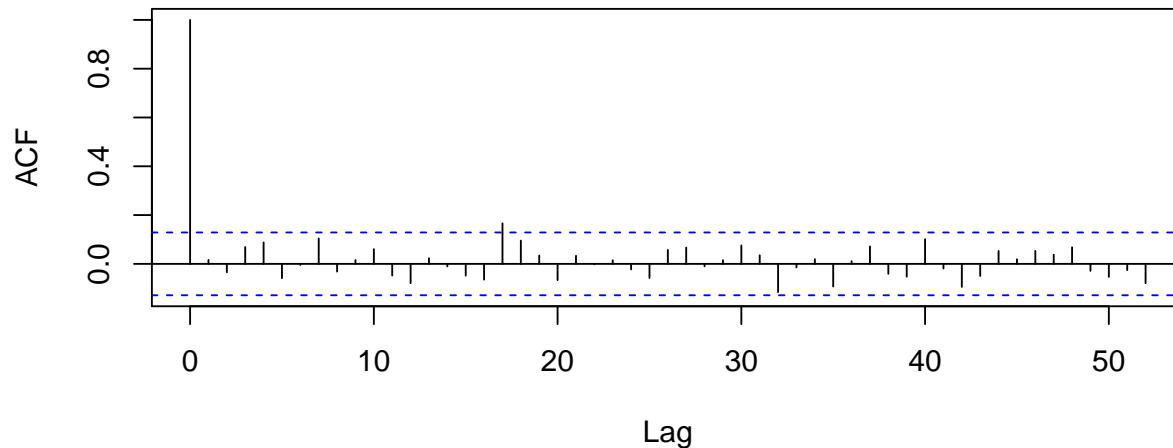
### 31.3 Least Squares Model (2) for homicide.western



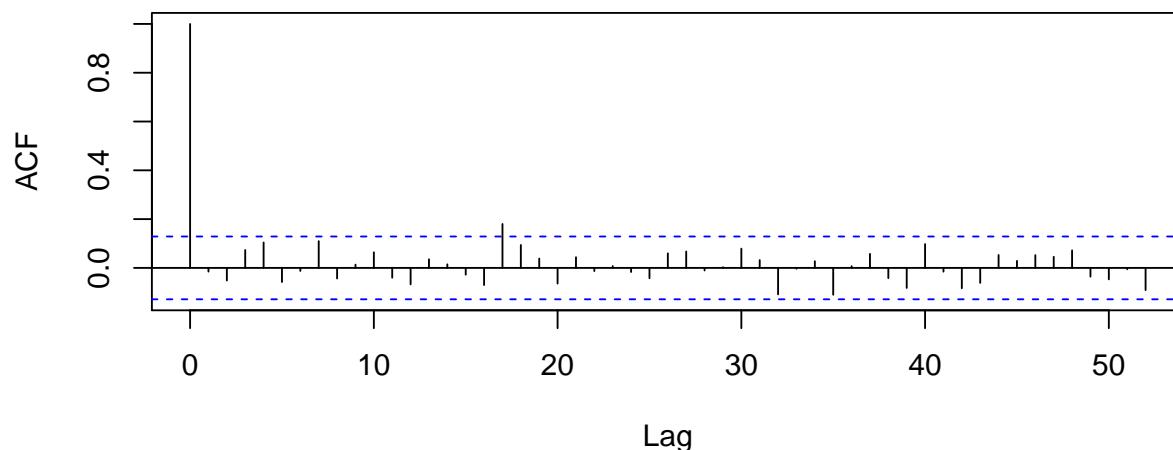
## homicide.western



Autocorrelation Function for the Observed Outcome for Model (2)



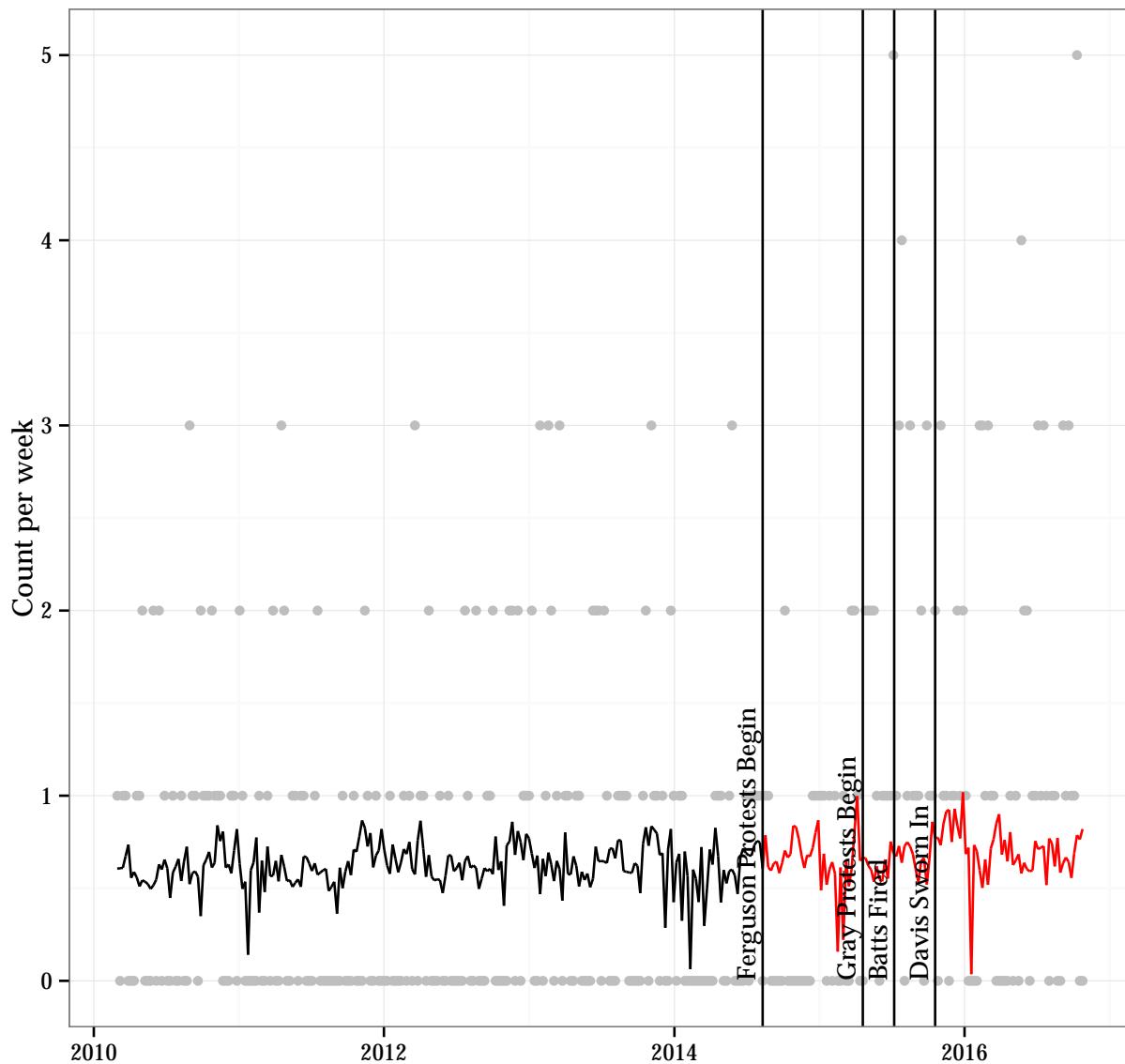
Autocorrelation Function for the Residuals from Model (2)



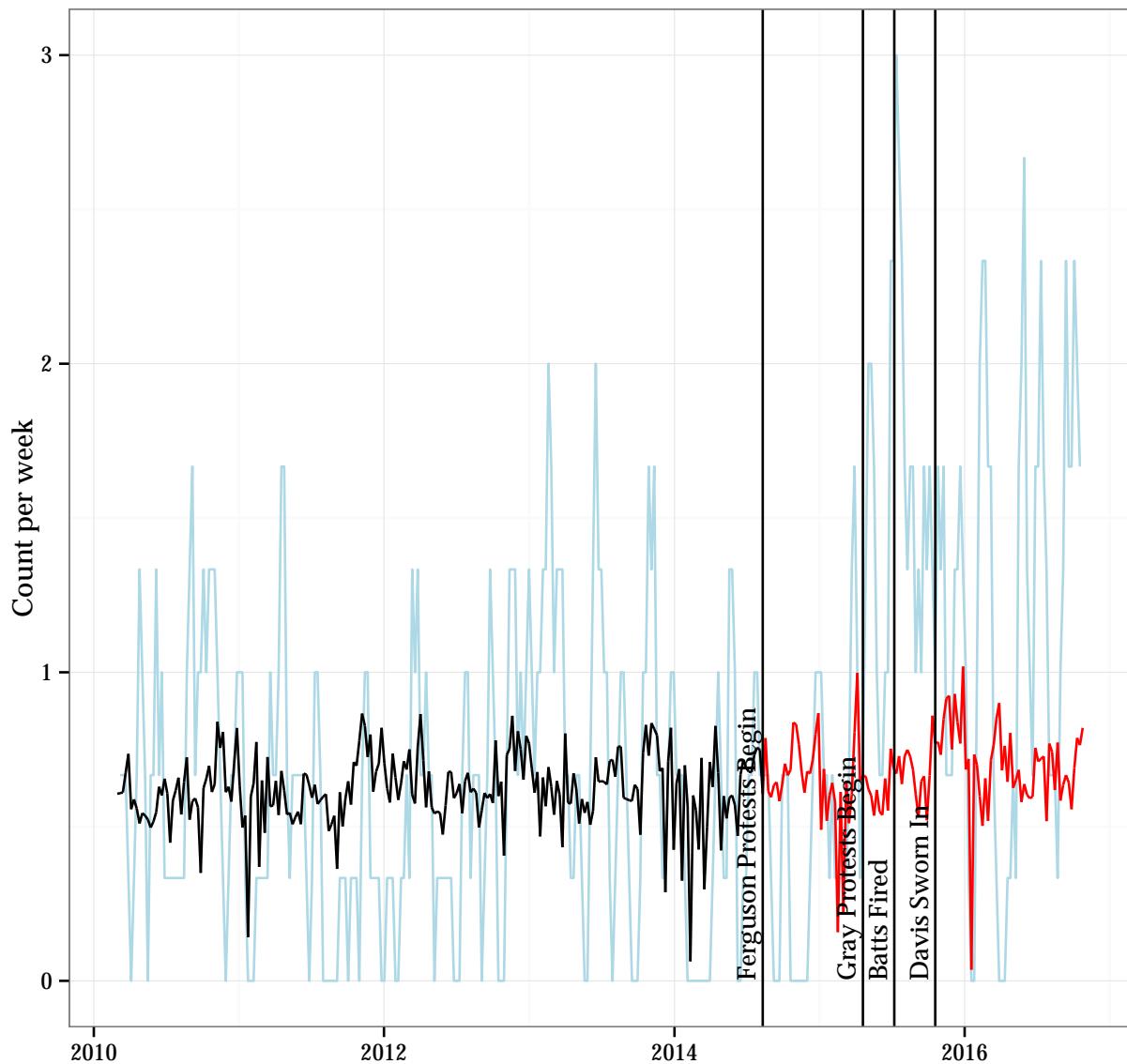
### 31.4 A Poisson Regression Model as an Alternative to Model (2) for homicide.western

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-1.3162 -1.1056 -0.9827  0.4677  2.4660  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) -0.4542002  1.7302404 -0.263   0.793  
t             0.0004694  0.0012979  0.362   0.718  
tmax.f.spline1 -0.0012202  0.0319508 -0.038   0.970  
tmax.f.spline2  0.0265114  0.0633296  0.419   0.675  
tmax.f.spline3 -0.0509698  0.0747992 -0.681   0.496  
tmax.f.spline4  0.0253191  0.0737789  0.343   0.731  
tmax.f.spline5 -0.0099915  0.0662246 -0.151   0.880  
snow.in       -0.8560853  0.7247323 -1.181   0.238  
precip.in      -0.5051673  0.5295817 -0.954   0.340  
dark.before.12  0.0460196  0.1194498  0.385   0.700  
school        -0.3560523  0.3655227 -0.974   0.330  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 259.40 on 231 degrees of freedom  
Residual deviance: 253.76 on 221 degrees of freedom  
AIC: 505.03  
  
Number of Fisher Scoring iterations: 6
```

## homicide.western



## homicide.western



## 32 Results for homicide.central

### 32.1 Summary Values for homicide.central

Table 32.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic        | N   | Mean  | St. Dev. | Min | Median | Max |
|------------------|-----|-------|----------|-----|--------|-----|
| homicide.central | 232 | 0.289 | 0.595    | 0   | 0      | 3   |

Table 32.2: Descriptives for Outcome After Ferguson Protests Begin

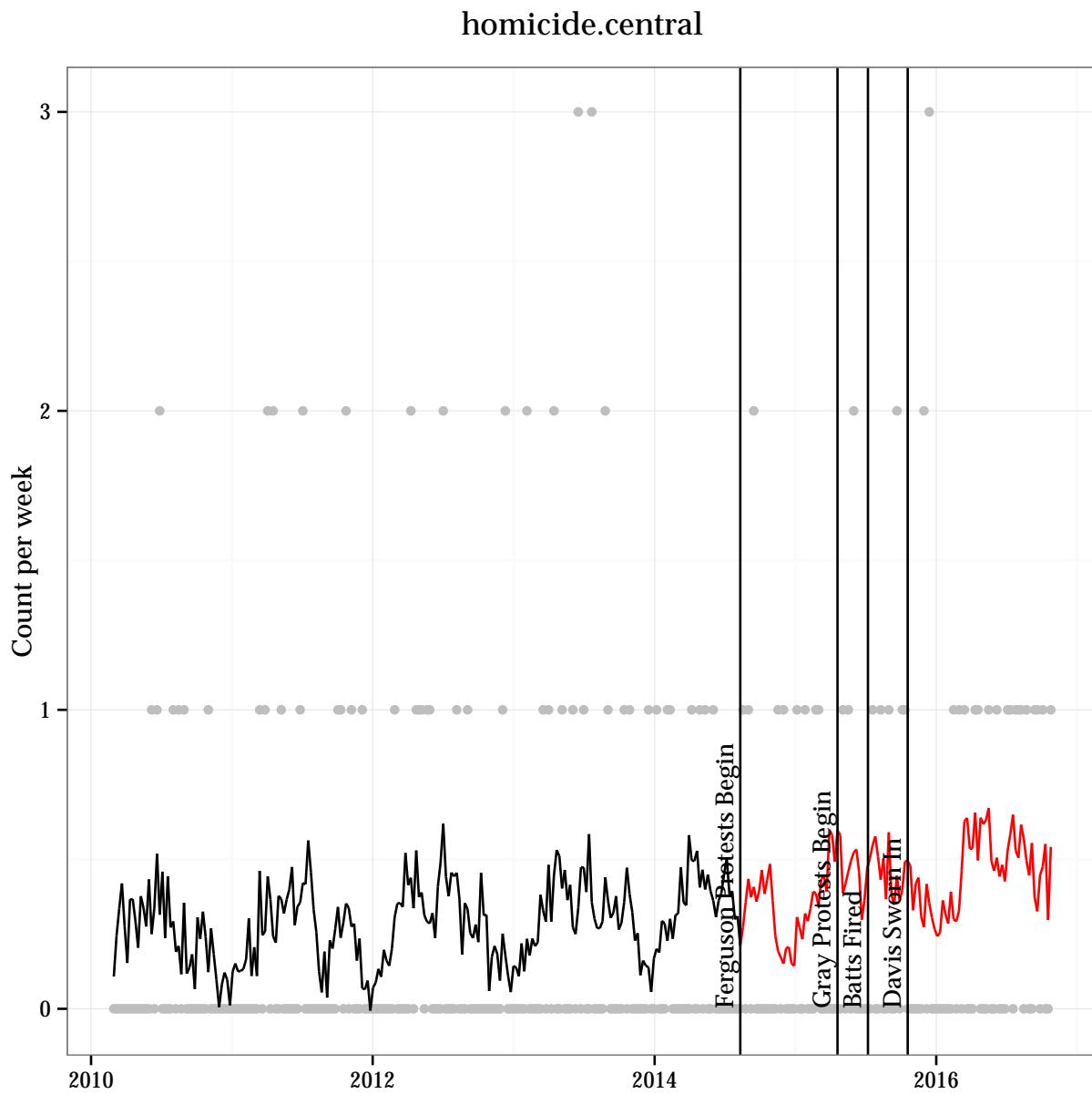
| Statistic        | N   | Mean  | St. Dev. | Min | Median | Max |
|------------------|-----|-------|----------|-----|--------|-----|
| homicide.central | 116 | 0.371 | 0.598    | 0   | 0      | 3   |

## 32.2 Four Models for homicide.central

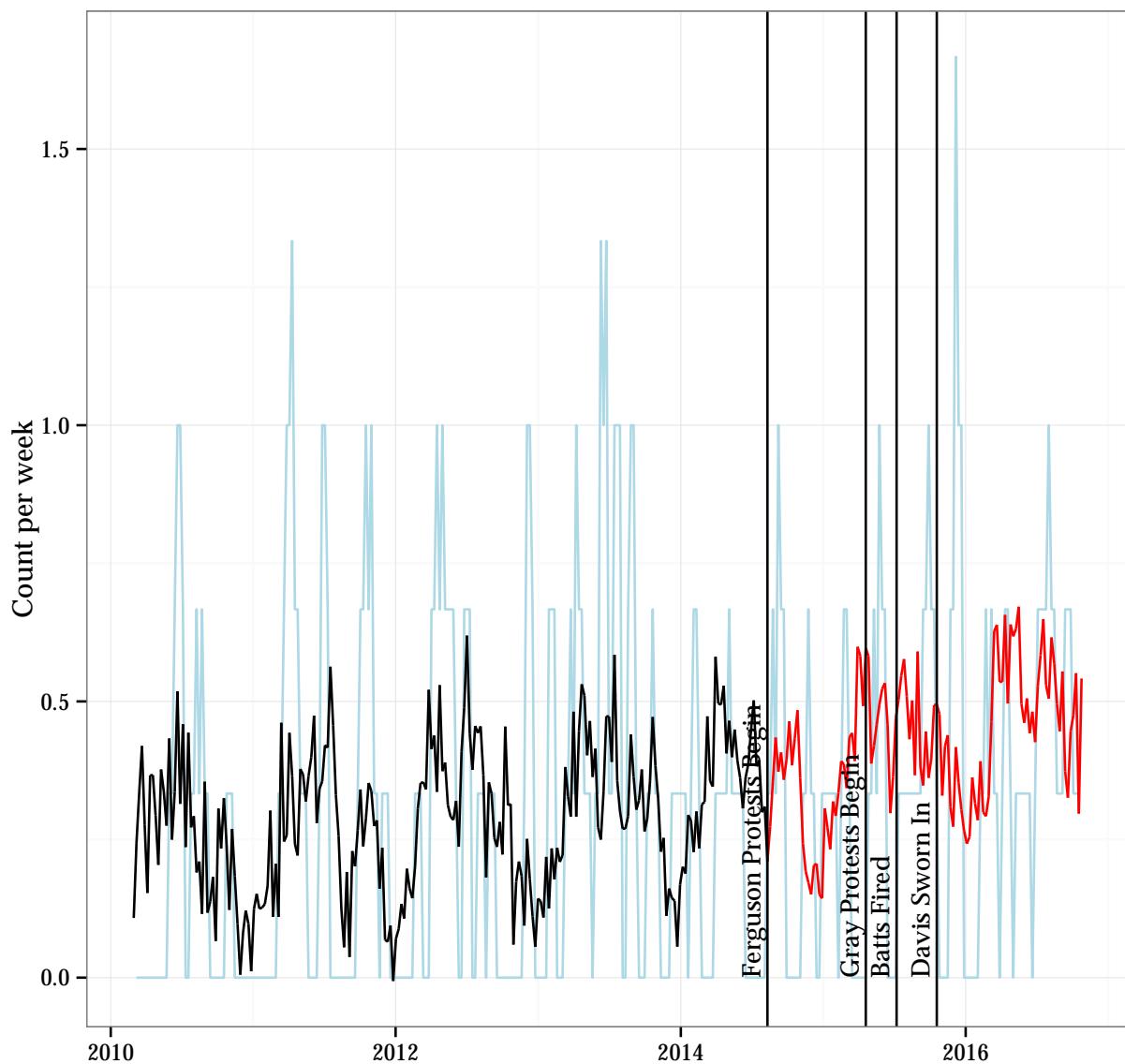
Table 32.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |        |       |        |
|--|-------------------------|--------|-------|--------|
|  | (1)                     | (2)    | (3)   | (4)    |
| Time (counter in weeks)                                | 0.001                   | 0.001  |       | 0.001  |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.08                   |        | -0.06 | -0.07  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 0.07                    |        | -0.03 | 0.01   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -0.36                   |        | -0.49 | -0.50  |
| After Batts Fired (week of 7/13/15 onward)             | 0.13                    |        | 0.13  | 0.11   |
| After Davis Sworn In (week of 10/19/15 onward)         | -0.11                   |        | -0.09 | -0.08  |
| Average Maximum Temperature to 50 Degrees              |                         | -0.01  |       | -0.004 |
| Plus Degrees in the 50s                                |                         | 0.03   |       | 0.01   |
| Plus Degrees in the 60s                                |                         | -0.04  |       | -0.01  |
| Plus Degrees in the 70s                                |                         | -0.005 |       | -0.02  |
| Plus Degrees Greater Than 80                           |                         | 0.04   |       | 0.04   |
| Snowfall (inches)                                      |                         | 0.01   |       | 0.002  |
| Precipitation (inches)                                 |                         | -0.17  |       | -0.28  |
| Darkness Before Midnight (hours)                       |                         | -0.08  |       | -0.05  |
| School Days (proportion of week)                       |                         | 0.08   |       | 0.15   |
| Observations   | 348                     | 232    | 348   | 348    |
| R <sup>2</sup>   | 0.01                    | 0.05   | 0.01  | 0.04   |

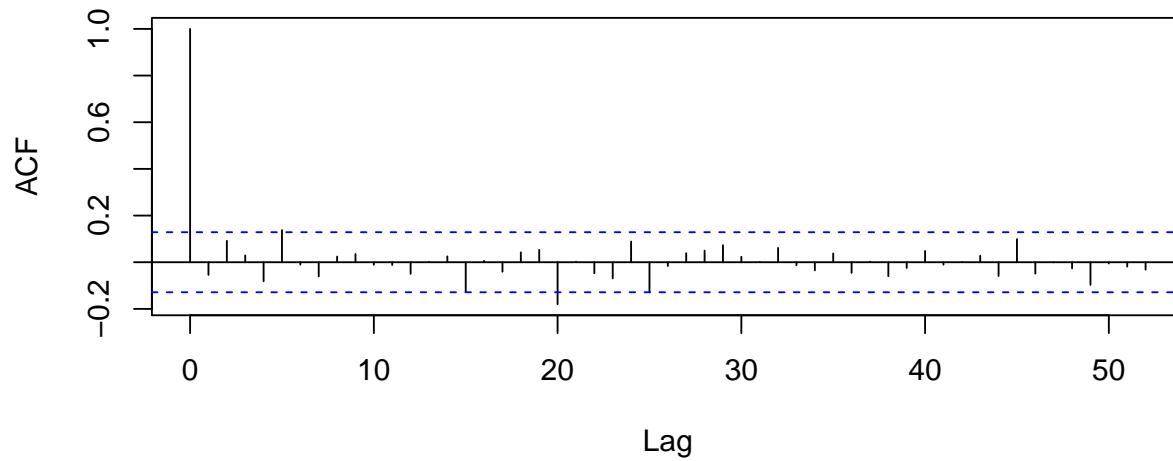
### 32.3 Least Squares Model (2) for homicide.central



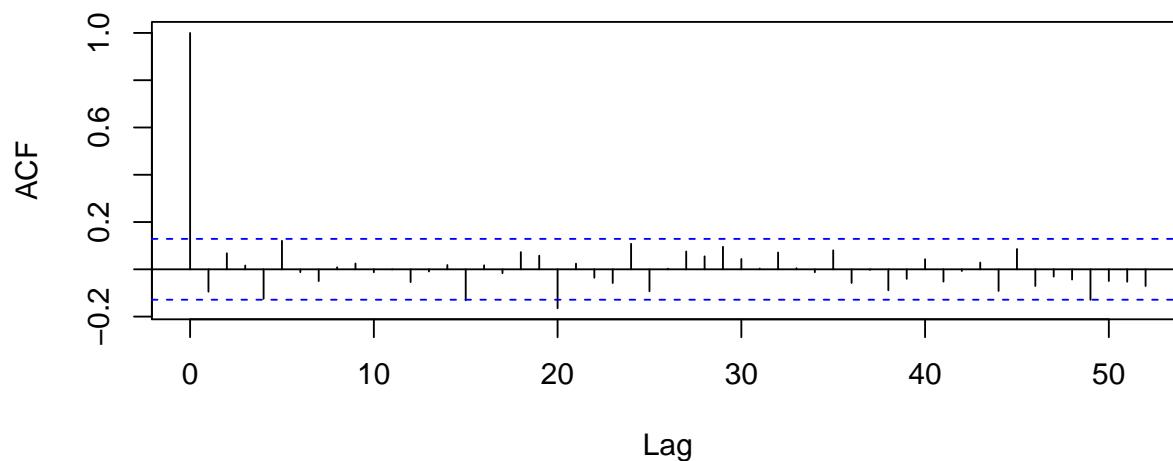
## homicide.central



Autocorrelation Function for the Observed Outcome for Model (2)



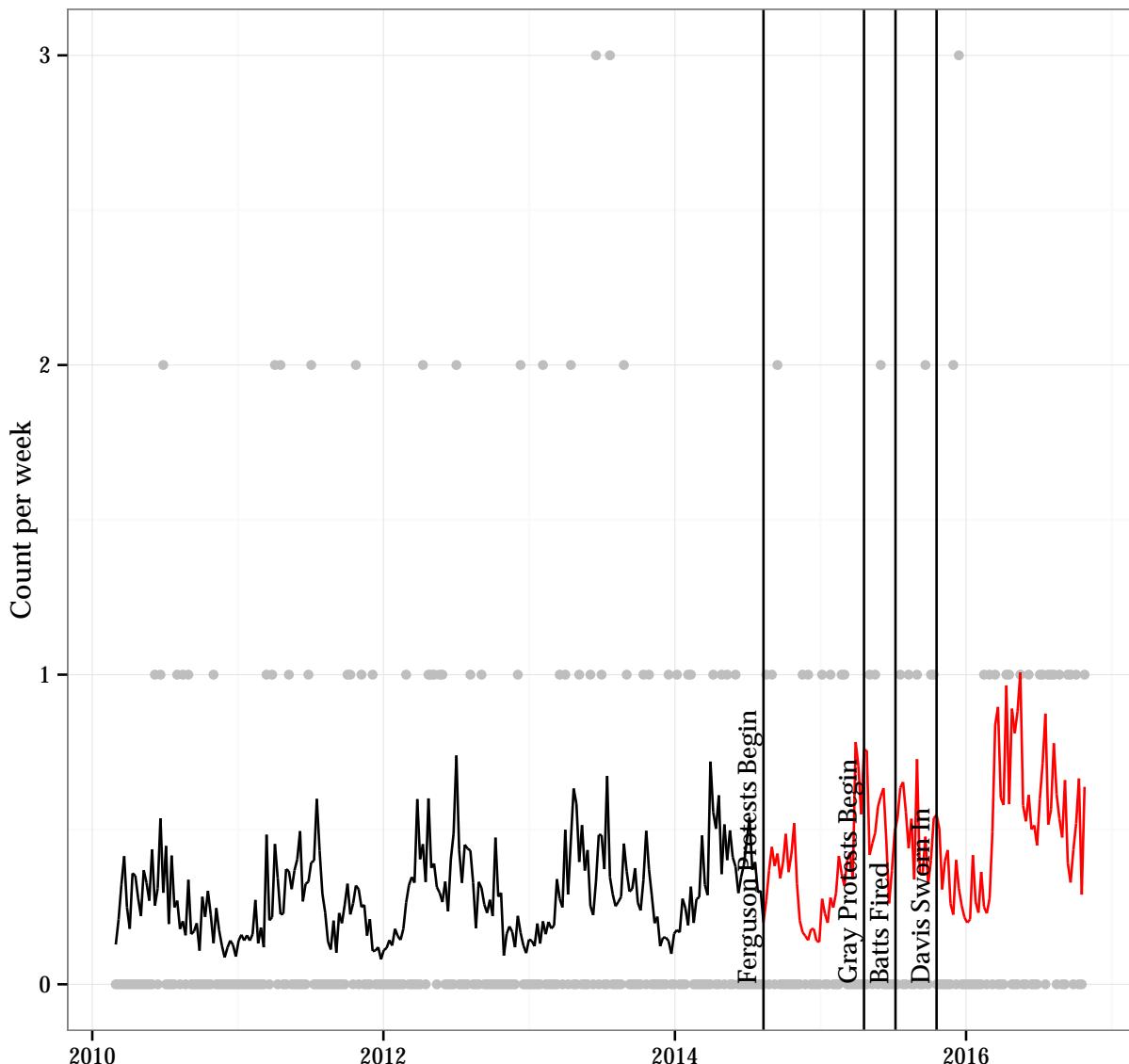
Autocorrelation Function for the Residuals from Model (2)



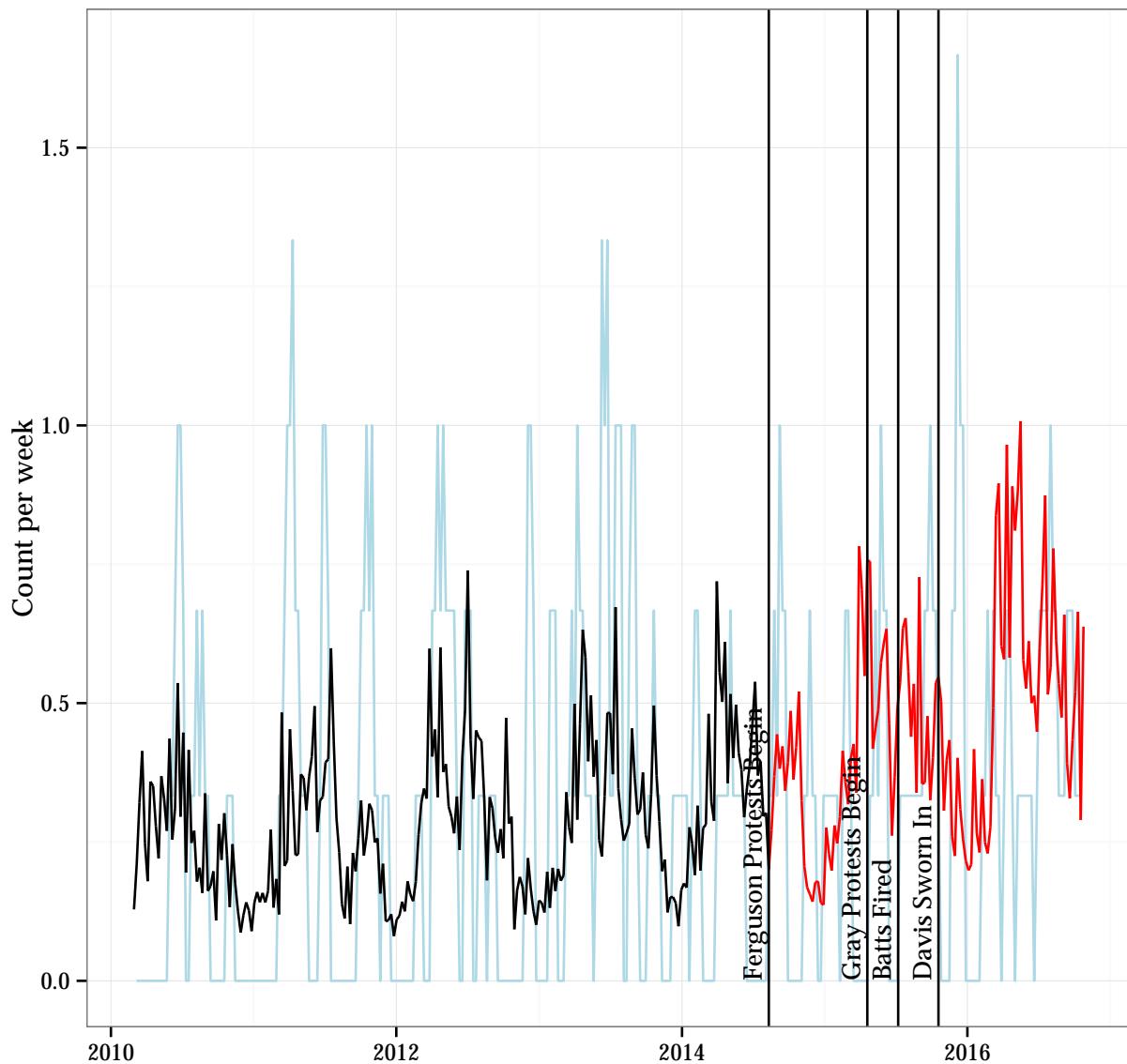
### 32.4 A Poisson Regression Model as an Alternative to Model (2) for homicide.central

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-1.1993 -0.8003 -0.6291 -0.4512  2.8041  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) 0.762019  3.028861  0.252   0.801  
t            0.002509  0.001885  1.331   0.183  
tmax.f.spline1 -0.026178  0.057625 -0.454   0.650  
tmax.f.spline2  0.119864  0.108709  1.103   0.270  
tmax.f.spline3 -0.141055  0.110968 -1.271   0.204  
tmax.f.spline4 -0.010673  0.101096 -0.106   0.916  
tmax.f.spline5  0.127263  0.088430  1.439   0.150  
snow.in        0.119623  0.641400  0.187   0.852  
precip.in       -0.756001  0.839801 -0.900   0.368  
dark.before.12 -0.297754  0.183526 -1.622   0.105  
school         0.328731  0.562291  0.585   0.559  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 210.12 on 231 degrees of freedom  
Residual deviance: 196.20 on 221 degrees of freedom  
AIC: 330.93  
  
Number of Fisher Scoring iterations: 6
```

## homicide.central



## homicide.central



## 33 Results for homicide.eastern

### 33.1 Summary Values for homicide.eastern

Table 33.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic        | N   | Mean  | St. Dev. | Min | Median | Max |
|------------------|-----|-------|----------|-----|--------|-----|
| homicide.eastern | 232 | 0.634 | 0.805    | 0   | 0      | 3   |

Table 33.2: Descriptives for Outcome After Ferguson Protests Begin

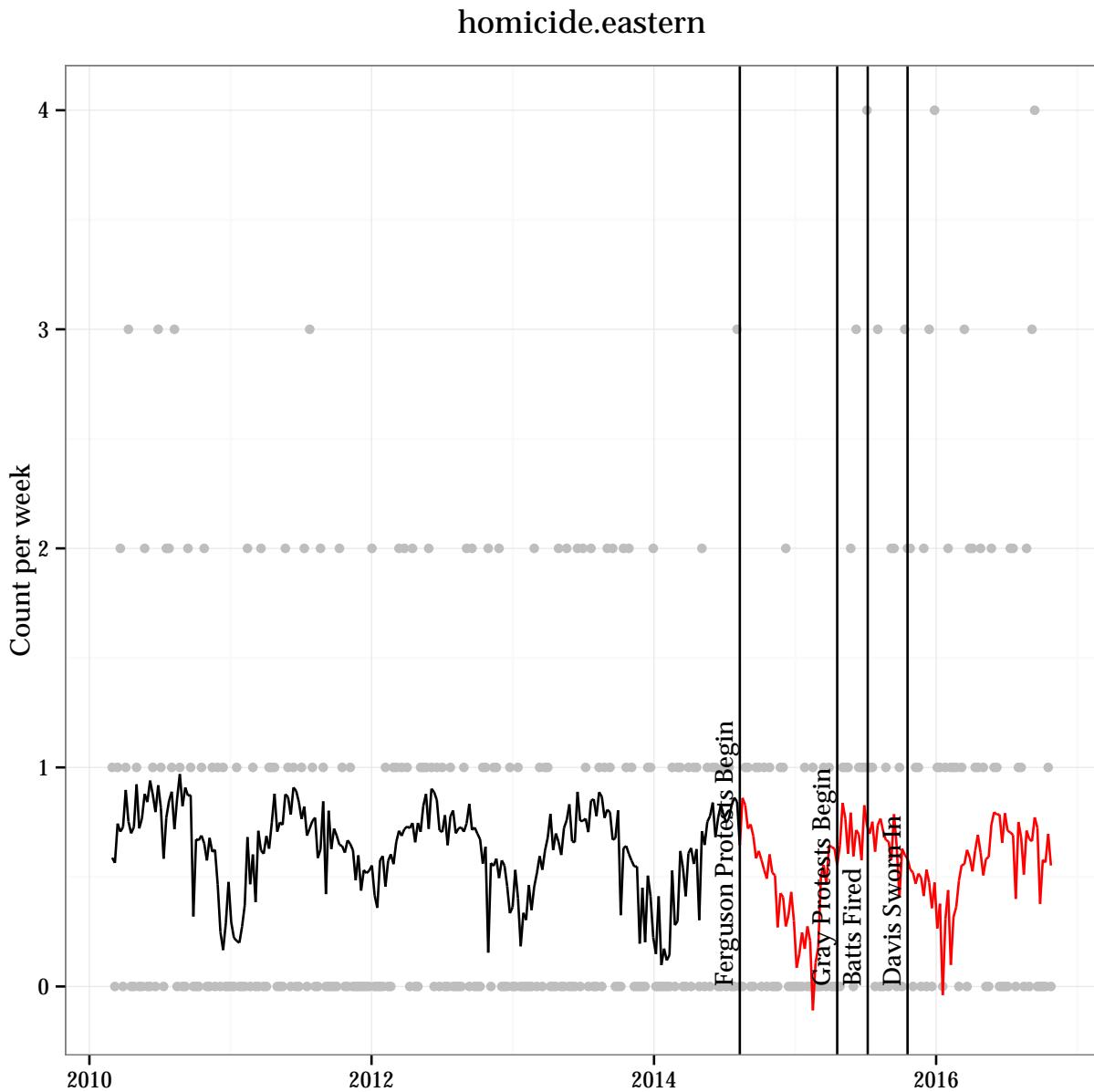
| Statistic        | N   | Mean  | St. Dev. | Min | Median | Max |
|------------------|-----|-------|----------|-----|--------|-----|
| homicide.eastern | 116 | 0.853 | 1.007    | 0   | 1      | 4   |

### 33.2 Four Models for homicide.eastern

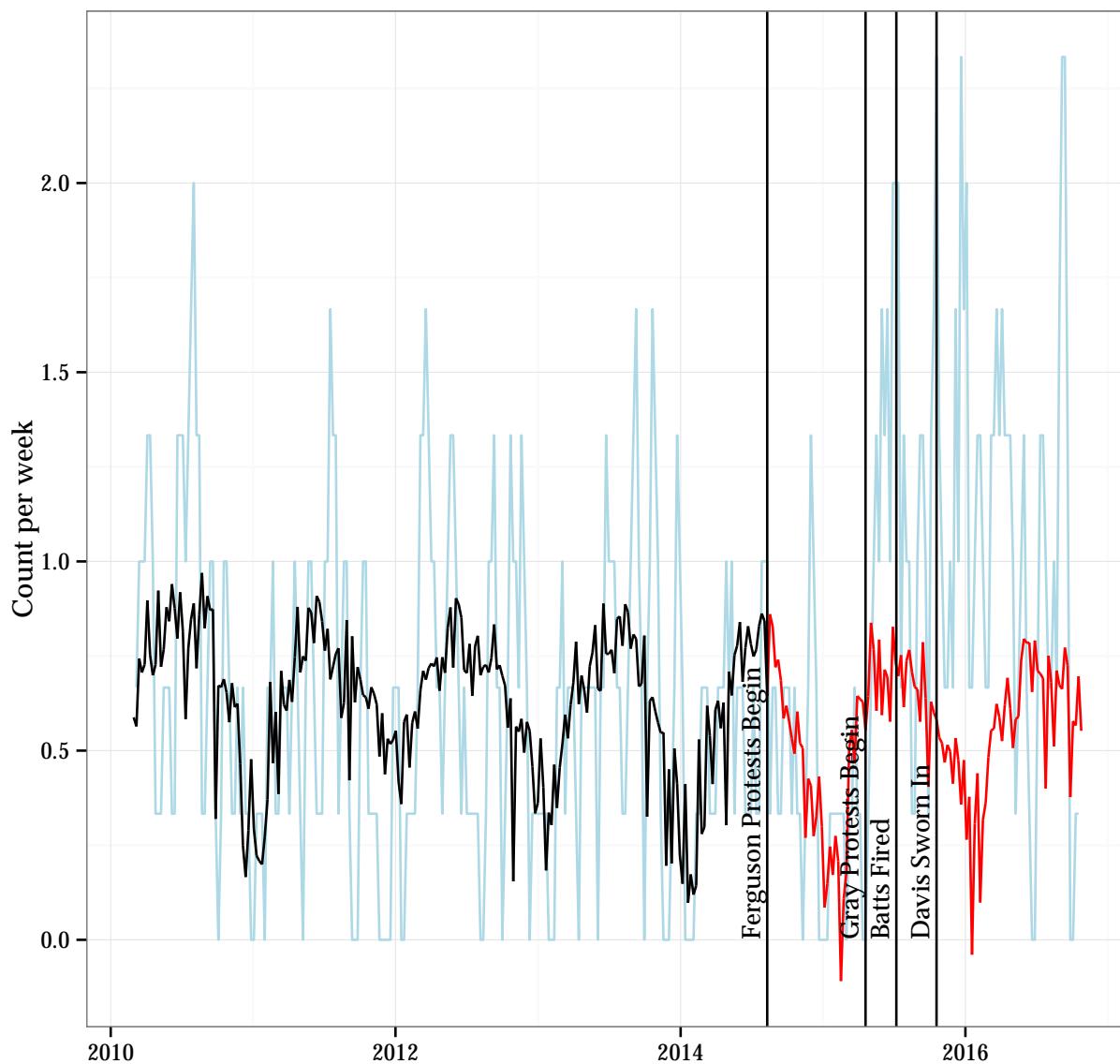
Table 33.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |         |       |        |
|--|-------------------------|---------|-------|--------|
|  | (1)                     | (2)     | (3)   | (4)    |
| Time (counter in weeks)                                | -0.001                  | -0.0005 |       | -0.001 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.15                   |         | -0.06 | -0.07  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 0.99                    |         | 0.72  | 0.81   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -1.37                   |         | -1.31 | -1.24  |
| After Batts Fired (week of 7/13/15 onward)             | -0.36                   |         | -0.32 | -0.36  |
| After Davis Sworn In (week of 10/19/15 onward)         | 0.06                    |         | 0.15  | 0.12   |
| Average Maximum Temperature to 50 Degrees              |                         | 0.02    |       | 0.02   |
| Plus Degrees in the 50s                                |                         | -0.01   |       | -0.004 |
| Plus Degrees in the 60s                                |                         | -0.01   |       | -0.04  |
| Plus Degrees in the 70s                                |                         | 0.02    |       | 0.06   |
| Plus Degrees Greater Than 80                           |                         | -0.04   |       | -0.05  |
| Snowfall (inches)                                      |                         | 0.02    |       | -0.01  |
| Precipitation (inches)                                 |                         | -0.42   |       | -0.54  |
| Darkness Before Midnight (hours)                       |                         | -0.03   |       | -0.005 |
| School Days (proportion of week)                       |                         | -0.03   |       | -0.02  |
| Observations   | 348                     | 232     | 348   | 348    |
| R <sup>2</sup>   | 0.07                    | 0.06    | 0.06  | 0.10   |

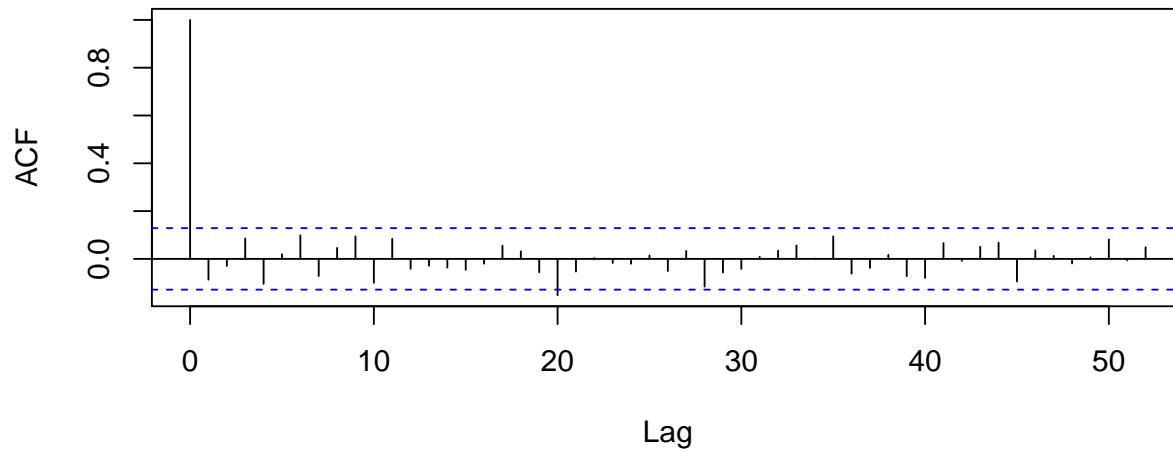
### 33.3 Least Squares Model (2) for homicide.eastern



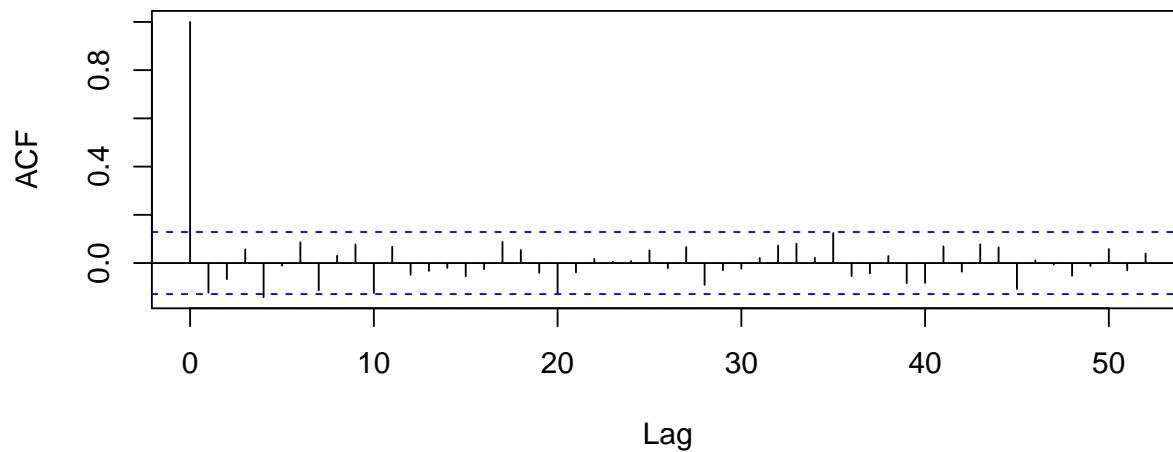
## homicide.eastern



Autocorrelation Function for the Observed Outcome for Model (2)



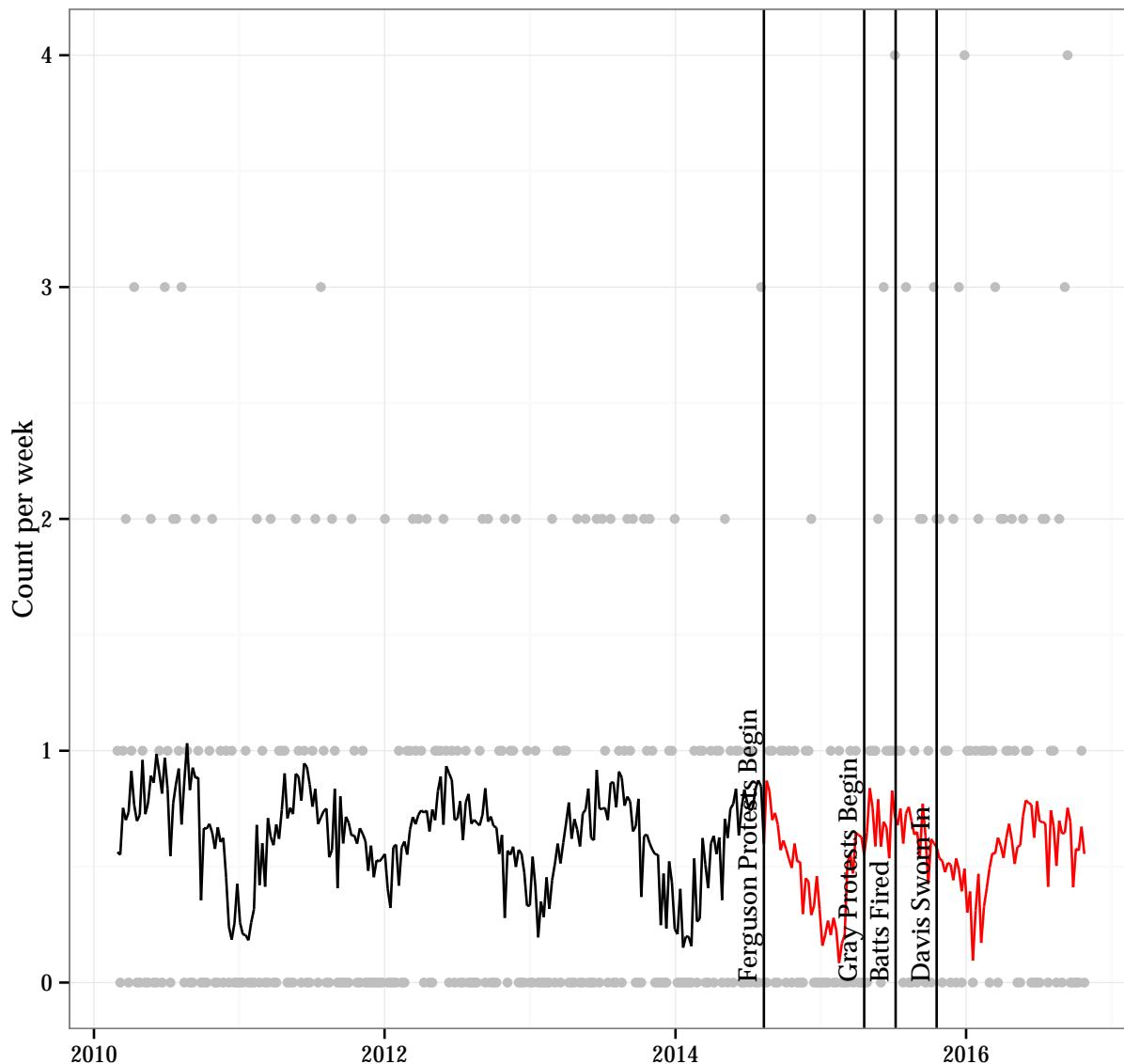
Autocorrelation Function for the Residuals from Model (2)



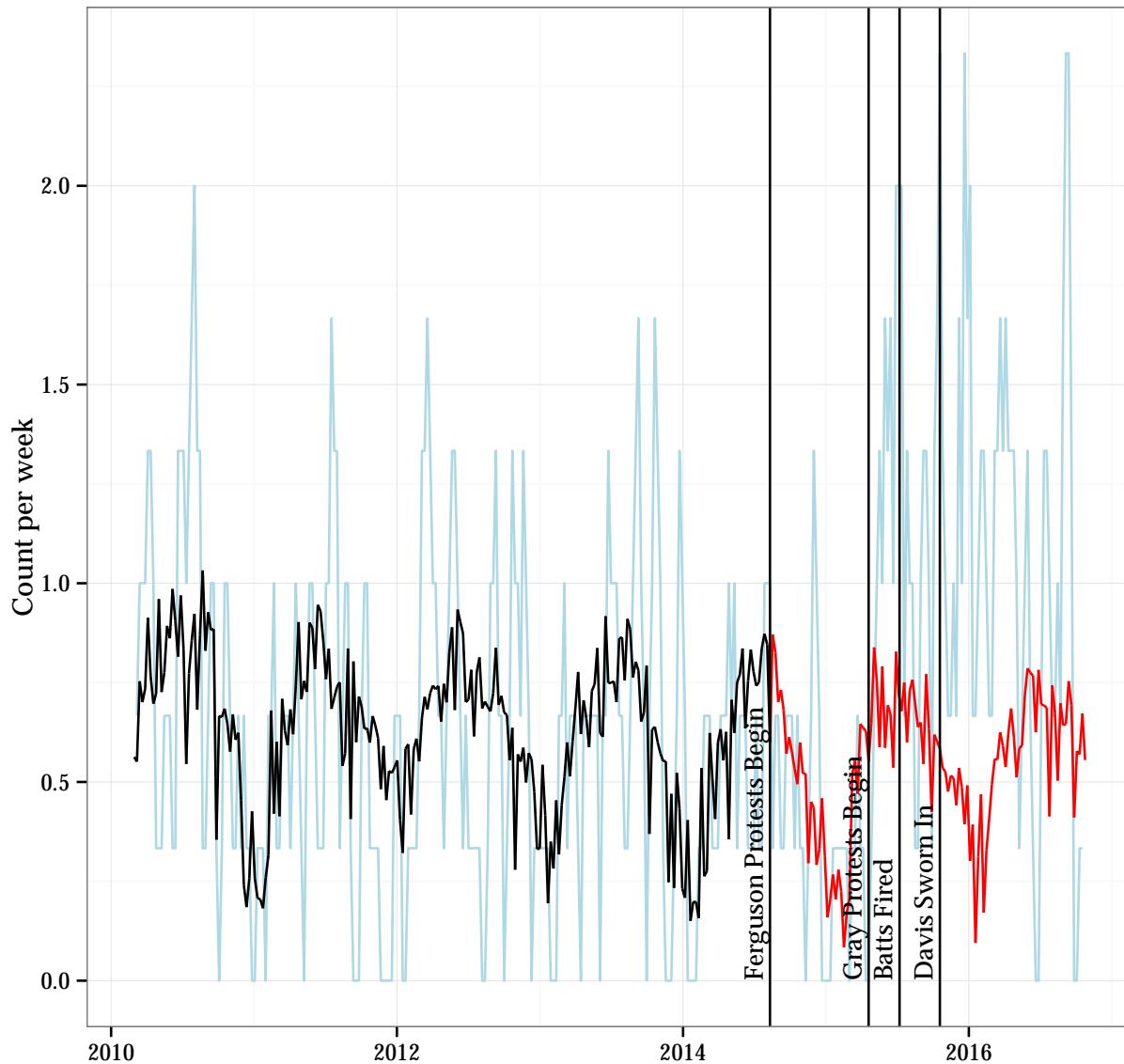
### 33.4 A Poisson Regression Model as an Alternative to Model (2) for homicide.eastern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-1.4040 -1.1442 -0.7179  0.4670  2.2550  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) -3.278380  2.335139 -1.404   0.160  
t             -0.000742  0.001260 -0.589   0.556  
tmax.f.spline1 0.064752  0.044798  1.445   0.148  
tmax.f.spline2 -0.052933  0.075817 -0.698   0.485  
tmax.f.spline3 -0.016398  0.079774 -0.206   0.837  
tmax.f.spline4  0.031929  0.071382  0.447   0.655  
tmax.f.spline5 -0.048094  0.059246 -0.812   0.417  
snow.in        -0.035967  0.661357 -0.054   0.957  
precip.in       -0.729641  0.533904 -1.367   0.172  
dark.before.12  -0.057499  0.123396 -0.466   0.641  
school         -0.058016  0.353886 -0.164   0.870  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 258.61 on 231 degrees of freedom  
Residual deviance: 242.93 on 221 degrees of freedom  
AIC: 498.15  
  
Number of Fisher Scoring iterations: 6
```

## homicide.eastern



## homicide.eastern



## 34 Results for homicide.southwestern

### 34.1 Summary Values for homicide.southwestern

Table 34.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic             | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------------------|-----|-------|----------|-----|--------|-----|
| homicide.southwestern | 232 | 0.526 | 0.720    | 0   | 0      | 4   |

Table 34.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic             | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------------------|-----|-------|----------|-----|--------|-----|
| homicide.southwestern | 116 | 0.802 | 0.887    | 0   | 1      | 3   |

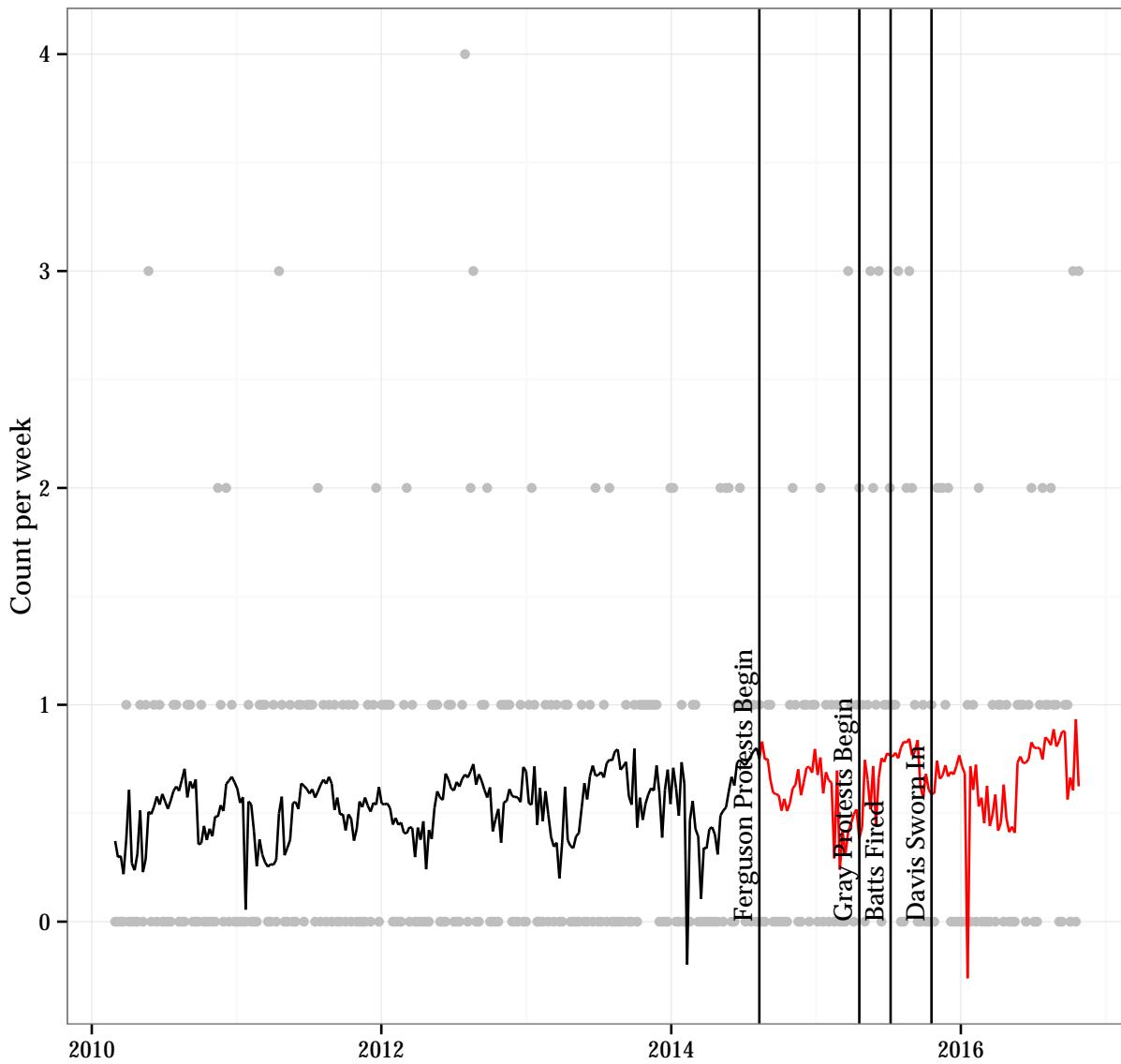
## 34.2 Four Models for homicide.southwestern

Table 34.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

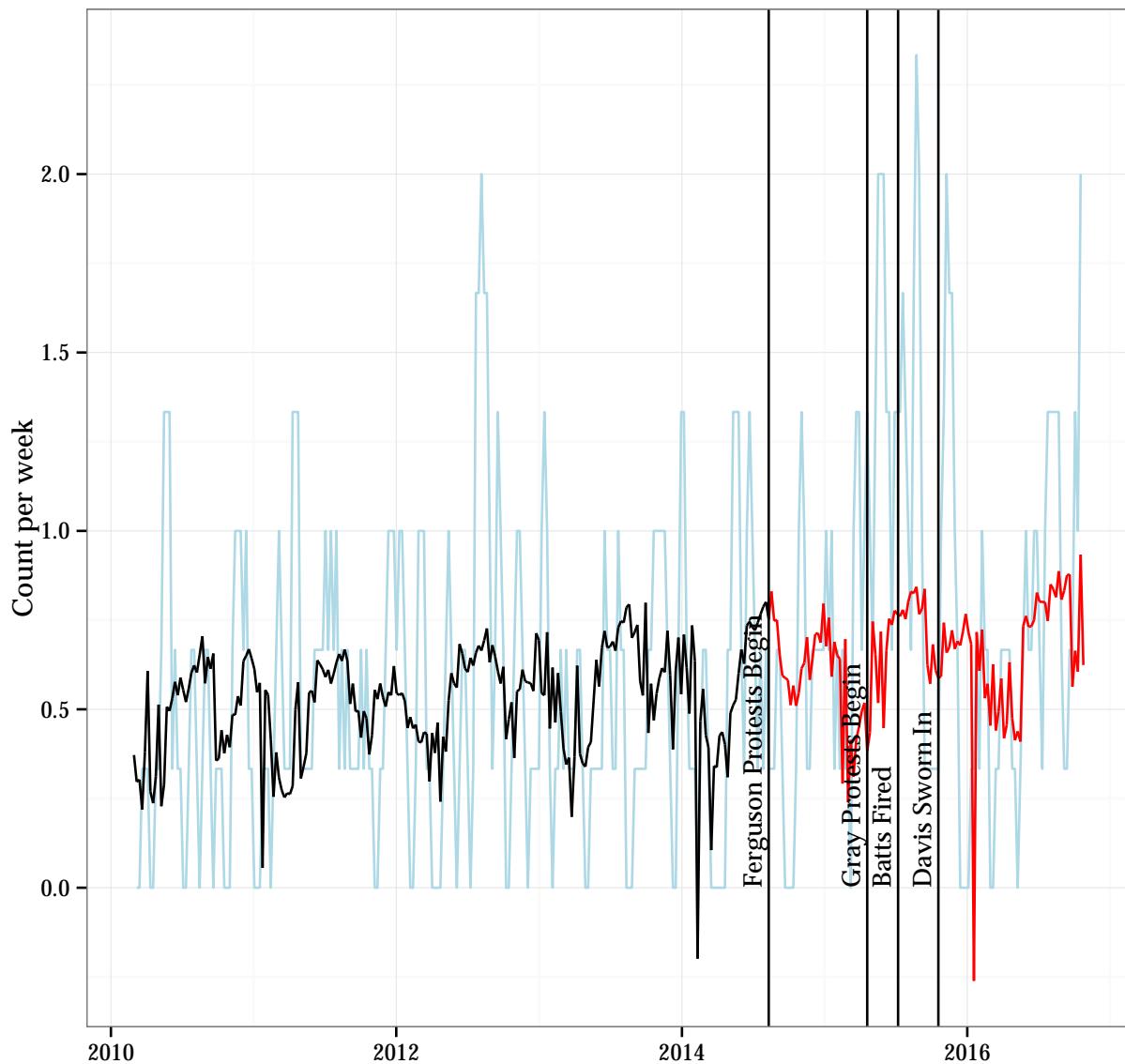
|  | Outcome: Count Per Week |       |       |       |
|--|-------------------------|-------|-------|-------|
|  | (1)                     | (2)   | (3)   | (4)   |
| Time (counter in weeks)                                | 0.001                   | 0.001 | 0.001 | 0.001 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.03                   |       | -0.02 | -0.04 |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 0.85                    |       | 0.82  | 0.83  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -0.45                   |       | -0.24 | -0.26 |
| After Batts Fired (week of 7/13/15 onward)             | -0.46                   |       | -0.55 | -0.60 |
| After Davis Sworn In (week of 10/19/15 onward)         | -0.26                   |       | -0.15 | -0.16 |
| Average Maximum Temperature to 50 Degrees              |                         | -0.01 |       | -0.01 |
| Plus Degrees in the 50s                                |                         | 0.01  |       | 0.02  |
| Plus Degrees in the 60s                                |                         | 0.01  |       | -0.02 |
| Plus Degrees in the 70s                                |                         | 0.02  |       | 0.03  |
| Plus Degrees Greater Than 80                           |                         | -0.04 |       | 0.01  |
| Snowfall (inches)                                      |                         | -0.33 |       | -0.22 |
| Precipitation (inches)                                 |                         | -0.09 |       | 0.14  |
| Darkness Before Midnight (hours)                       |                         | 0.09  |       | 0.08  |
| School Days (proportion of week)                       |                         | -0.14 |       | -0.02 |
| Observations   | 348                     | 232   | 348   | 348   |
| R <sup>2</sup>   | 0.06                    | 0.04  | 0.04  | 0.09  |

### 34.3 Least Squares Model (2) for homicide.southwestern

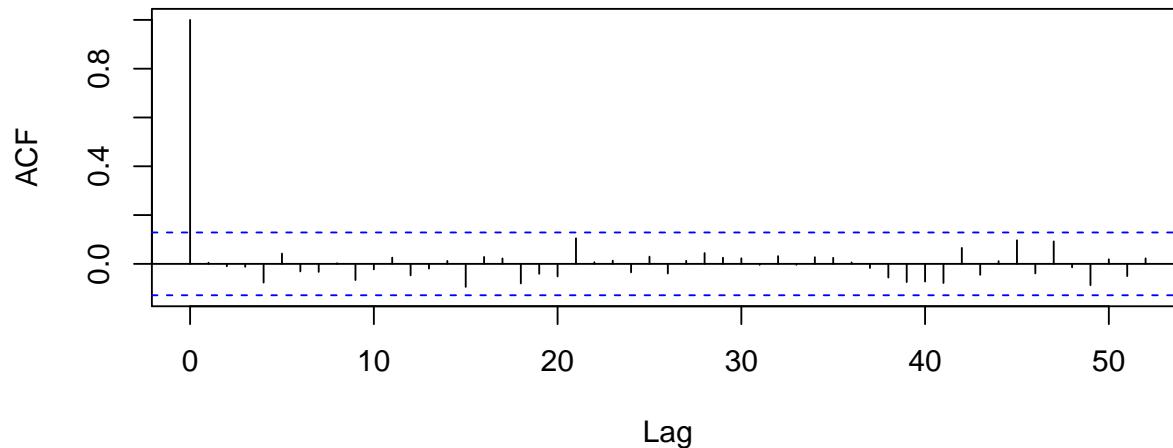
homicide.southwestern



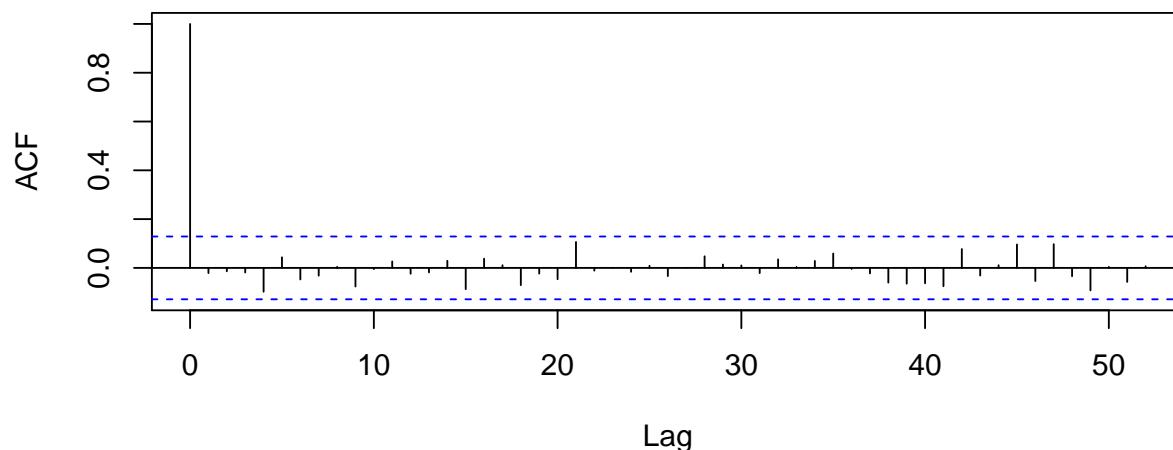
## homicide.southwestern



Autocorrelation Function for the Observed Outcome for Model (2)



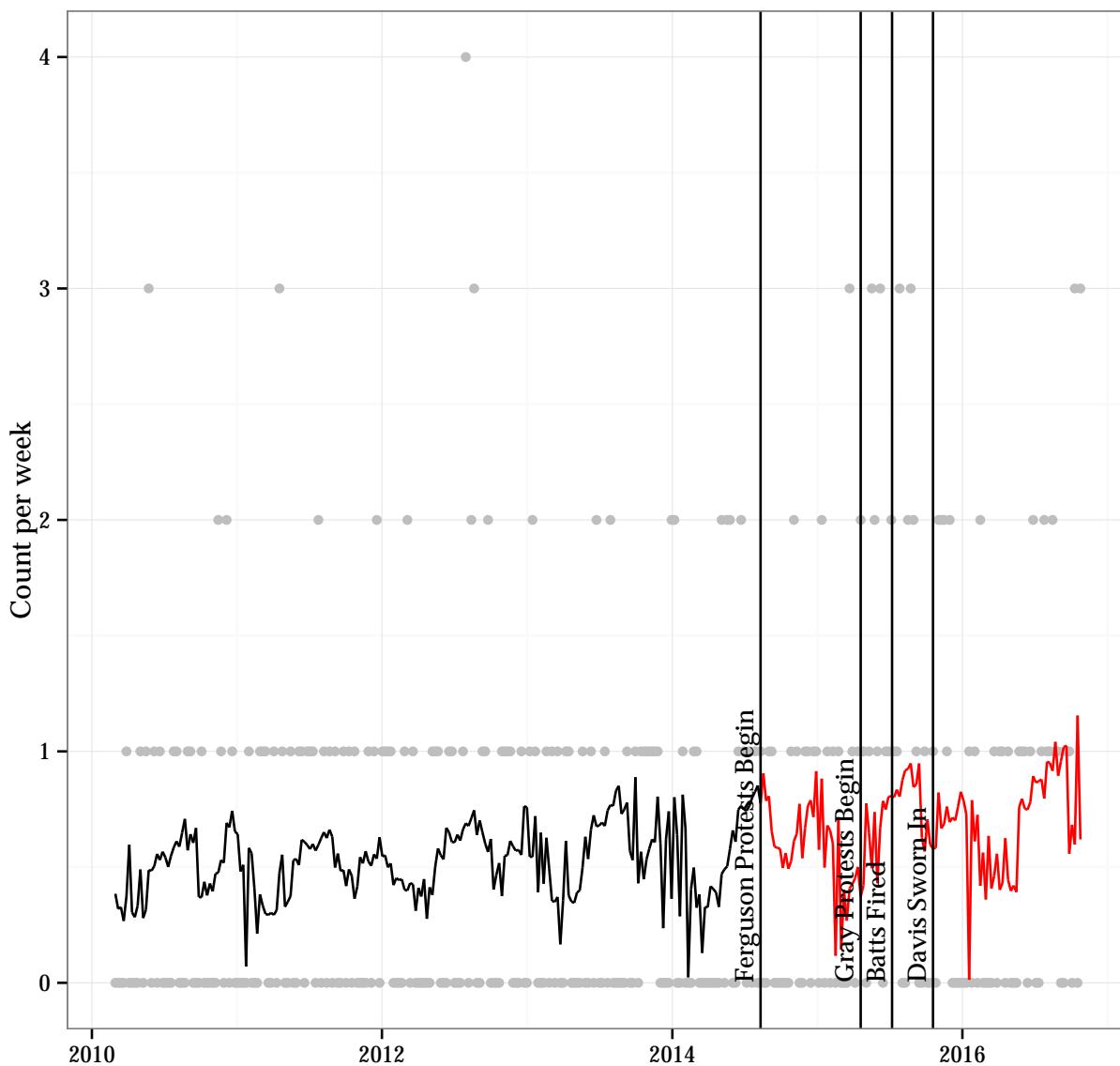
Autocorrelation Function for the Residuals from Model (2)



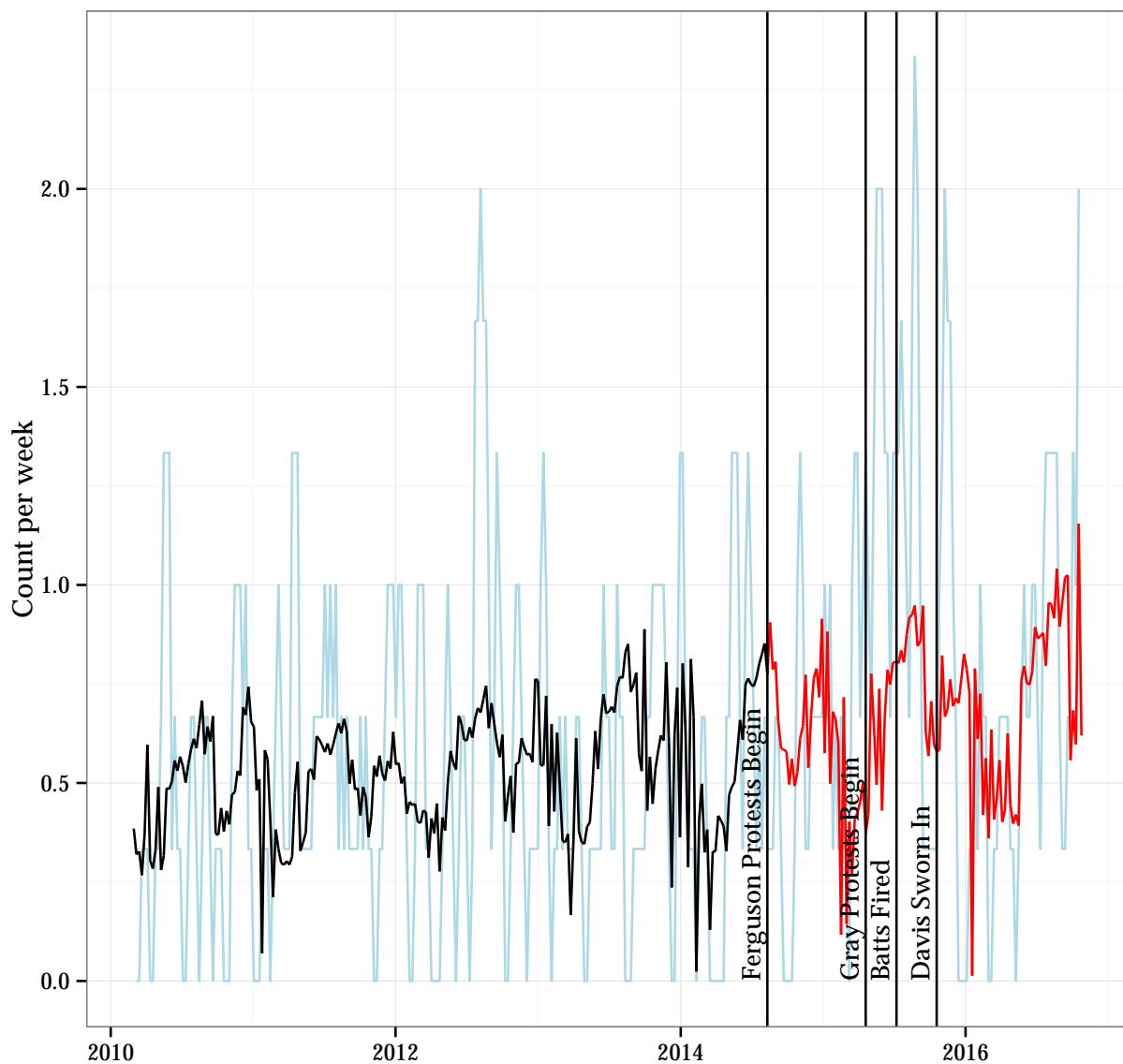
### 34.4 A Poisson Regression Model as an Alternative to Model (2) for homicide.southwestern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-1.3058 -1.0413 -0.8088  0.5406  2.7285  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) -0.610227  1.868436 -0.327  0.744  
t             0.001407  0.001409  0.998  0.318  
tmax.f.spline1 -0.028375  0.034001 -0.835  0.404  
tmax.f.spline2  0.026728  0.075005  0.356  0.722  
tmax.f.spline3  0.023628  0.096009  0.246  0.806  
tmax.f.spline4  0.037482  0.087655  0.428  0.669  
tmax.f.spline5 -0.067024  0.068406 -0.980  0.327  
snow.in       -1.304174  0.920747 -1.416  0.157  
precip.in      -0.176023  0.532060 -0.331  0.741  
dark.before.12  0.201728  0.144668  1.394  0.163  
school        -0.265790  0.386720 -0.687  0.492  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 232.05 on 231 degrees of freedom  
Residual deviance: 220.75 on 221 degrees of freedom  
AIC: 450.81  
  
Number of Fisher Scoring iterations: 5
```

## homicide.southwestern



## homicide.southwestern



## 35 Results for homicide.southern

### 35.1 Summary Values for homicide.southern

Table 35.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic         | N   | Mean  | St. Dev. | Min | Median | Max |
|-------------------|-----|-------|----------|-----|--------|-----|
| homicide.southern | 232 | 0.379 | 0.598    | 0   | 0      | 3   |

Table 35.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic         | N   | Mean  | St. Dev. | Min | Median | Max |
|-------------------|-----|-------|----------|-----|--------|-----|
| homicide.southern | 116 | 0.483 | 0.679    | 0   | 0      | 3   |

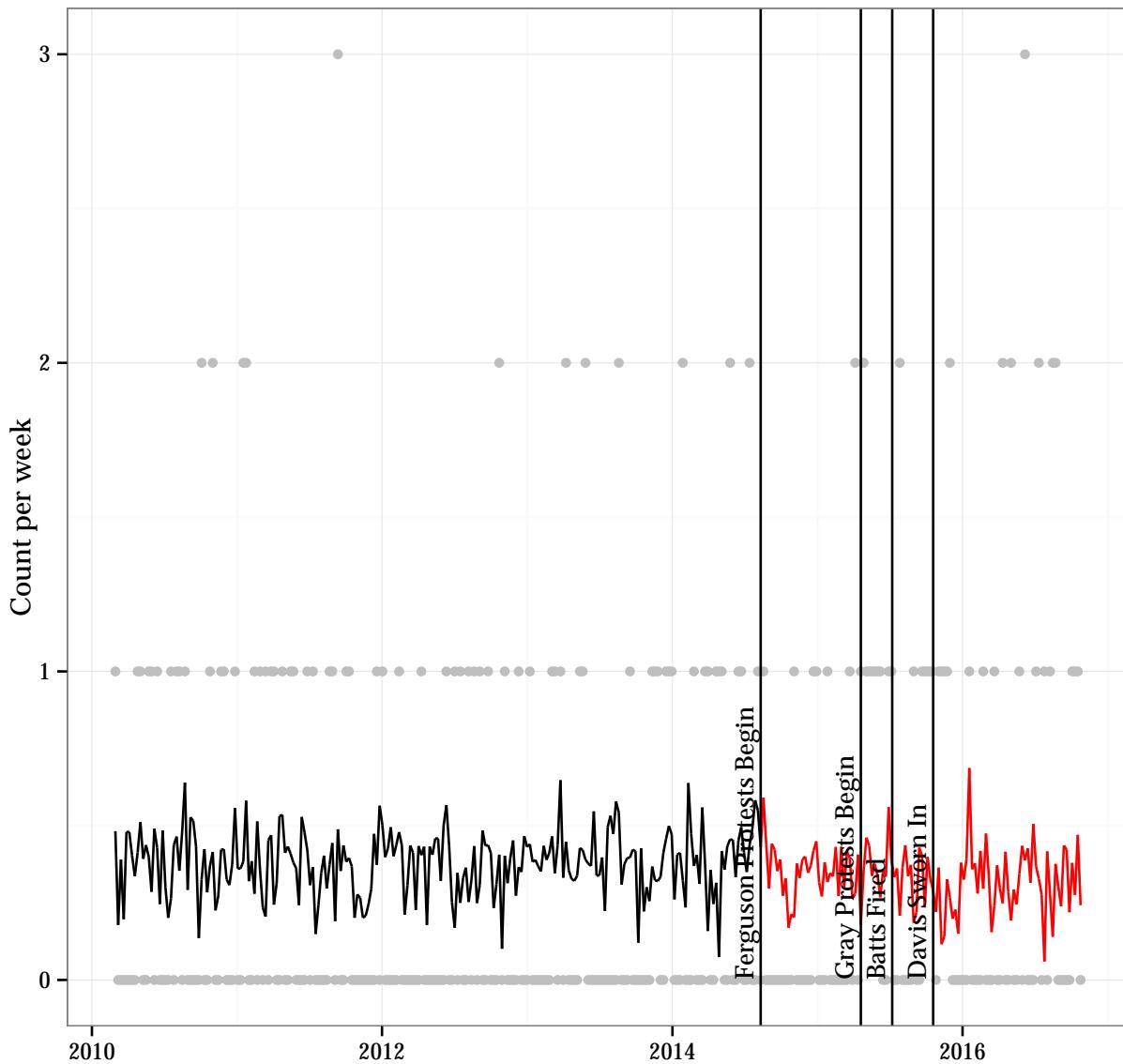
## 35.2 Four Models for homicide.southern

Table 35.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

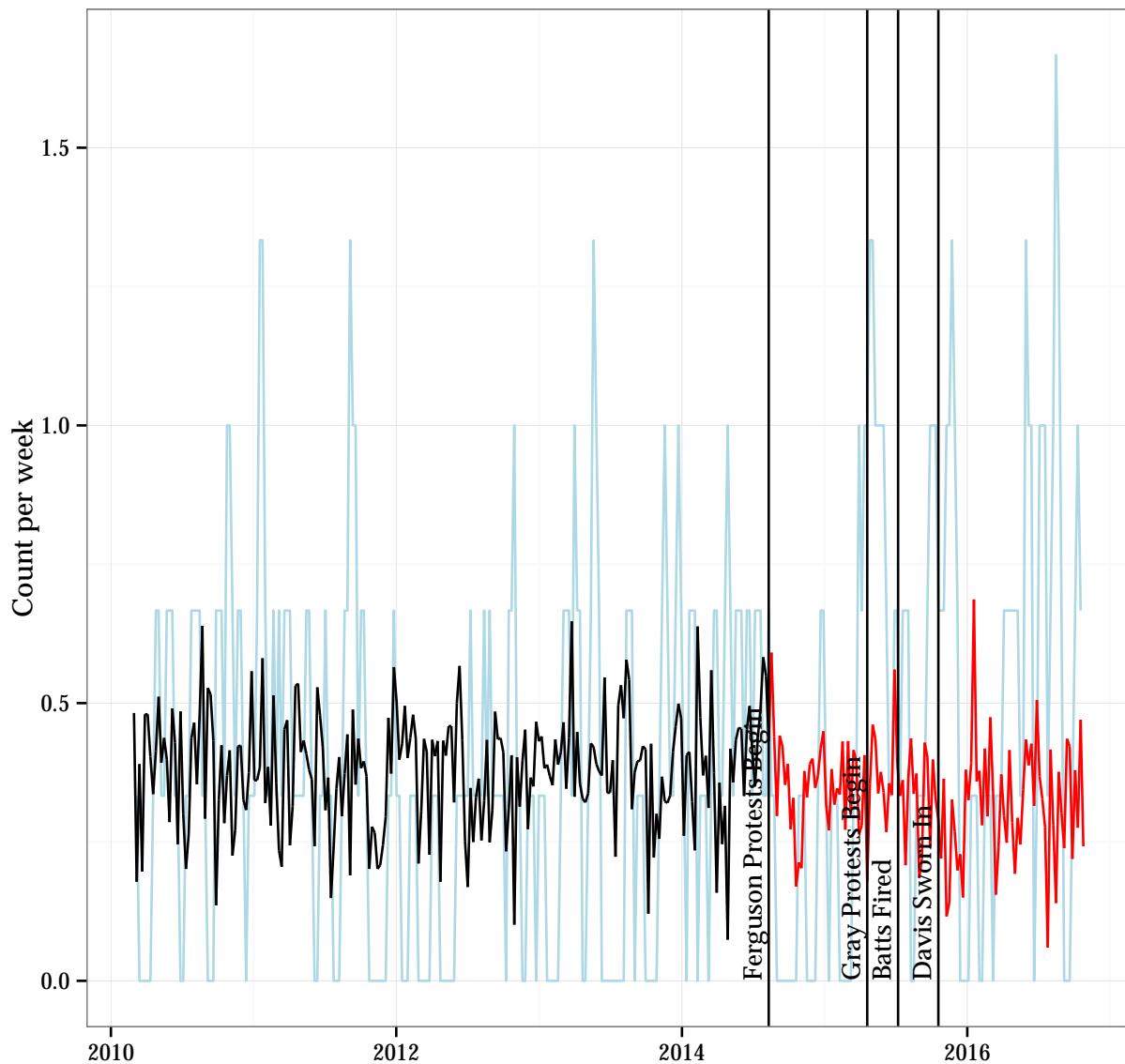
|  | Outcome: Count Per Week |         |       |        |
|--|-------------------------|---------|-------|--------|
|  | (1)                     | (2)     | (3)   | (4)    |
| Time (counter in weeks)                                | 0.0002                  | -0.0002 |       | 0.0001 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.18                   |         | -0.13 | -0.15  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 0.59                    |         | 0.58  | 0.58   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 1.18                    |         | 1.19  | 1.15   |
| After Batts Fired (week of 7/13/15 onward)             | -0.32                   |         | -0.28 | -0.34  |
| After Davis Sworn In (week of 10/19/15 onward)         | 0.05                    |         | 0.07  | 0.07   |
| Average Maximum Temperature to 50 Degrees              |                         | 0.01    |       | 0.01   |
| Plus Degrees in the 50s                                |                         | -0.04   |       | -0.02  |
| Plus Degrees in the 60s                                |                         | 0.05    |       | 0.02   |
| Plus Degrees in the 70s                                |                         | -0.01   |       | -0.01  |
| Plus Degrees Greater Than 80                           |                         | -0.04   |       | -0.003 |
| Snowfall (inches)                                      |                         | 0.16    |       | 0.14   |
| Precipitation (inches)                                 |                         | -0.31   |       | -0.25  |
| Darkness Before Midnight (hours)                       |                         | -0.004  |       | -0.005 |
| School Days (proportion of week)                       |                         | -0.16   |       | -0.18  |
| Observations   | 348                     | 232     | 348   | 348    |
| R <sup>2</sup>   | 0.05                    | 0.03    | 0.06  | 0.06   |

### 35.3 Least Squares Model (2) for homicide.southern

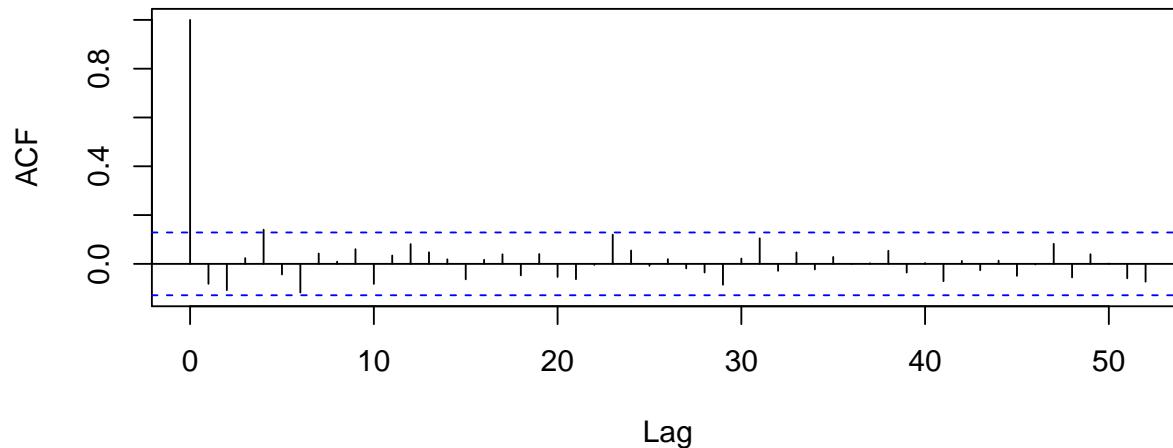
homicide.southern



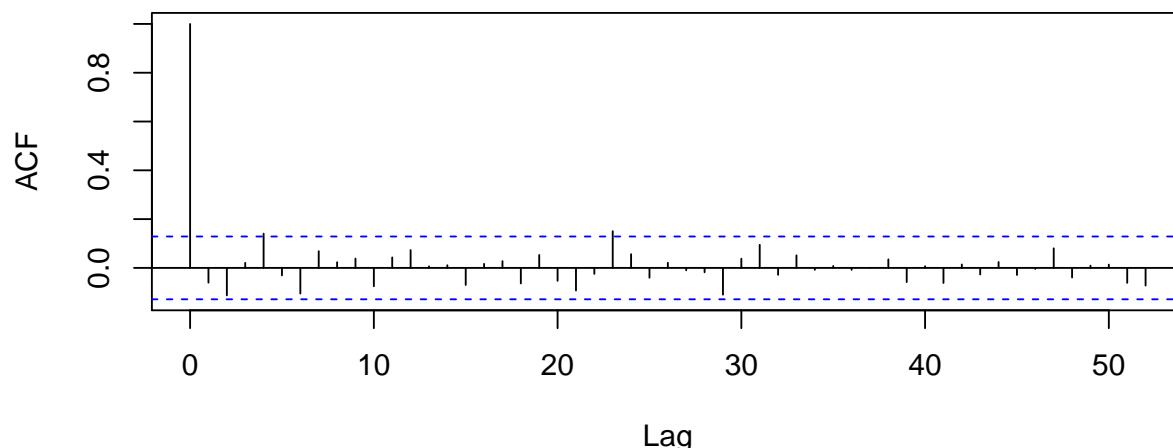
## homicide.southern



Autocorrelation Function for the Observed Outcome for Model (2)



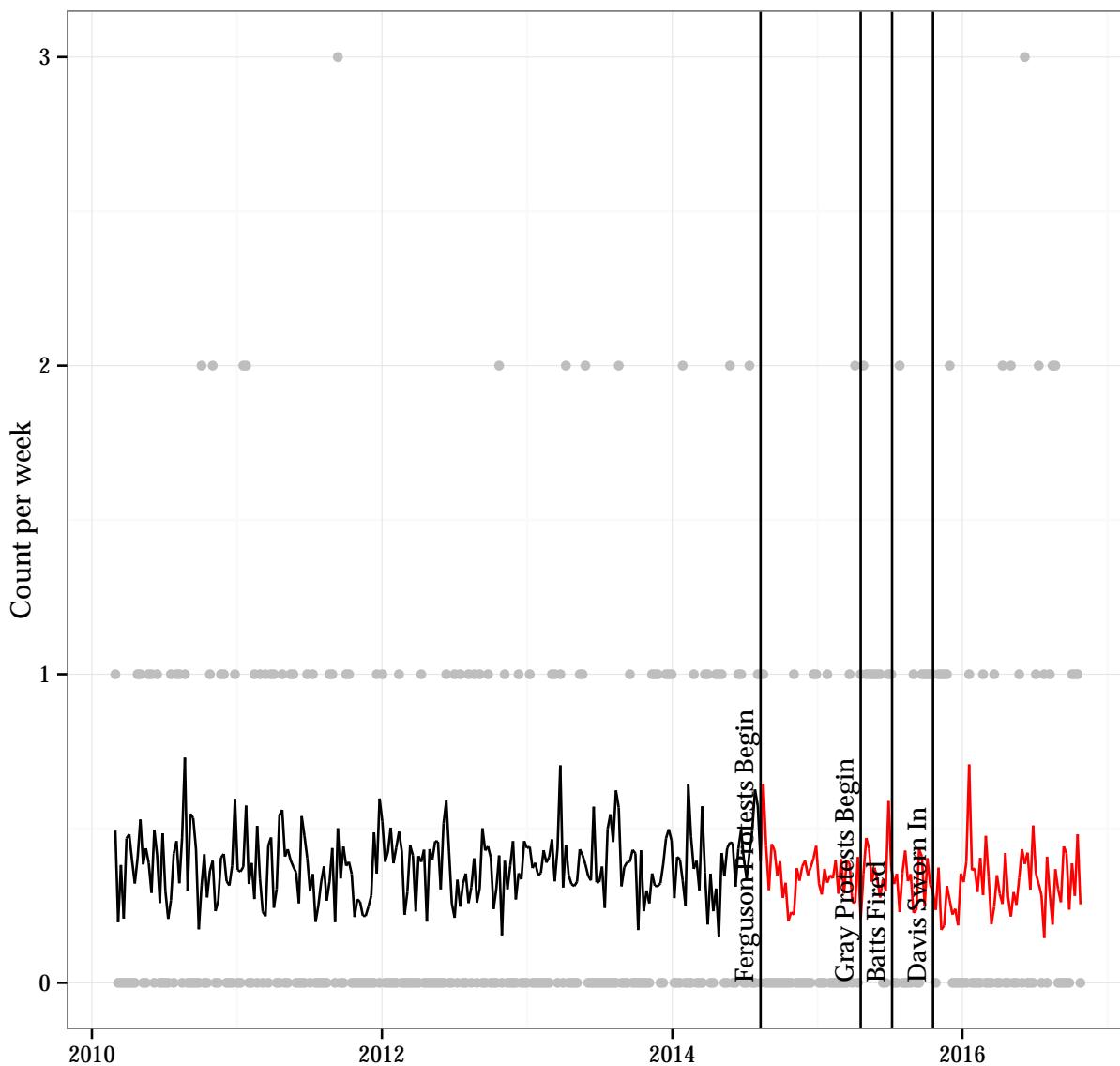
Autocorrelation Function for the Residuals from Model (2)



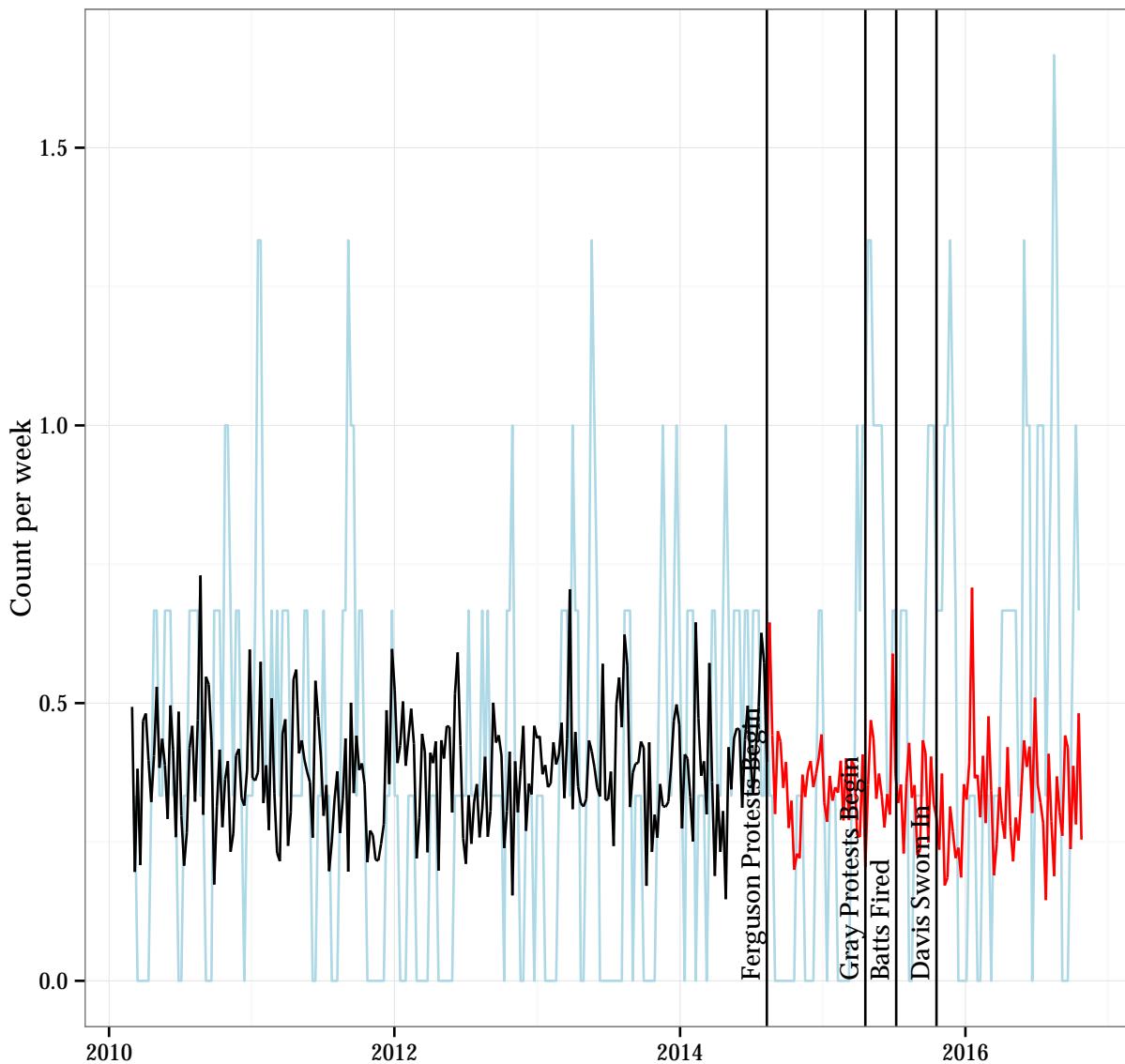
### 35.4 A Poisson Regression Model as an Alternative to Model (2) for homicide.southern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-1.1361 -0.9016 -0.7740  0.6966  2.3965  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) -1.7197736  2.2562755 -0.762   0.446  
t             -0.0005443  0.0016287 -0.334   0.738  
tmax.f.spline1  0.0283446  0.0395974  0.716   0.474  
tmax.f.spline2 -0.1092169  0.0842756 -1.296   0.195  
tmax.f.spline3  0.1467349  0.1150850  1.275   0.202  
tmax.f.spline4 -0.0453566  0.1003132 -0.452   0.651  
tmax.f.spline5 -0.0943454  0.0842187 -1.120   0.263  
snow.in        0.3656316  0.4348308  0.841   0.400  
precip.in      -0.9595713  0.7362314 -1.303   0.192  
dark.before.12 -0.0061123  0.1592608 -0.038   0.969  
school         -0.4066674  0.4469402 -0.910   0.363  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 207.70 on 231 degrees of freedom  
Residual deviance: 200.84 on 221 degrees of freedom  
AIC: 380.59  
  
Number of Fisher Scoring iterations: 6
```

## homicide.southern



## homicide.southern



## 36 Results for homicide.southeastern

### 36.1 Summary Values for homicide.southeastern

Table 36.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic             | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------------------|-----|-------|----------|-----|--------|-----|
| homicide.southeastern | 232 | 0.246 | 0.505    | 0   | 0      | 2   |

Table 36.2: Descriptives for Outcome After Ferguson Protests Begin

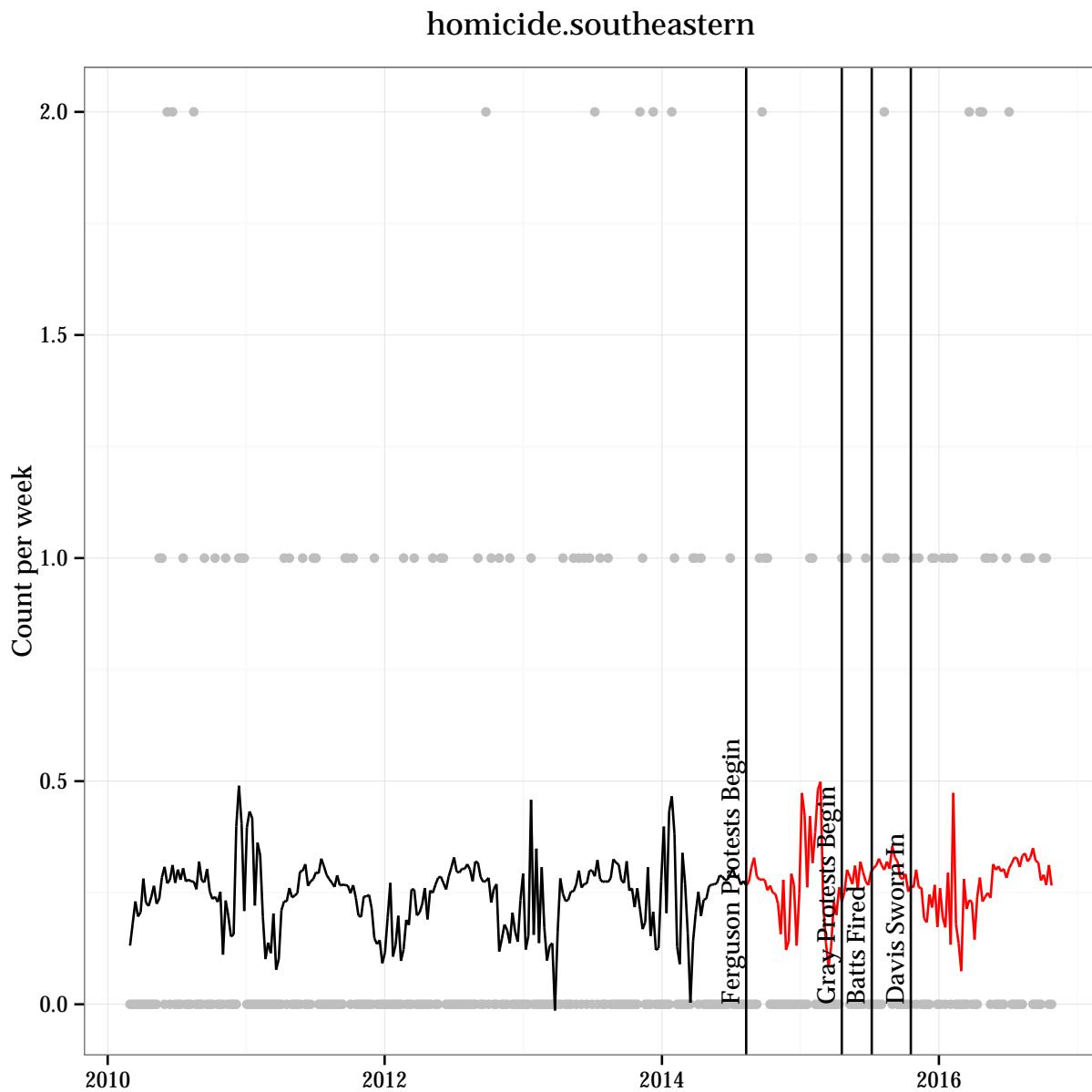
| Statistic             | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------------------|-----|-------|----------|-----|--------|-----|
| homicide.southeastern | 116 | 0.345 | 0.576    | 0   | 0      | 2   |

## 36.2 Four Models for homicide.southeastern

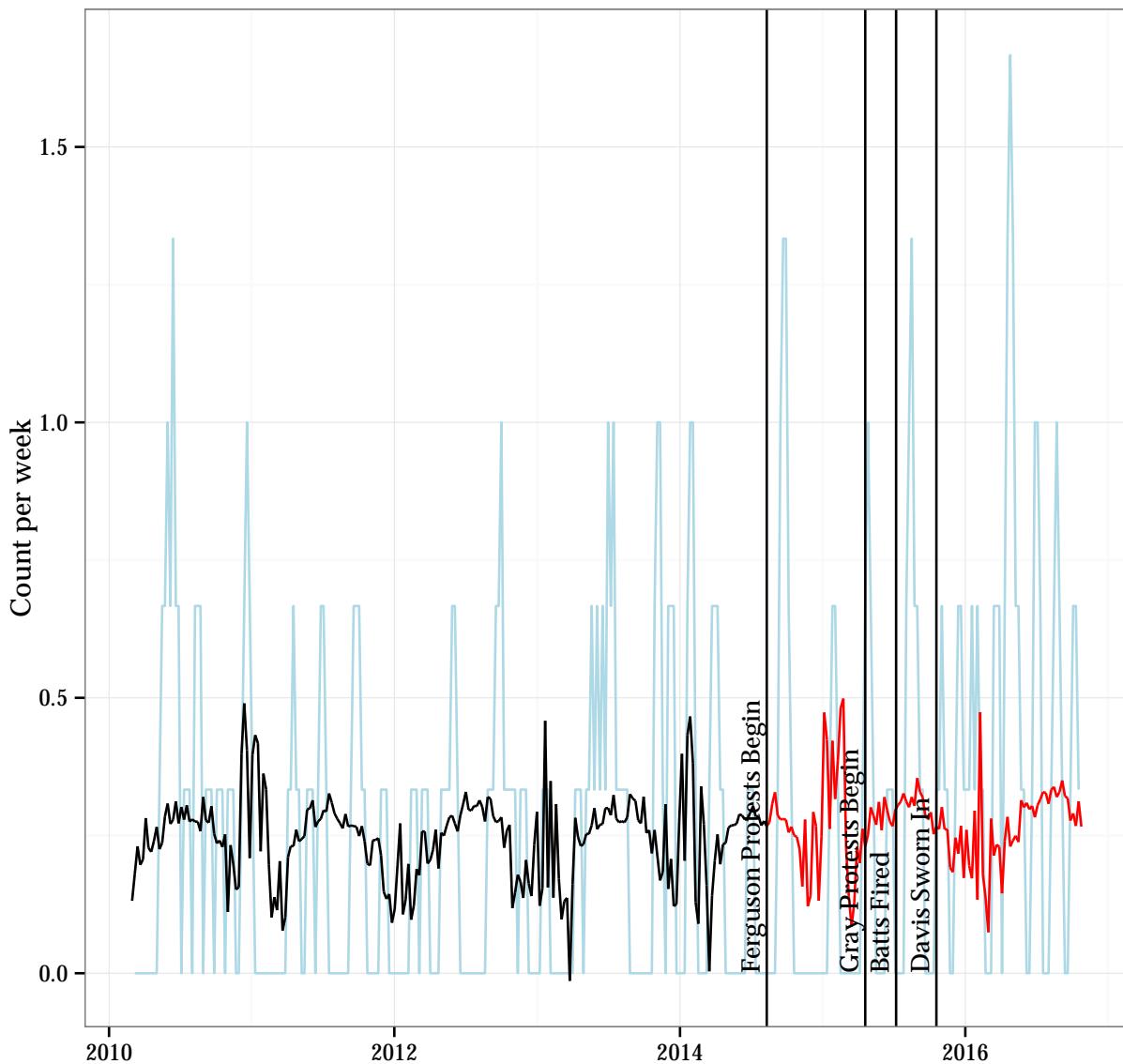
Table 36.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |         |       |        |
|--|-------------------------|---------|-------|--------|
|  | (1)                     | (2)     | (3)   | (4)    |
| Time (counter in weeks)                                | -0.0001                 | 0.0001  |       | 0.0000 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.04                   |         | -0.08 | -0.06  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 0.08                    |         | 0.07  | 0.04   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 0.73                    |         | 0.76  | 0.72   |
| After Batts Fired (week of 7/13/15 onward)             | 0.09                    |         | 0.06  | 0.09   |
| After Davis Sworn In (week of 10/19/15 onward)         | 0.09                    |         | 0.13  | 0.12   |
| Average Maximum Temperature to 50 Degrees              |                         | -0.02   |       | -0.03  |
| Plus Degrees in the 50s                                |                         | 0.04    |       | 0.04   |
| Plus Degrees in the 60s                                |                         | -0.01   |       | -0.01  |
| Plus Degrees in the 70s                                |                         | -0.0005 |       | -0.01  |
| Plus Degrees Greater Than 80                           |                         | 0.001   |       | 0.002  |
| Snowfall (inches)                                      |                         | -0.13   |       | -0.21  |
| Precipitation (inches)                                 |                         | -0.01   |       | 0.01   |
| Darkness Before Midnight (hours)                       |                         | 0.01    |       | -0.01  |
| School Days (proportion of week)                       |                         | 0.03    |       | -0.01  |
| Observations   | 348                     | 232     | 348   | 348    |
| R <sup>2</sup>   | 0.03                    | 0.02    | 0.02  | 0.05   |

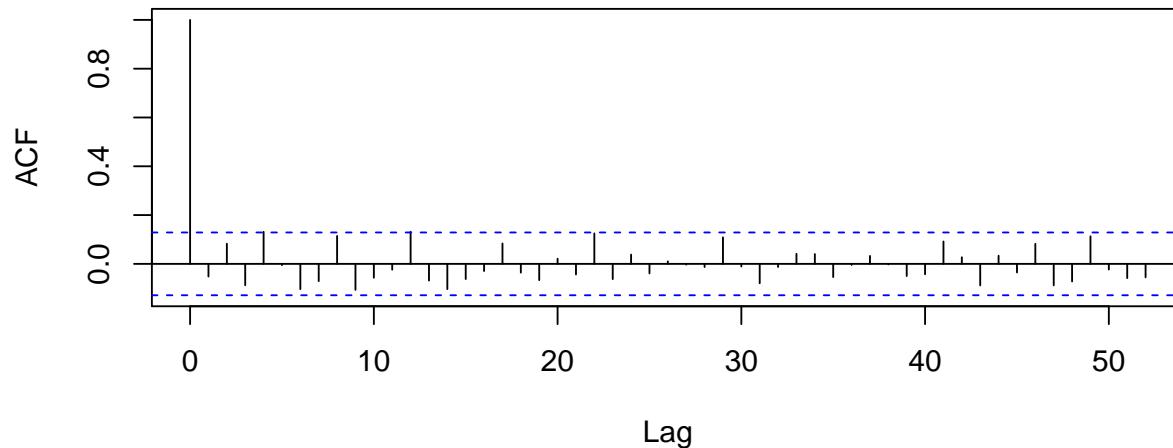
### 36.3 Least Squares Model (2) for homicide.southeastern



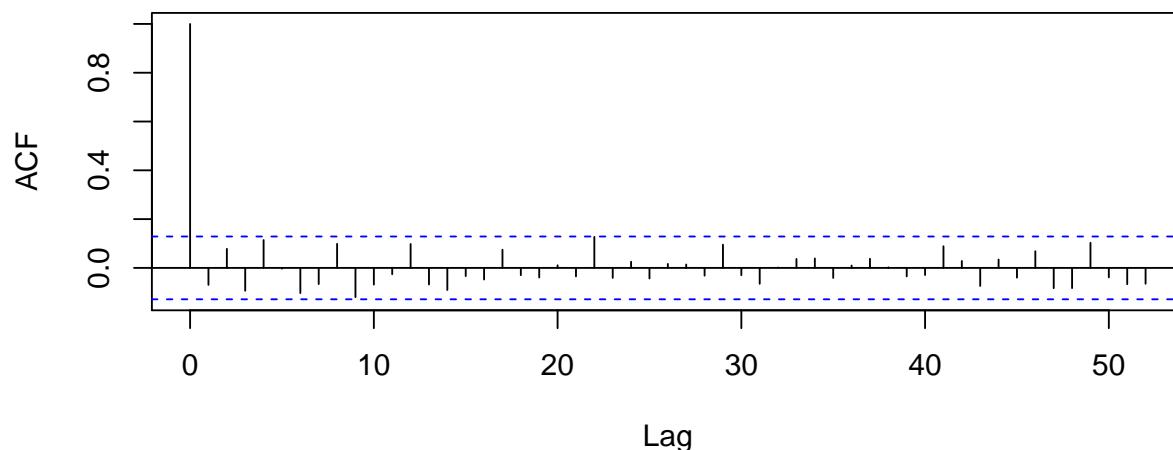
## homicide.southeastern



Autocorrelation Function for the Observed Outcome for Model (2)



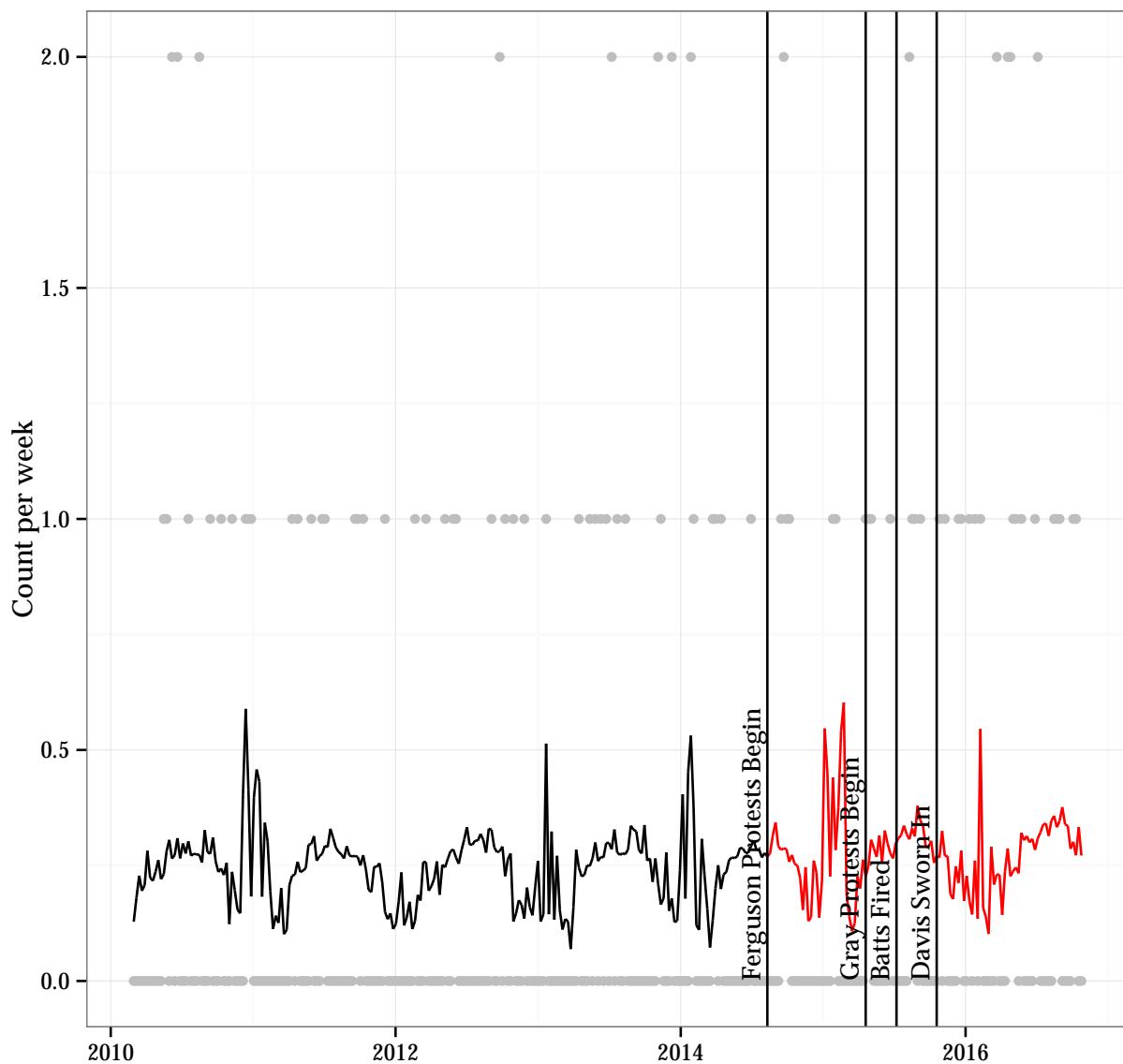
Autocorrelation Function for the Residuals from Model (2)



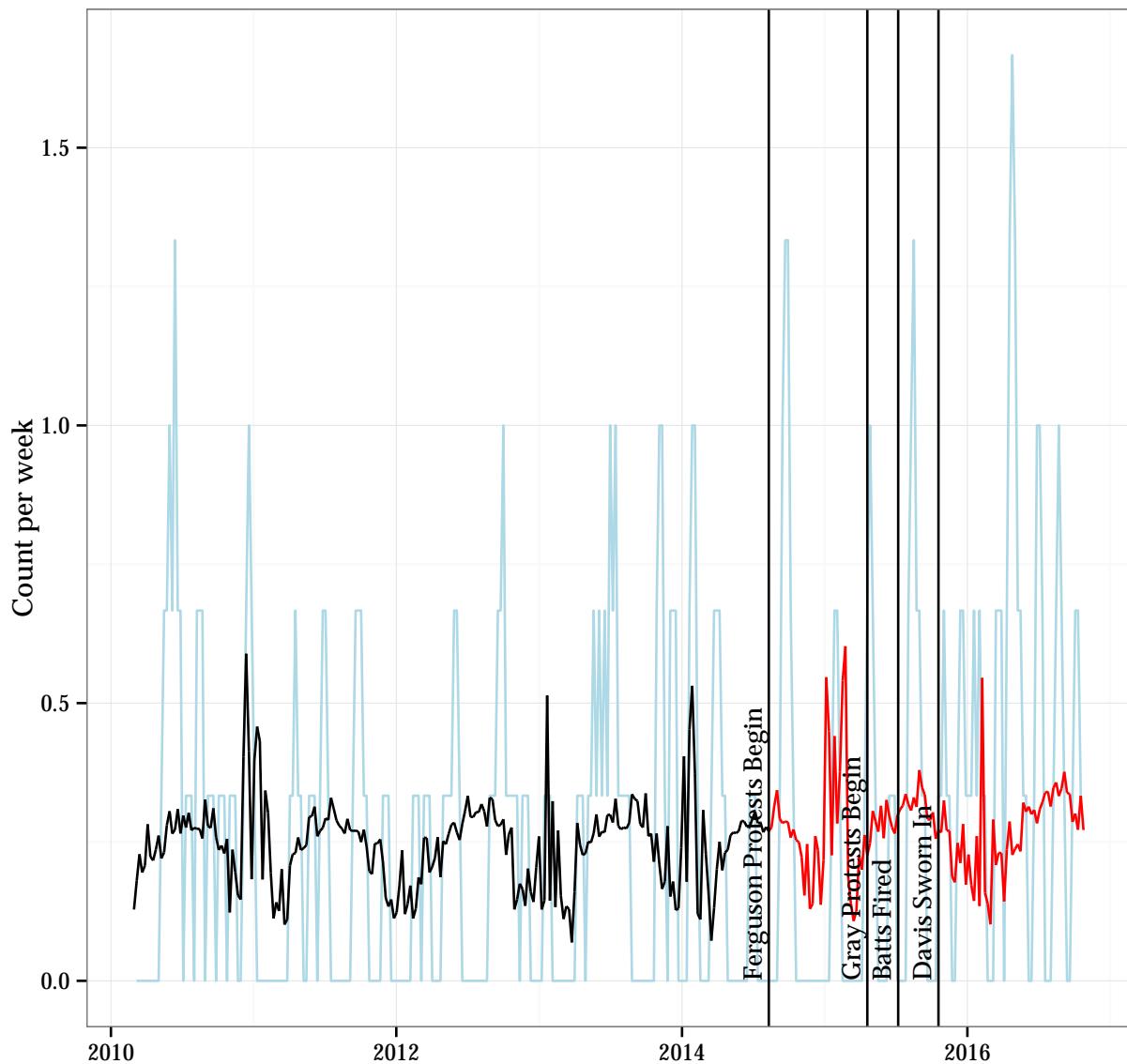
### 36.4 A Poisson Regression Model as an Alternative to Model (2) for homicide.southeastern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-0.9567 -0.7431 -0.6754 -0.4863  2.4529  
  
Coefficients:  
             Estimate Std. Error z value Pr(>|z|)  
(Intercept) 2.1524696  2.6431179  0.814   0.415  
t            0.0004584  0.0020230  0.227   0.821  
tmax.f.spline1 -0.0988750  0.0490850 -2.014   0.044 *  
tmax.f.spline2  0.1707144  0.1169897  1.459   0.145  
tmax.f.spline3 -0.0509631  0.1397271 -0.365   0.715  
tmax.f.spline4 -0.0042621  0.1204551 -0.035   0.972  
tmax.f.spline5  0.0012256  0.0976847  0.013   0.990  
snow.in       -0.5516201  0.7670596 -0.719   0.472  
precip.in      -0.0082031  0.7591454 -0.011   0.991  
dark.before.12  0.0756840  0.2132804  0.355   0.723  
school         0.1137080  0.5926209  0.192   0.848  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 182.20 on 231 degrees of freedom  
Residual deviance: 176.41 on 221 degrees of freedom  
AIC: 301.32  
  
Number of Fisher Scoring iterations: 6
```

### homicide.southeastern



## homicide.southeastern



## 37 Results for shooting.northwestern

### 37.1 Summary Values for shooting.northwestern

Table 37.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic             | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------------------|-----|-------|----------|-----|--------|-----|
| shooting.northwestern | 232 | 0.806 | 1.101    | 0   | 0      | 6   |

Table 37.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic             | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------------------|-----|-------|----------|-----|--------|-----|
| shooting.northwestern | 116 | 1.172 | 1.294    | 0   | 1      | 6   |

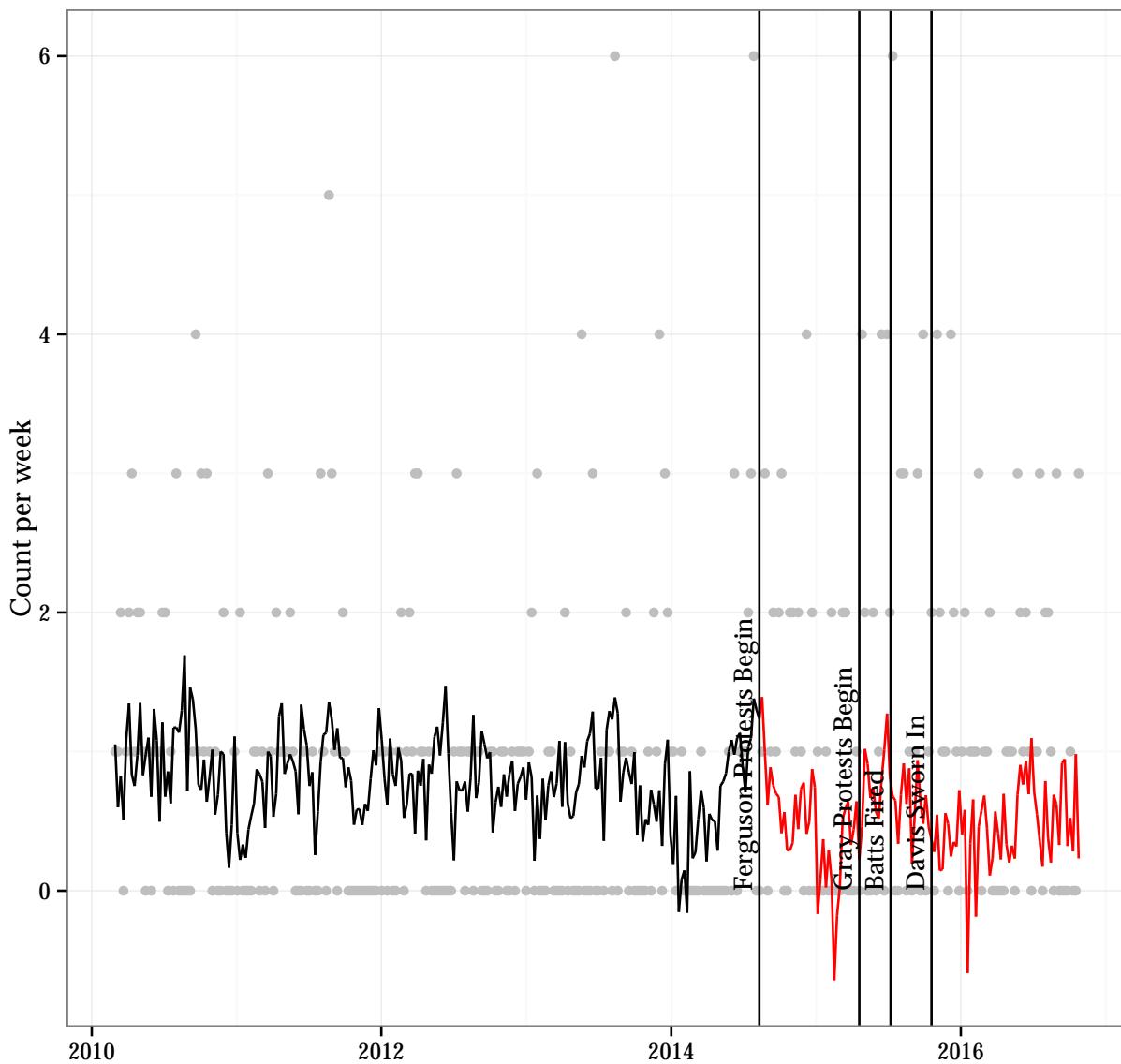
## 37.2 Four Models for shooting.northwestern

Table 37.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

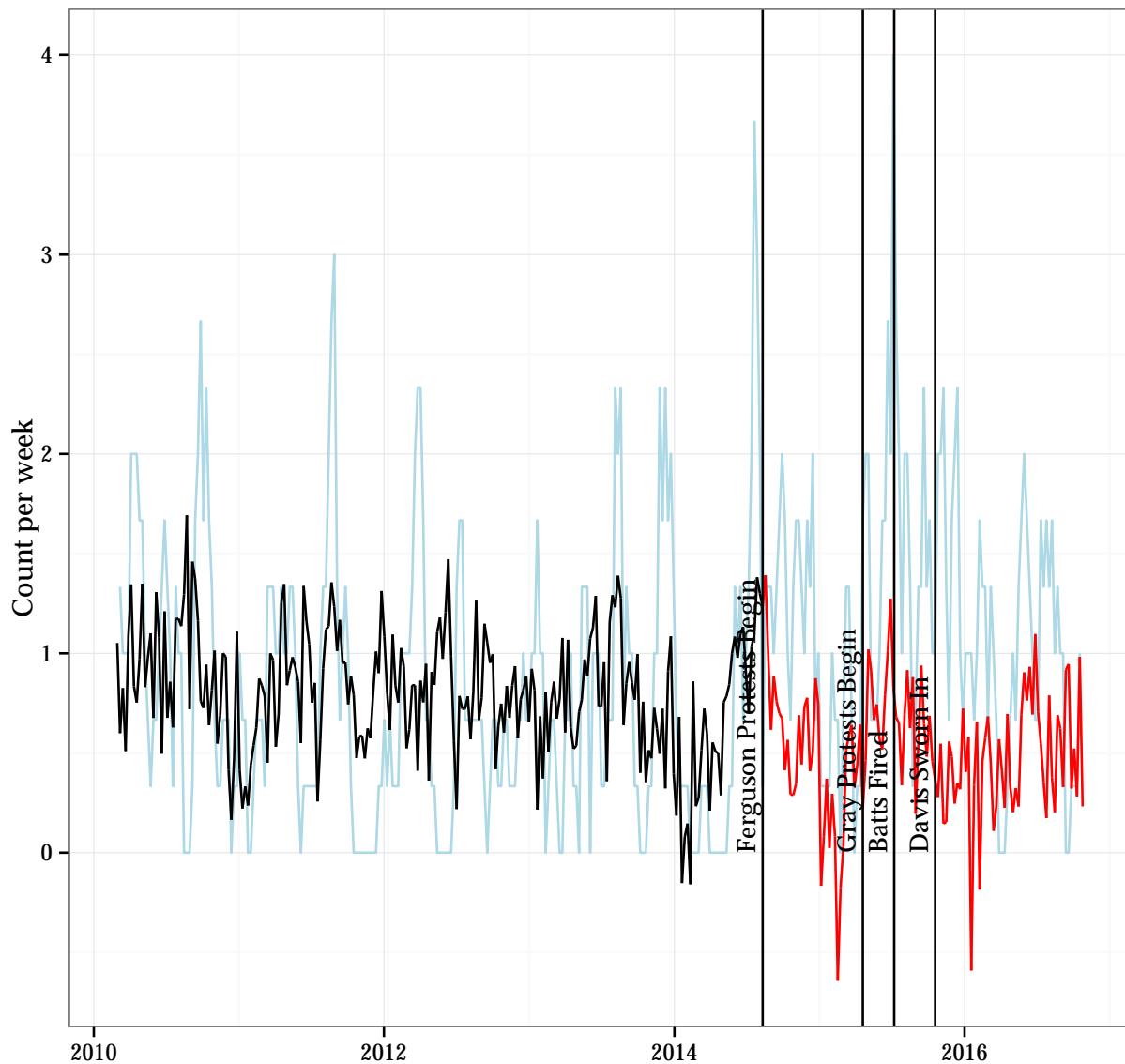
|  | Outcome: Count Per Week |        |       |        |
|--|-------------------------|--------|-------|--------|
|  | (1)                     | (2)    | (3)   | (4)    |
| Time (counter in weeks)                                | -0.001                  | -0.001 |       | -0.001 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | 0.35                    |        | 0.52  | 0.49   |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 0.39                    |        | 0.07  | 0.16   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 2.63                    |        | 2.95  | 2.94   |
| After Batts Fired (week of 7/13/15 onward)             | 0.22                    |        | 0.36  | 0.27   |
| After Davis Sworn In (week of 10/19/15 onward)         | -0.44                   |        | -0.32 | -0.32  |
| Average Maximum Temperature to 50 Degrees              |                         | 0.06   |       | 0.05   |
| Plus Degrees in the 50s                                |                         | -0.12  |       | -0.08  |
| Plus Degrees in the 60s                                |                         | 0.10   |       | 0.06   |
| Plus Degrees in the 70s                                |                         | 0.01   |       | 0.04   |
| Plus Degrees Greater Than 80                           |                         | -0.14  |       | -0.13  |
| Snowfall (inches)                                      |                         | -0.05  |       | -0.05  |
| Precipitation (inches)                                 |                         | -0.24  |       | -0.43  |
| Darkness Before Midnight (hours)                       |                         | 0.02   |       | 0.09   |
| School Days (proportion of week)                       |                         | -0.41  |       | -0.23  |
| Observations   | 348                     | 232    | 348   | 348    |
| R <sup>2</sup>   | 0.05                    | 0.08   | 0.09  | 0.10   |

### 37.3 Least Squares Model (2) for shooting.northwestern

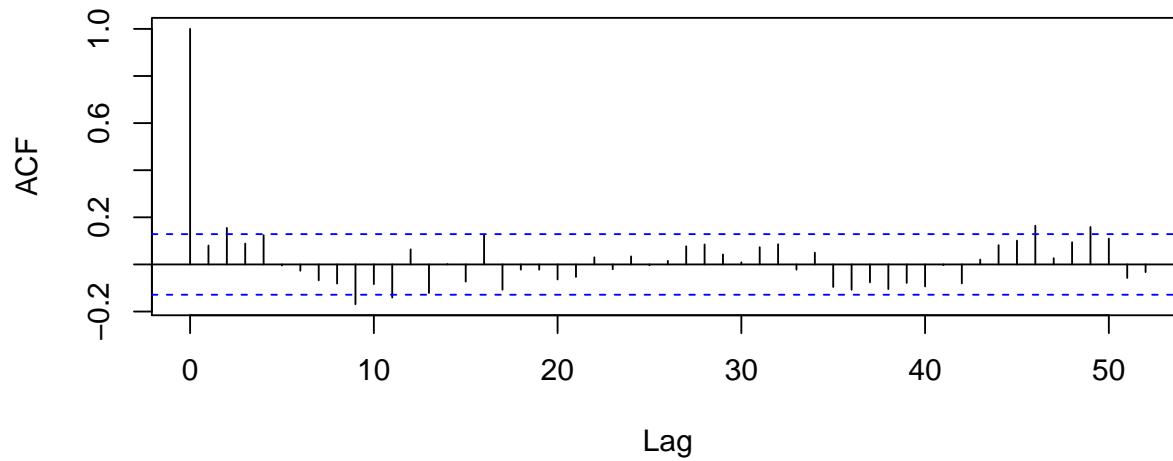
shooting.northwestern



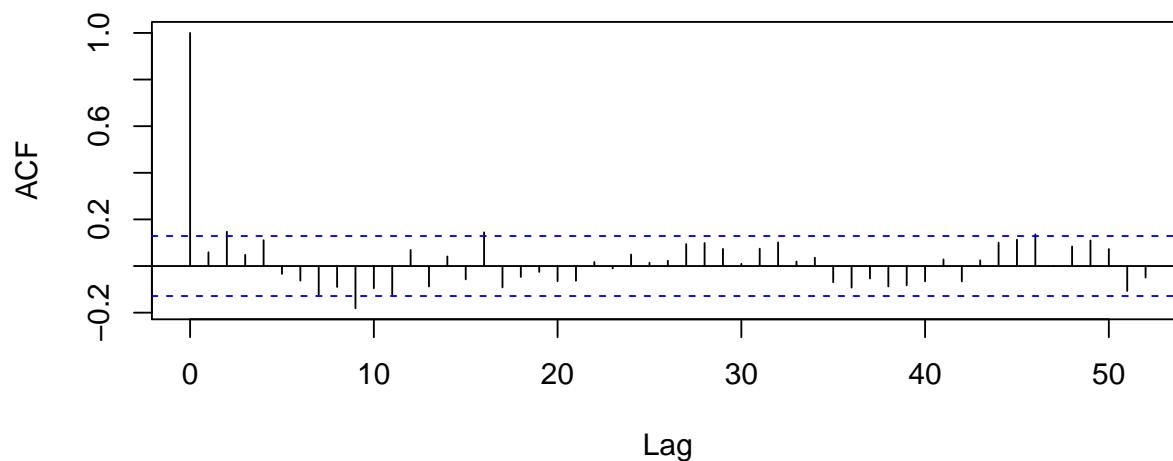
## shooting.northwestern



Autocorrelation Function for the Observed Outcome for Model (2)



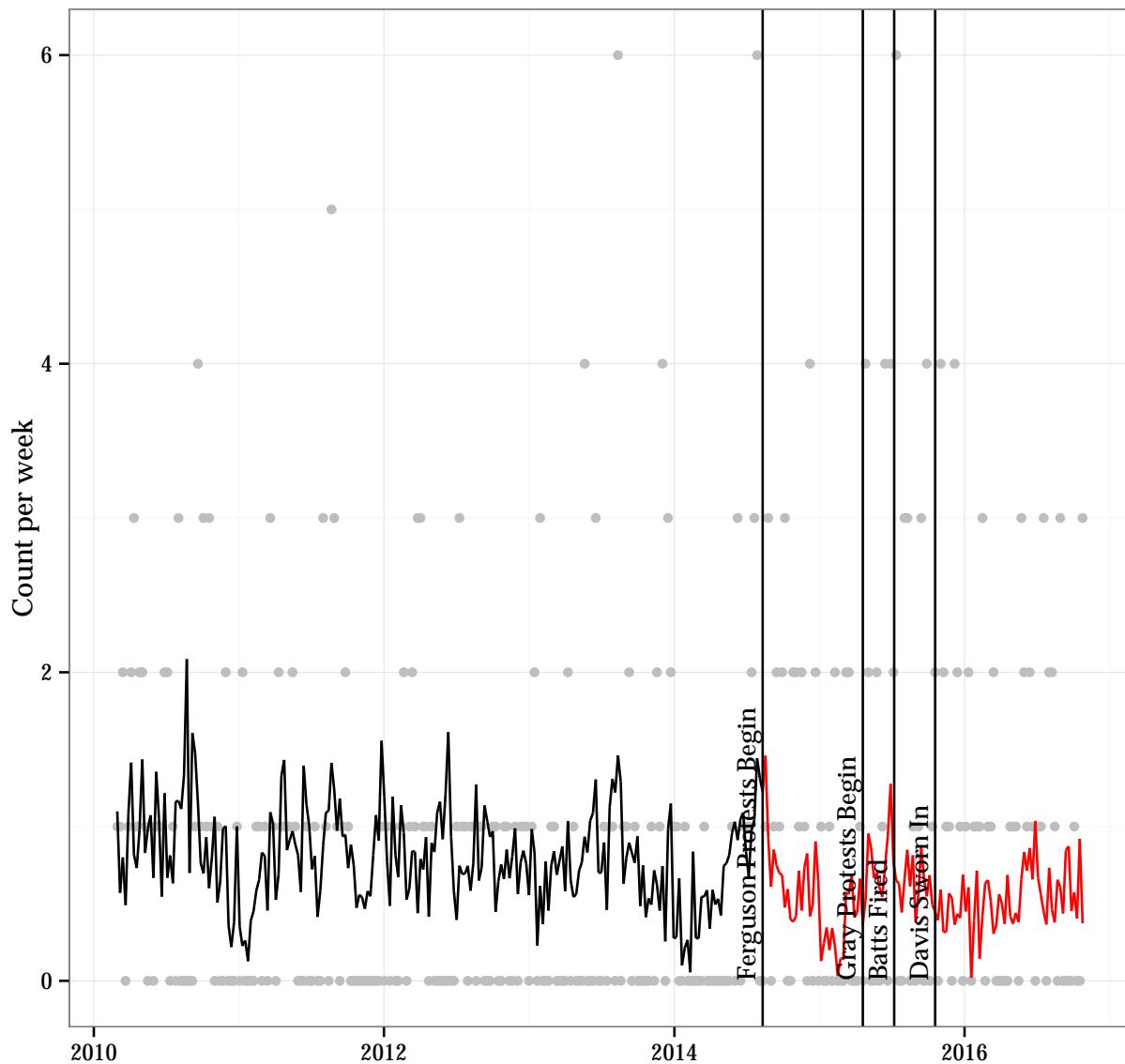
Autocorrelation Function for the Residuals from Model (2)



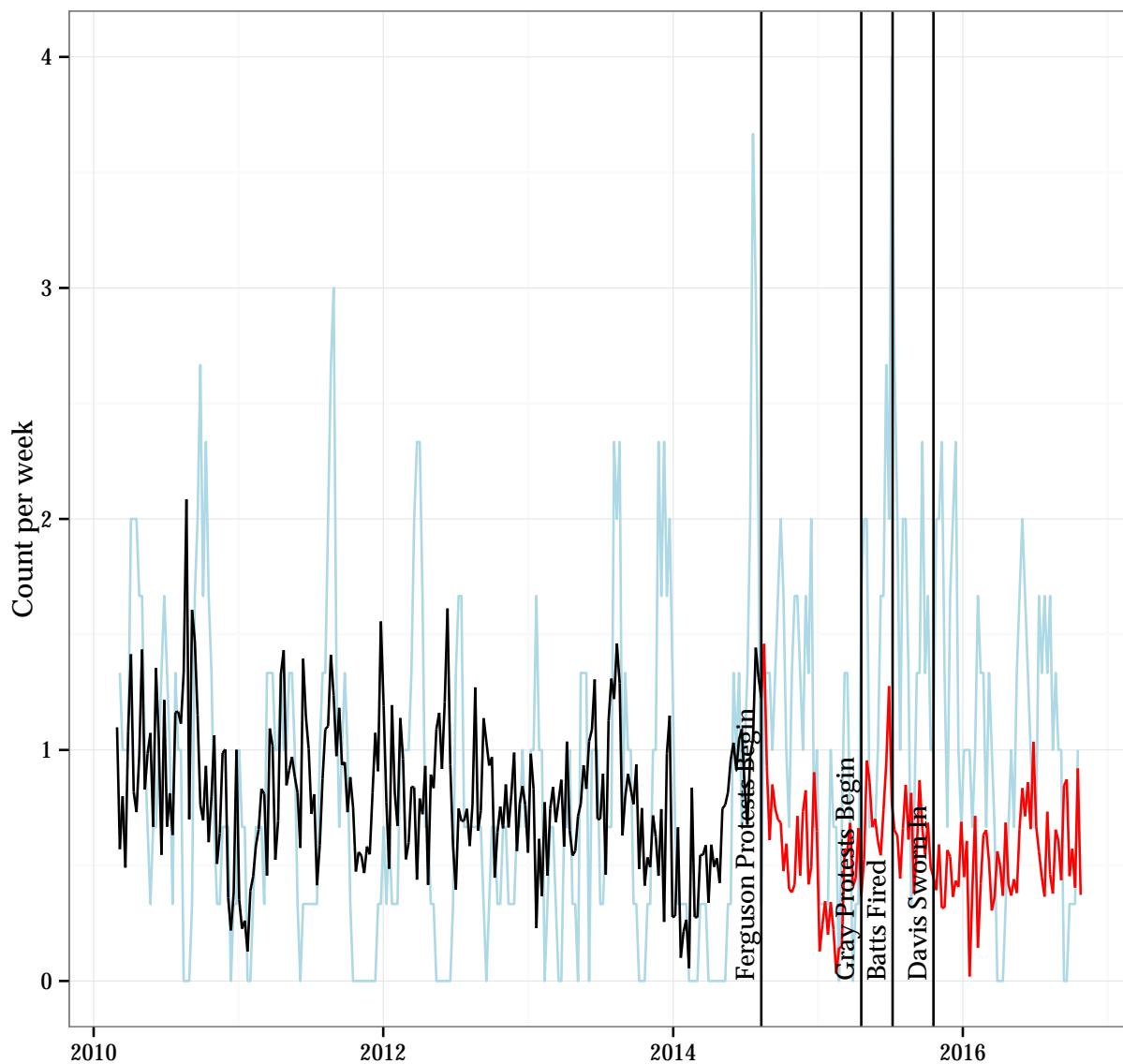
### 37.4 A Poisson Regression Model as an Alternative to Model (2) for shooting.northwestern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-2.0420 -1.1868 -0.4632  0.3960  2.8263  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) -4.487120  2.038287 -2.201  0.02771 *  
t            -0.001702  0.001119 -1.522  0.12809  
tmax.f.spline1  0.099655  0.038396  2.595  0.00945 **  
tmax.f.spline2 -0.195197  0.067184 -2.905  0.00367 **  
tmax.f.spline3  0.158675  0.080036  1.983  0.04742 *  
tmax.f.spline4 -0.009281  0.068143 -0.136  0.89166  
tmax.f.spline5 -0.147570  0.054963 -2.685  0.00725 **  
snow.in        -0.483533  0.716893 -0.674  0.50000  
precip.in       -0.281741  0.408508 -0.690  0.49039  
dark.before.12   0.022947  0.112069  0.205  0.83776  
school         -0.456583  0.299889 -1.523  0.12788  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 324.57 on 231 degrees of freedom  
Residual deviance: 294.11 on 221 degrees of freedom  
AIC: 581.24  
  
Number of Fisher Scoring iterations: 6
```

## shooting.northwestern



## shooting.northwestern



## 38 Results for shooting.northern

### 38.1 Summary Values for shooting.northern

Table 38.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic         | N   | Mean  | St. Dev. | Min | Median | Max |
|-------------------|-----|-------|----------|-----|--------|-----|
| shooting.northern | 232 | 0.517 | 0.800    | 0   | 0      | 4   |

Table 38.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic         | N   | Mean  | St. Dev. | Min | Median | Max |
|-------------------|-----|-------|----------|-----|--------|-----|
| shooting.northern | 116 | 0.845 | 1.296    | 0   | 0      | 8   |

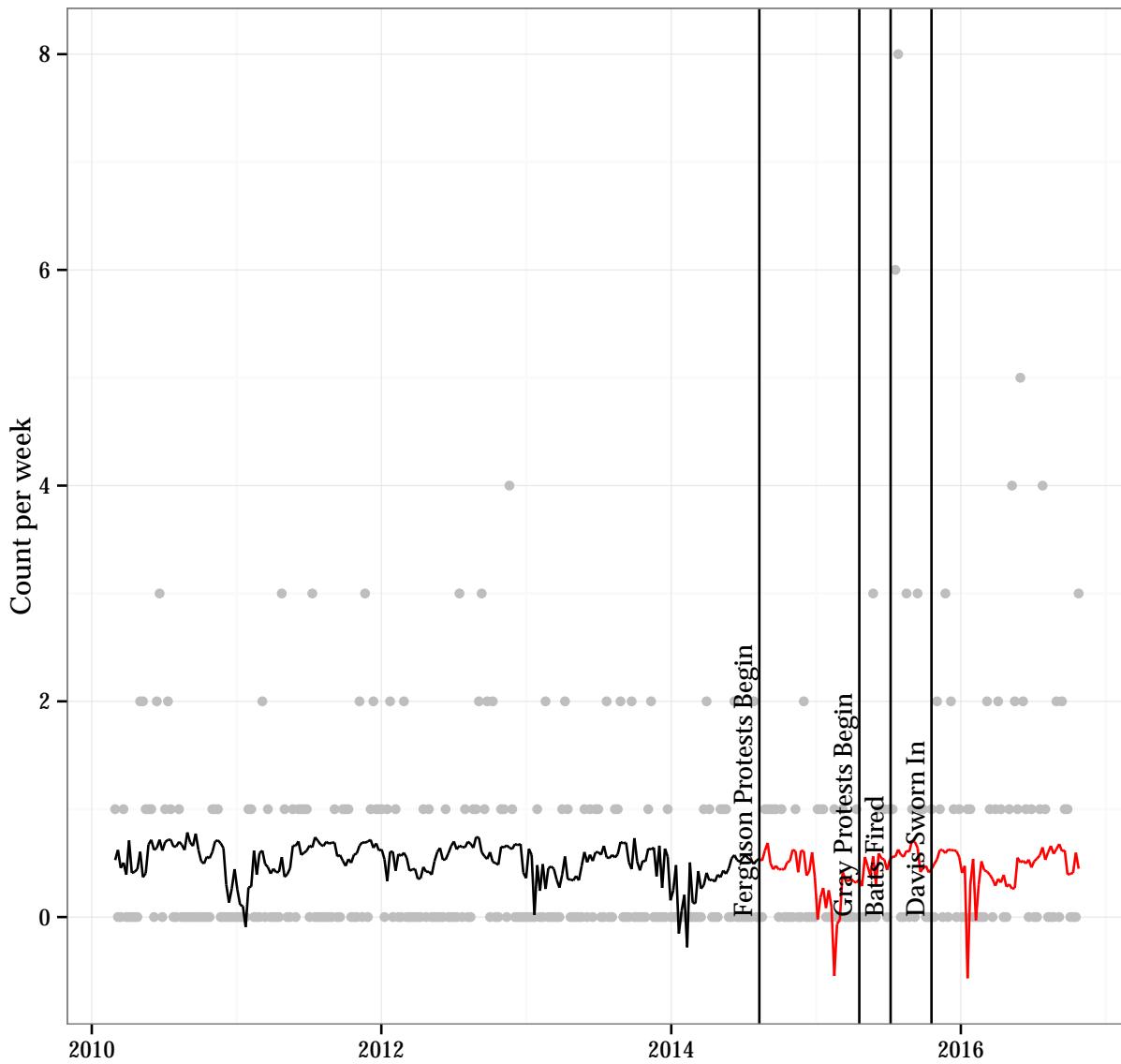
## 38.2 Four Models for shooting.northern

Table 38.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

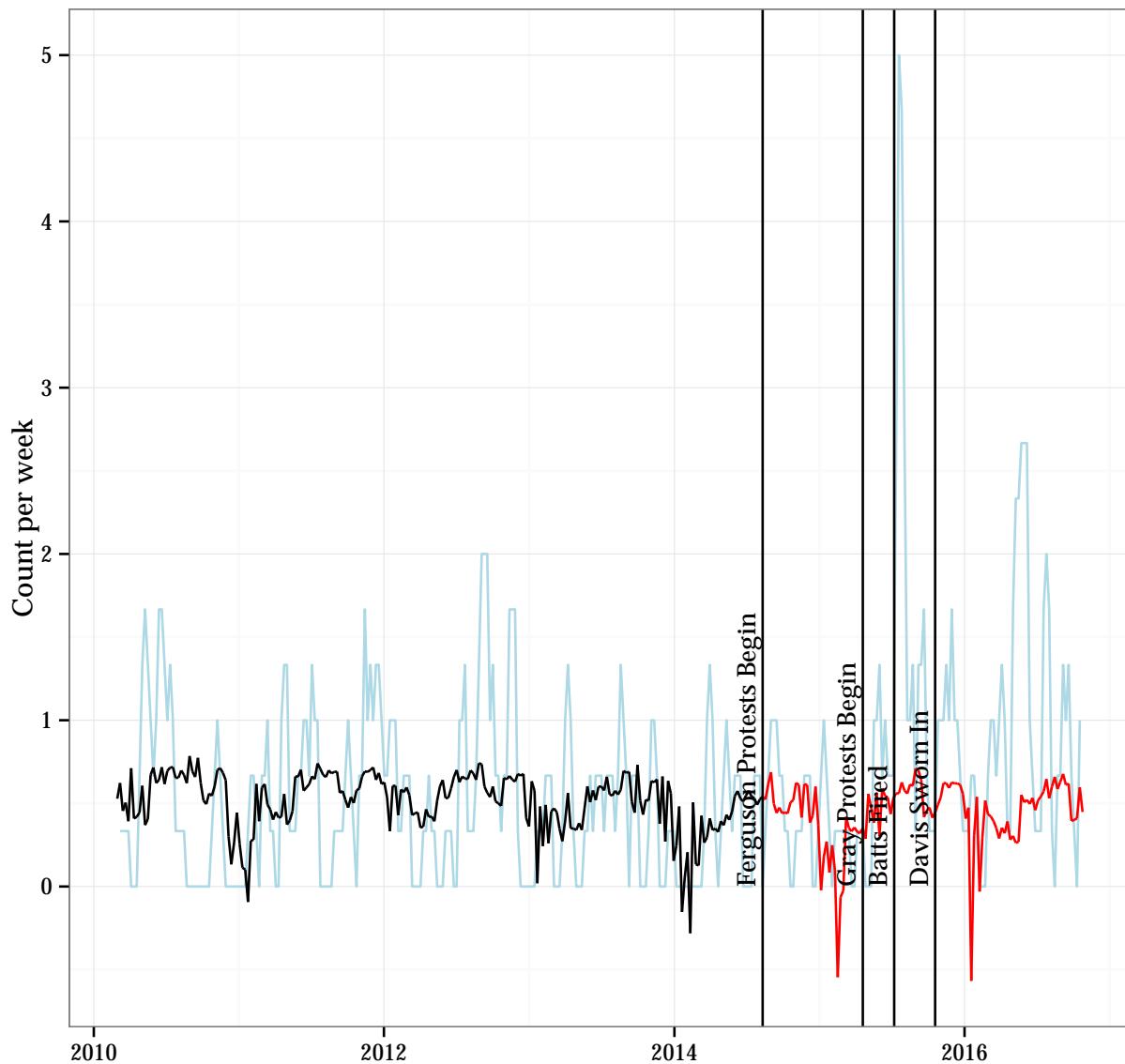
|  | Outcome: Count Per Week |         |       |         |
|--|-------------------------|---------|-------|---------|
|  | (1)                     | (2)     | (3)   | (4)     |
| Time (counter in weeks)                                | -0.001                  | -0.0004 |       | -0.0004 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.02                   |         | 0.05  | 0.06    |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 0.24                    |         | 0.10  | 0.05    |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -0.64                   |         | -0.44 | -0.46   |
| After Batts Fired (week of 7/13/15 onward)             | 1.09                    |         | 0.99  | 1.01    |
| After Davis Sworn In (week of 10/19/15 onward)         | -0.73                   |         | -0.65 | -0.62   |
| Average Maximum Temperature to 50 Degrees              |                         | 0.03    |       | 0.02    |
| Plus Degrees in the 50s                                |                         | -0.03   |       | -0.01   |
| Plus Degrees in the 60s                                |                         | -0.01   |       | -0.02   |
| Plus Degrees in the 70s                                |                         | 0.04    |       | 0.04    |
| Plus Degrees Greater Than 80                           |                         | -0.02   |       | 0.01    |
| Snowfall (inches)                                      |                         | -0.14   |       | 0.02    |
| Precipitation (inches)                                 |                         | 0.09    |       | 0.07    |
| Darkness Before Midnight (hours)                       |                         | 0.09    |       | 0.02    |
| School Days (proportion of week)                       |                         | 0.07    |       | 0.25    |
| Observations   | 348                     | 232     | 348   | 348     |
| R <sup>2</sup>   | 0.08                    | 0.05    | 0.08  | 0.11    |

### 38.3 Least Squares Model (2) for shooting.northern

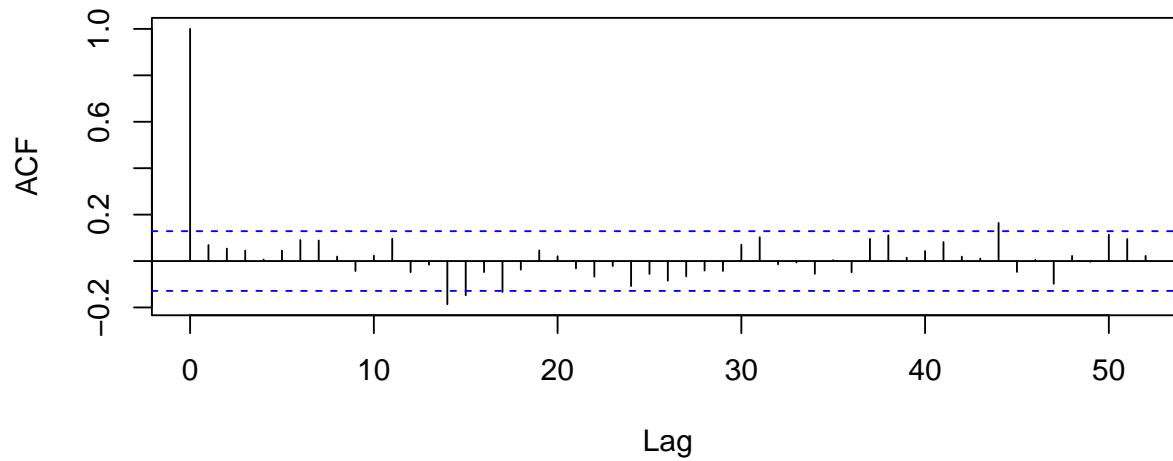
shooting.northern



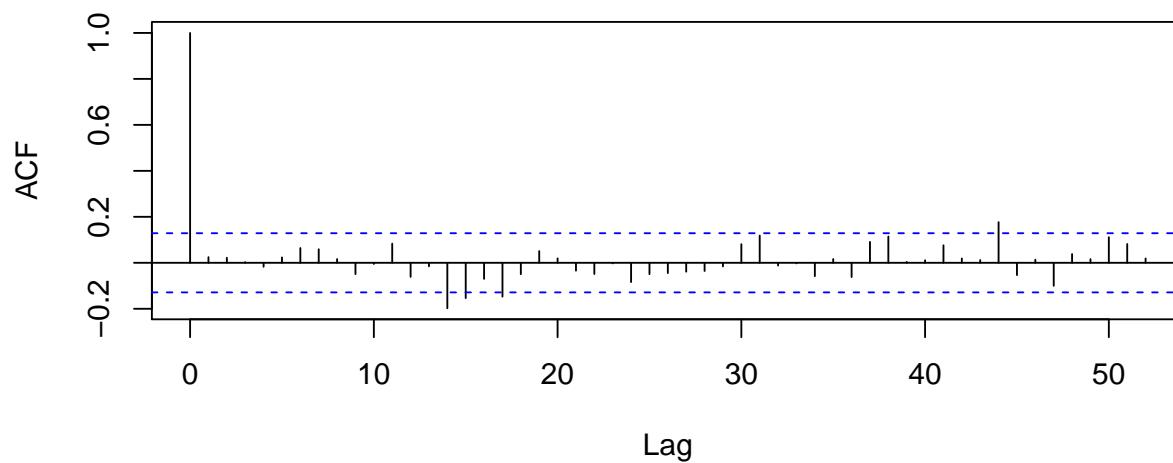
## shooting.northern



Autocorrelation Function for the Observed Outcome for Model (2)



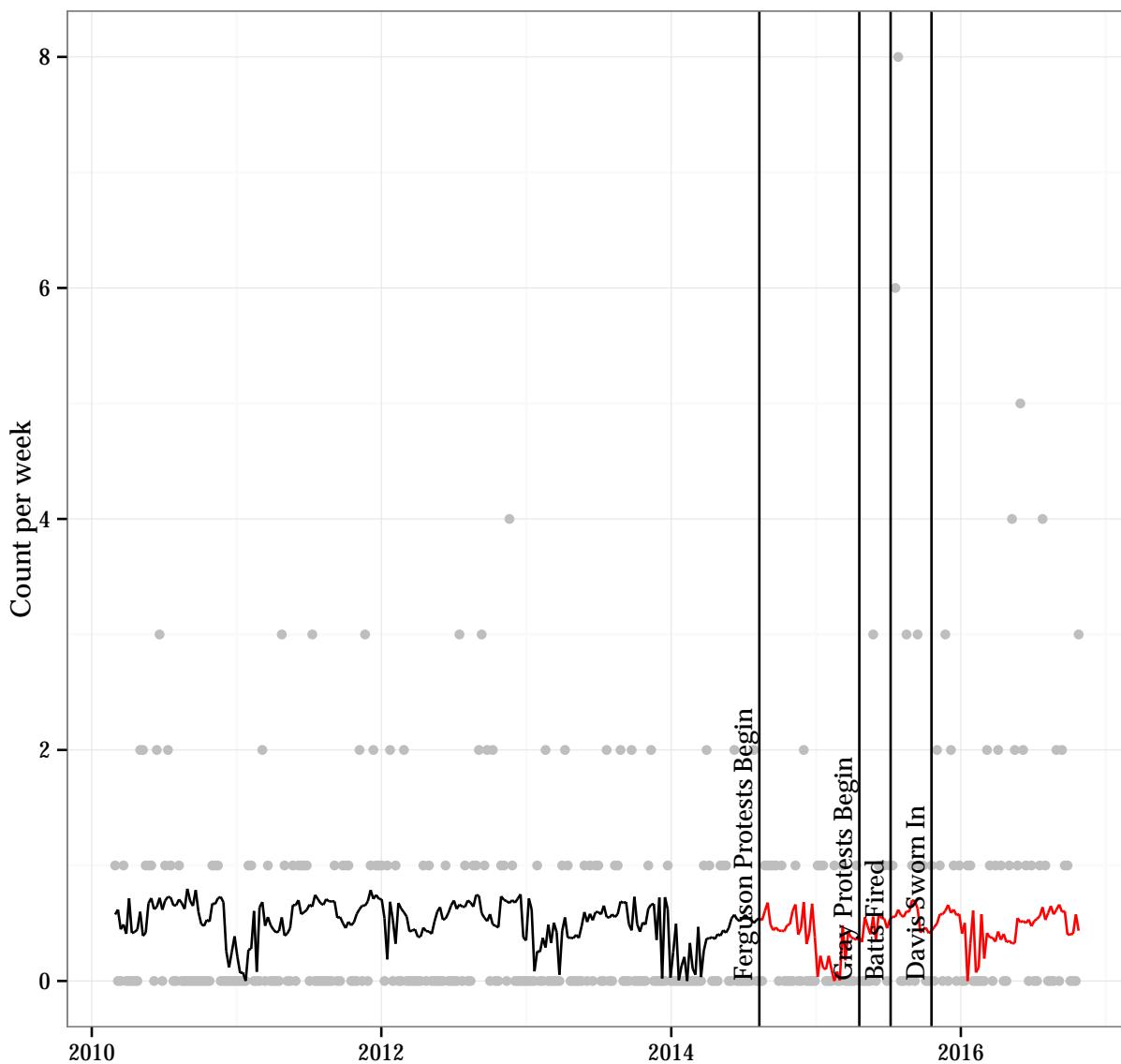
Autocorrelation Function for the Residuals from Model (2)



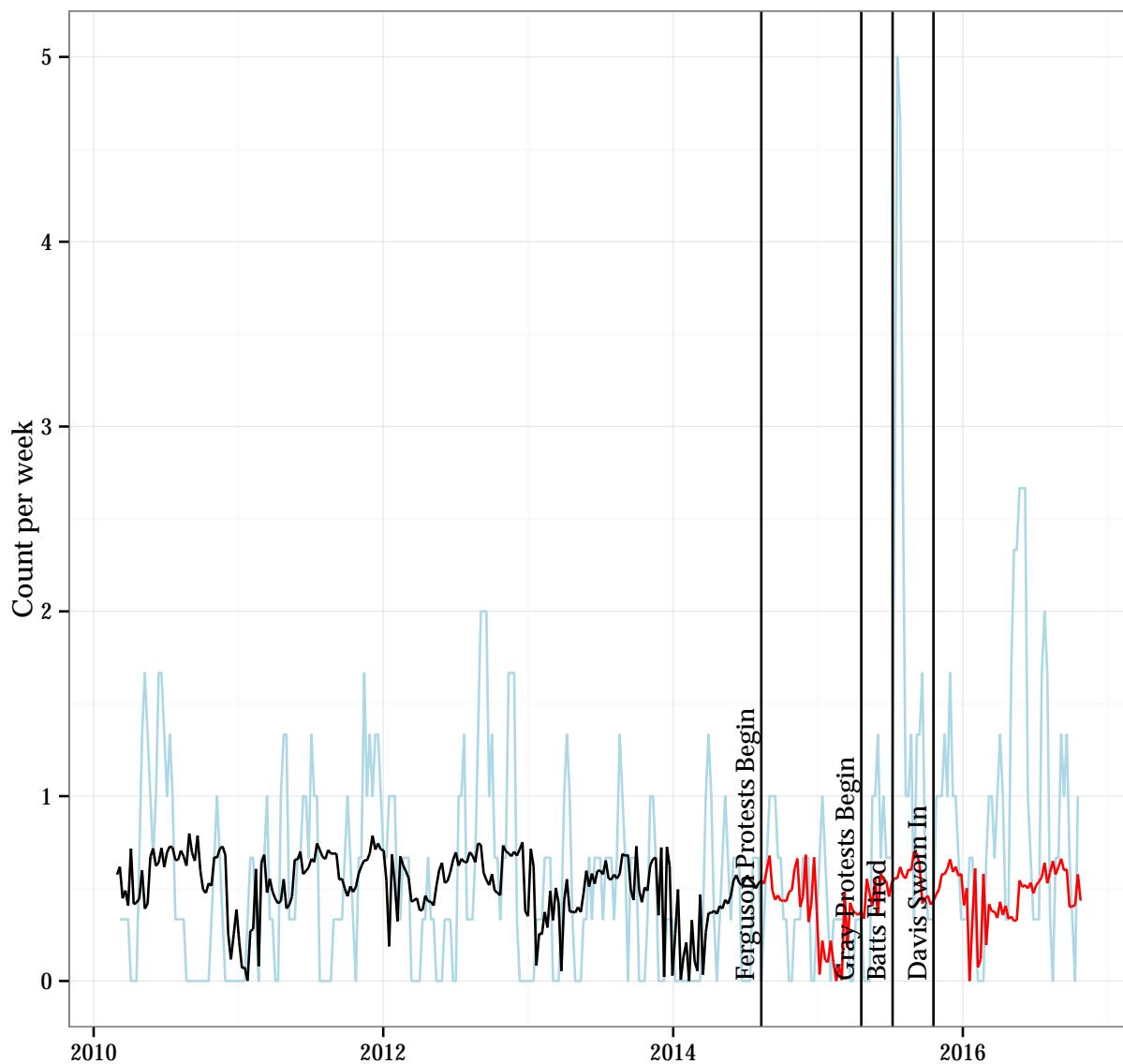
### 38.4 A Poisson Regression Model as an Alternative to Model (2) for shooting.northern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-1.2636 -1.0533 -0.8730  0.4758  2.7549  
  
Coefficients:  
             Estimate Std. Error z value Pr(>|z|)  
(Intercept) -5.7127187  2.6923681 -2.122  0.0339 *  
t            -0.0006452  0.0014378 -0.449  0.6536  
tmax.f.spline1  0.0883822  0.0526470  1.679  0.0932 .  
tmax.f.spline2 -0.1053757  0.0848158 -1.242  0.2141  
tmax.f.spline3  0.0051666  0.0876377  0.059  0.9530  
tmax.f.spline4  0.0639876  0.0833009  0.768  0.4424  
tmax.f.spline5 -0.0341093  0.0677059 -0.504  0.6144  
snow.in       -3.1559088  2.3464399 -1.345  0.1786  
precip.in      0.1639742  0.4787205  0.343  0.7320  
dark.before.12 0.1415719  0.1367601  1.035  0.3006  
school         0.1048492  0.4017334  0.261  0.7941  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 267.08 on 231 degrees of freedom  
Residual deviance: 248.34 on 221 degrees of freedom  
AIC: 458.44  
  
Number of Fisher Scoring iterations: 6
```

## shooting.northern



## shooting.northern



## 39 Results for shooting.northeastern

### 39.1 Summary Values for shooting.northeastern

Table 39.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic             | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------------------|-----|-------|----------|-----|--------|-----|
| shooting.northeastern | 232 | 0.974 | 1.158    | 0   | 1      | 6   |

Table 39.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic             | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------------------|-----|-------|----------|-----|--------|-----|
| shooting.northeastern | 116 | 1.276 | 1.484    | 0   | 1      | 7   |

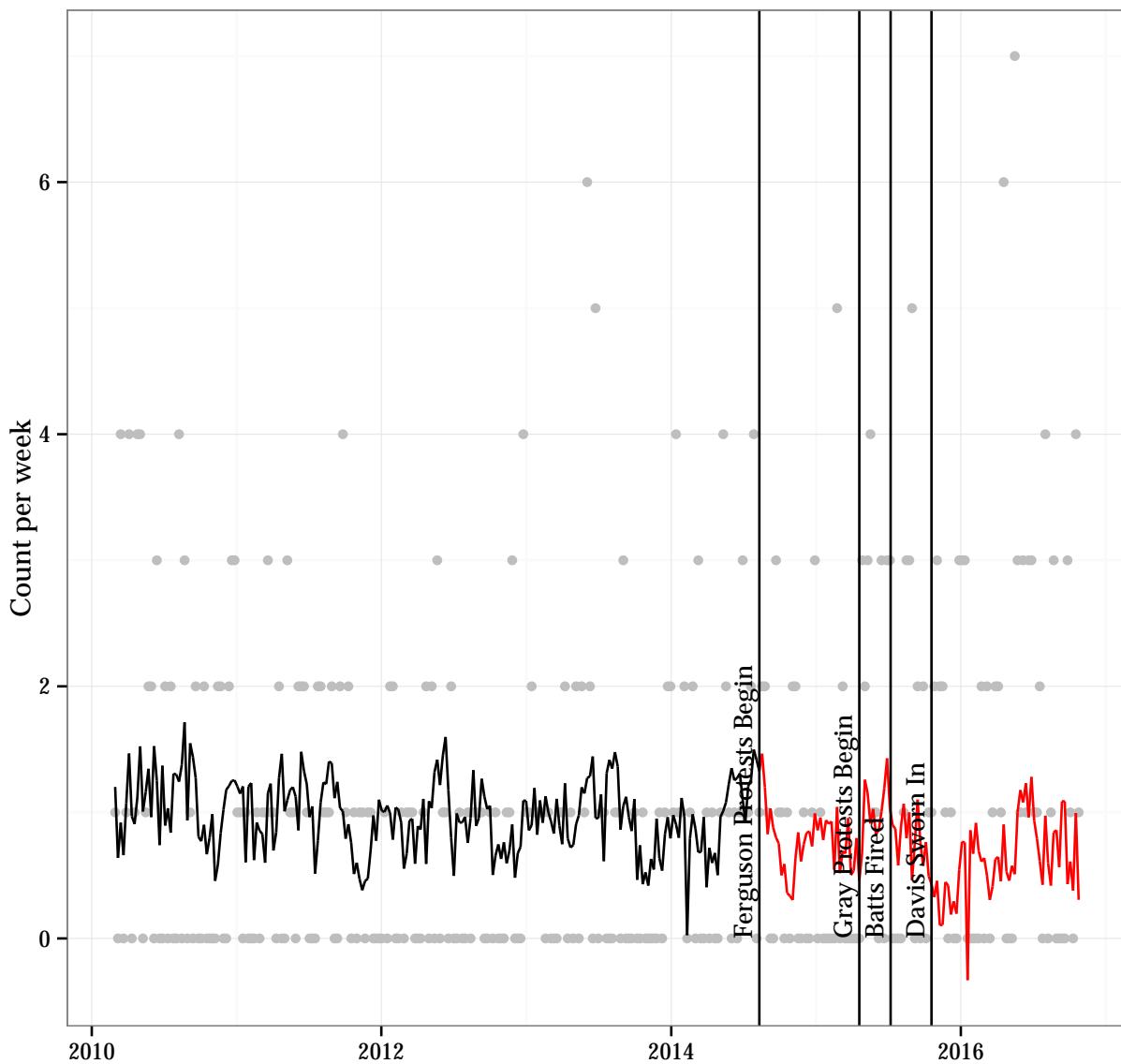
## 39.2 Four Models for shooting.northeastern

Table 39.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

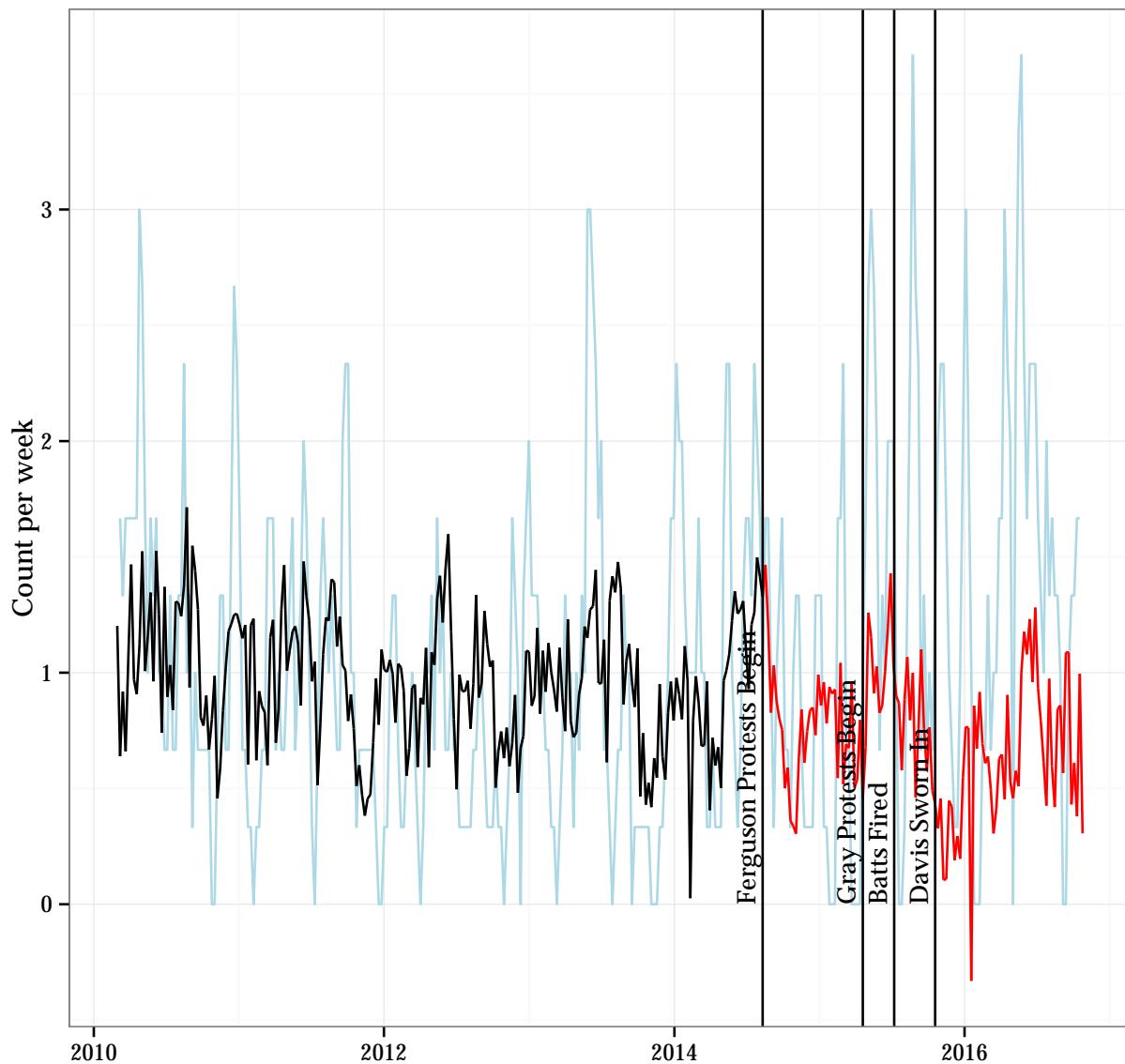
|  | Outcome: Count Per Week |        |       |        |
|--|-------------------------|--------|-------|--------|
|  | (1)                     | (2)    | (3)   | (4)    |
| Time (counter in weeks)                                | -0.001                  | -0.001 |       | -0.001 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.07                   |        | 0.02  | 0.03   |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 1.03                    |        | 0.78  | 0.78   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 1.18                    |        | 1.52  | 1.42   |
| After Batts Fired (week of 7/13/15 onward)             | -0.59                   |        | -0.38 | -0.44  |
| After Davis Sworn In (week of 10/19/15 onward)         | 0.27                    |        | 0.41  | 0.45   |
| Average Maximum Temperature to 50 Degrees              |                         | -0.01  |       | -0.02  |
| Plus Degrees in the 50s                                |                         | -0.04  |       | -0.03  |
| Plus Degrees in the 60s                                |                         | 0.09   |       | 0.10   |
| Plus Degrees in the 70s                                |                         | 0.02   |       | -0.01  |
| Plus Degrees Greater Than 80                           |                         | -0.13  |       | -0.12  |
| Snowfall (inches)                                      |                         | -0.39  |       | -0.54  |
| Precipitation (inches)                                 |                         | -0.24  |       | -0.38  |
| Darkness Before Midnight (hours)                       |                         | -0.08  |       | -0.03  |
| School Days (proportion of week)                       |                         | -0.22  |       | -0.41  |
| Observations   | 348                     | 232    | 348   | 348    |
| R <sup>2</sup>   | 0.04                    | 0.06   | 0.07  | 0.10   |

### 39.3 Least Squares Model (2) for shooting.northeastern

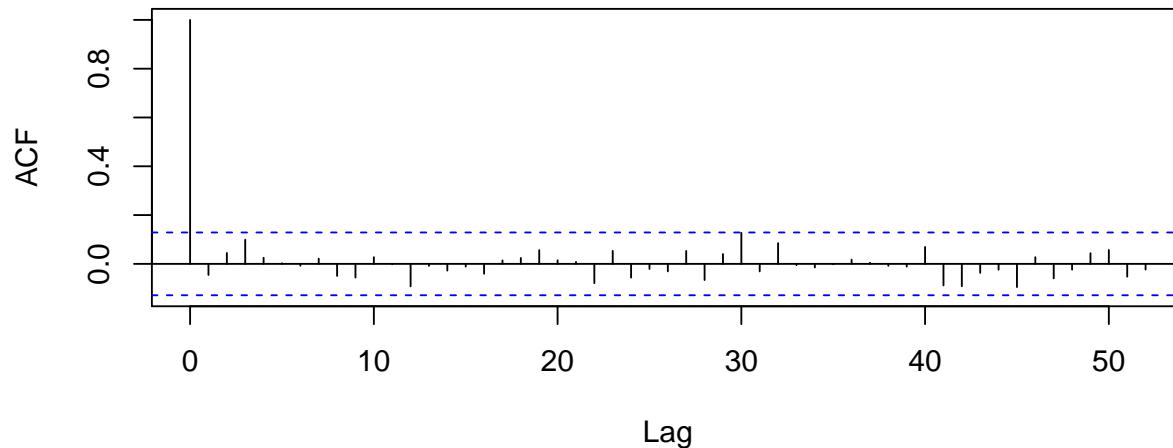
shooting.northeastern



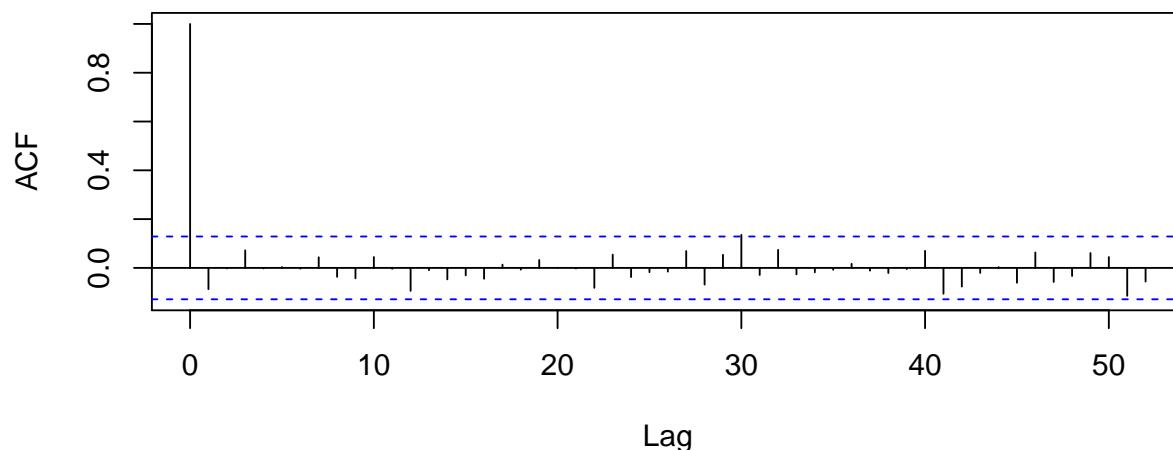
## shooting.northeastern



Autocorrelation Function for the Observed Outcome for Model (2)



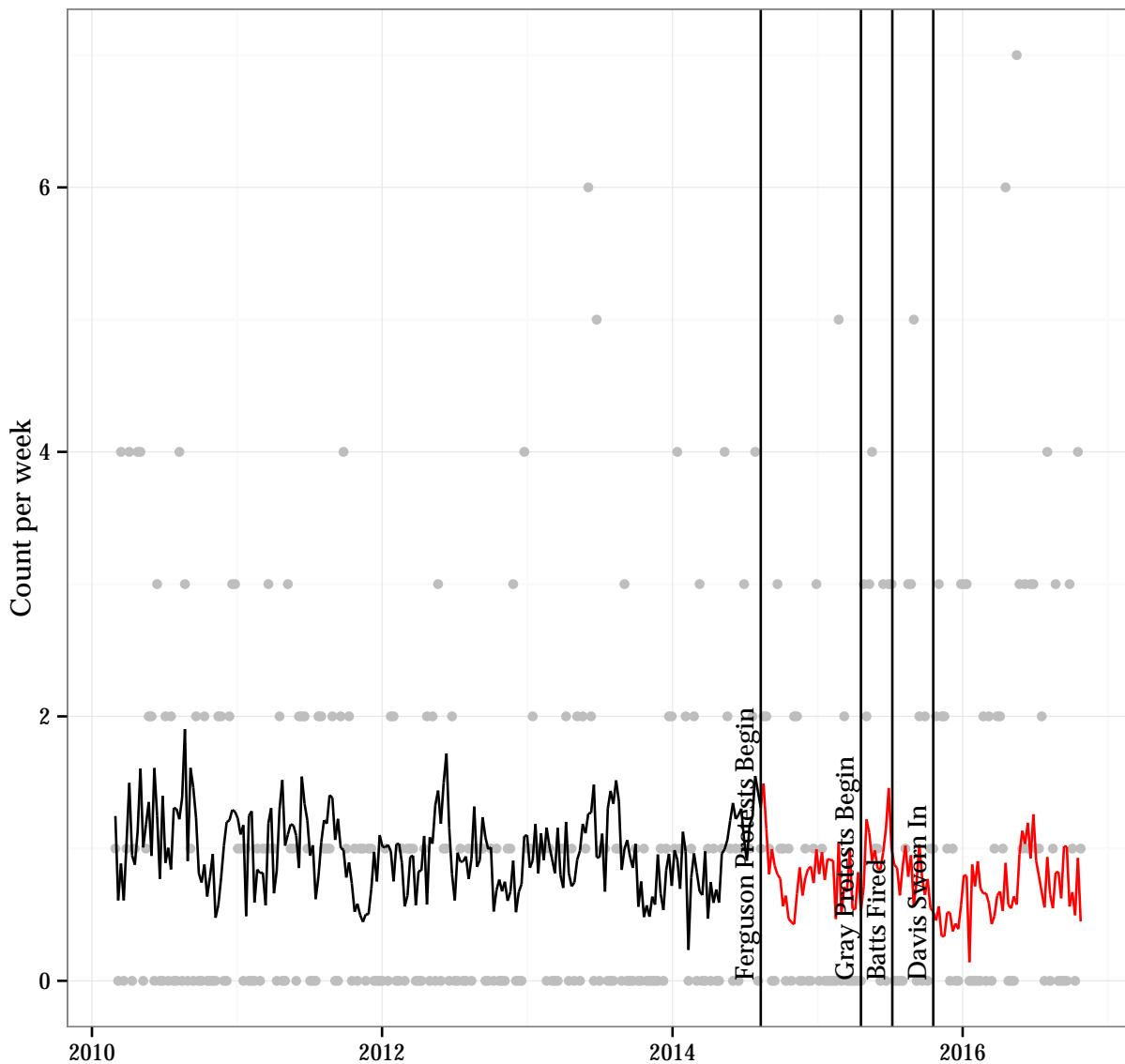
Autocorrelation Function for the Residuals from Model (2)



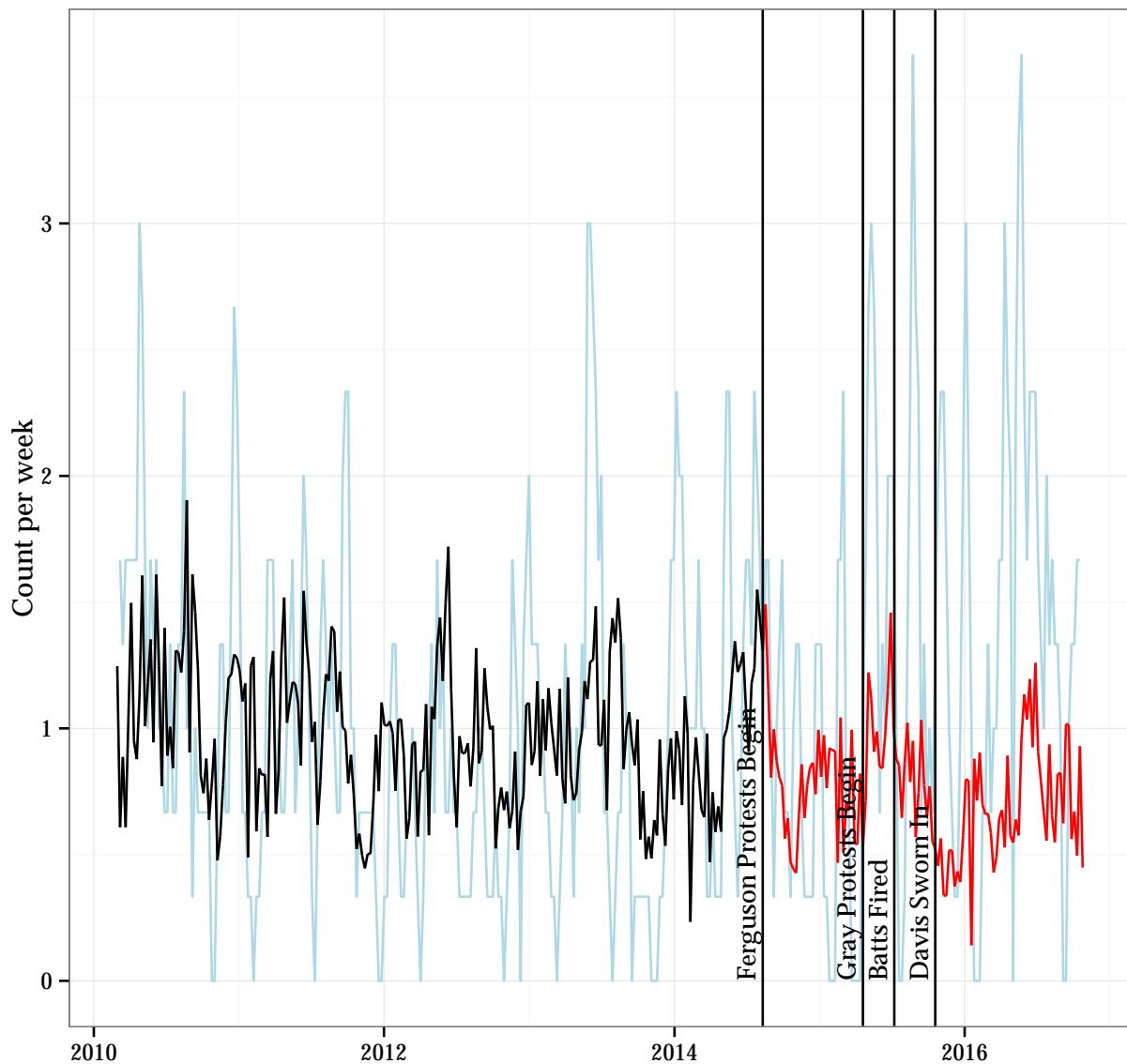
### 39.4 A Poisson Regression Model as an Alternative to Model (2) for shooting.northeastern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-1.7940 -1.2911 -0.1992  0.5890  3.0348  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) 1.684458  1.407224  1.197  0.2313  
t            -0.001209  0.001008 -1.200  0.2302  
tmax.f.spline1 -0.015538  0.024718 -0.629  0.5296  
tmax.f.spline2 -0.063538  0.055712 -1.140  0.2541  
tmax.f.spline3  0.129044  0.075649  1.706  0.0880 .  
tmax.f.spline4 -0.002446  0.064253 -0.038  0.9696  
tmax.f.spline5 -0.117208  0.050463 -2.323  0.0202 *  
snow.in       -0.579501  0.459336 -1.262  0.2071  
precip.in      -0.237405  0.384303 -0.618  0.5367  
dark.before.12 -0.093583  0.104394 -0.896  0.3700  
school        -0.215541  0.280715 -0.768  0.4426  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 327.12 on 231 degrees of freedom  
Residual deviance: 307.04 on 221 degrees of freedom  
AIC: 638.61  
  
Number of Fisher Scoring iterations: 5
```

## shooting.northeastern



## shooting.northeastern



## 40 Results for shooting.western

### 40.1 Summary Values for shooting.western

Table 40.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic        | N   | Mean  | St. Dev. | Min | Median | Max |
|------------------|-----|-------|----------|-----|--------|-----|
| shooting.western | 232 | 1.250 | 1.382    | 0   | 1      | 7   |

Table 40.2: Descriptives for Outcome After Ferguson Protests Begin

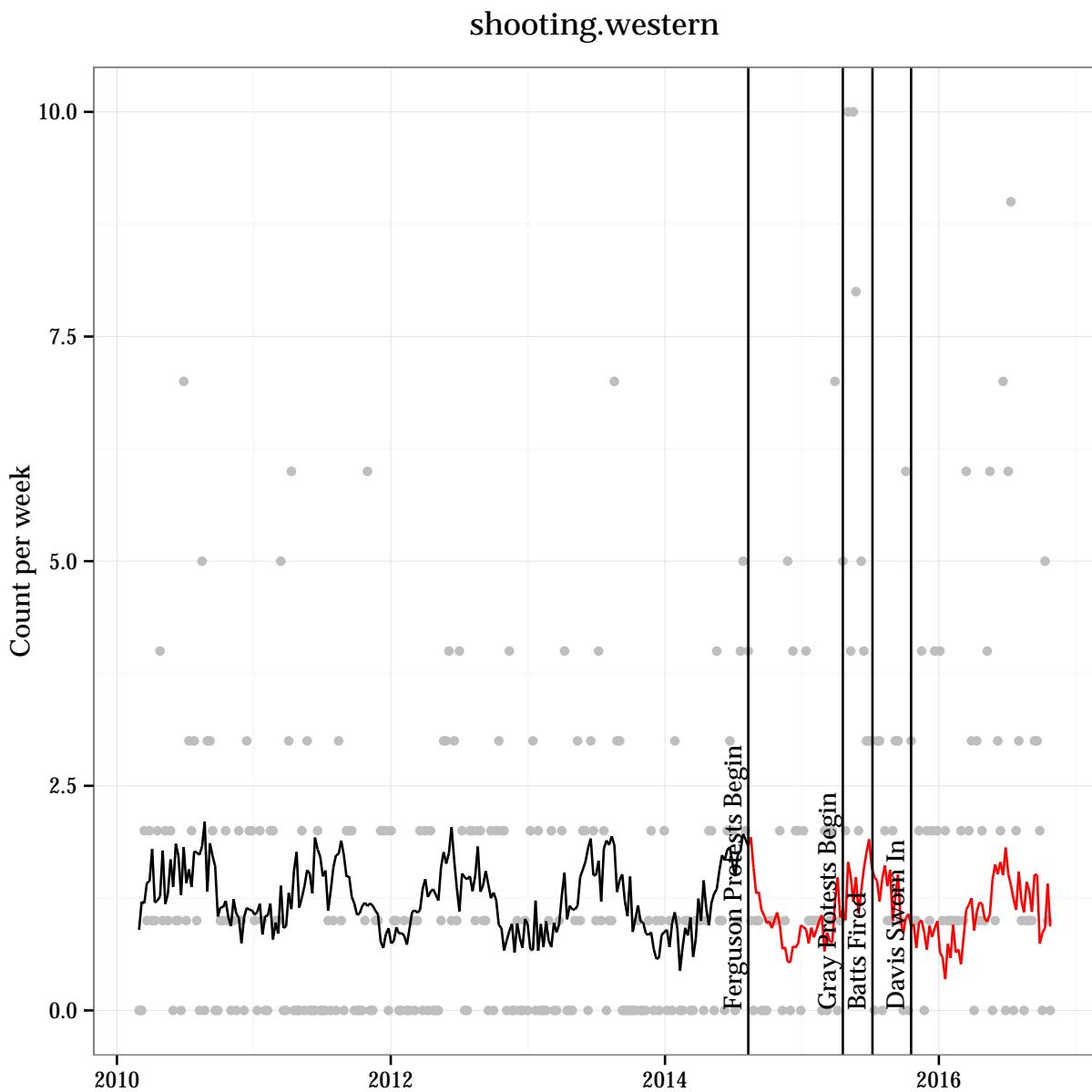
| Statistic        | N   | Mean  | St. Dev. | Min | Median | Max |
|------------------|-----|-------|----------|-----|--------|-----|
| shooting.western | 116 | 2.164 | 2.155    | 0   | 1.5    | 10  |

## 40.2 Four Models for shooting.western

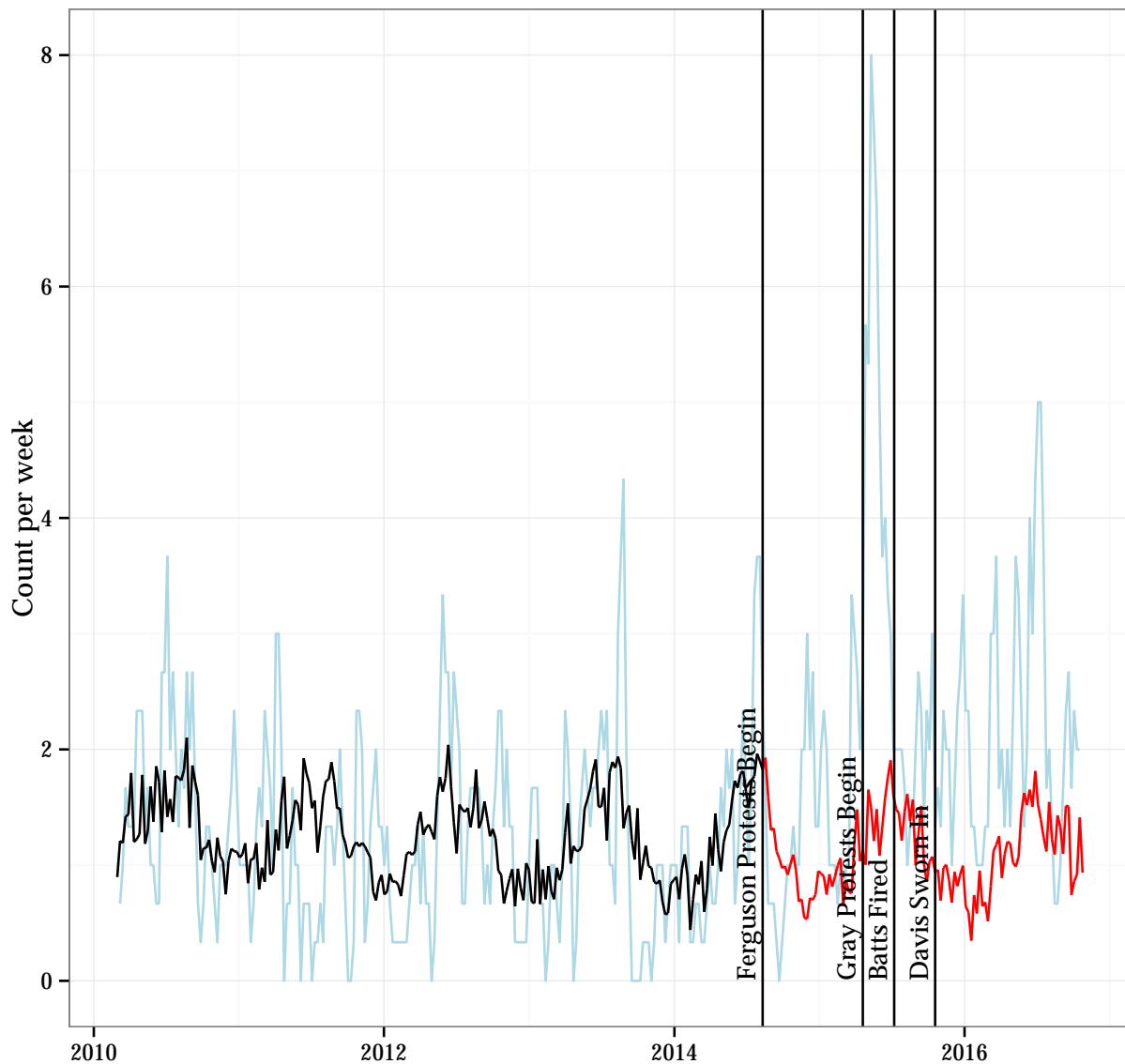
Table 40.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

|  | Outcome: Count Per Week |        |       |        |
|--|-------------------------|--------|-------|--------|
|  | (1)                     | (2)    | (3)   | (4)    |
| Time (counter in weeks)                                | -0.001                  | -0.001 |       | -0.001 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | 0.25                    |        | 0.43  | 0.39   |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 3.78                    |        | 3.28  | 3.31   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -3.18                   |        | -2.71 | -2.75  |
| After Batts Fired (week of 7/13/15 onward)             | -3.39                   |        | -3.20 | -3.14  |
| After Davis Sworn In (week of 10/19/15 onward)         | 0.38                    |        | 0.57  | 0.47   |
| Average Maximum Temperature to 50 Degrees              |                         | -0.03  |       | -0.03  |
| Plus Degrees in the 50s                                |                         | 0.08   |       | 0.10   |
| Plus Degrees in the 60s                                |                         | -0.09  |       | -0.15  |
| Plus Degrees in the 70s                                |                         | 0.11   |       | 0.15   |
| Plus Degrees Greater Than 80                           |                         | -0.14  |       | -0.13  |
| Snowfall (inches)                                      |                         | -0.22  |       | -0.16  |
| Precipitation (inches)                                 |                         | -0.15  |       | -0.01  |
| Darkness Before Midnight (hours)                       |                         | -0.08  |       | -0.13  |
| School Days (proportion of week)                       |                         | -0.35  |       | 0.03   |
| Observations   | 348                     | 232    | 348   | 348    |
| R <sup>2</sup>   | 0.18                    | 0.07   | 0.18  | 0.21   |

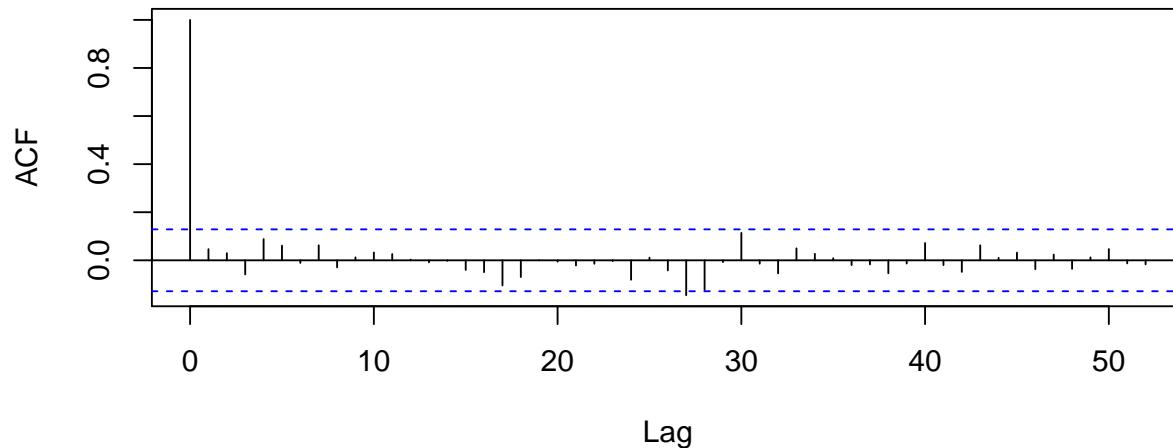
### 40.3 Least Squares Model (2) for shooting.western



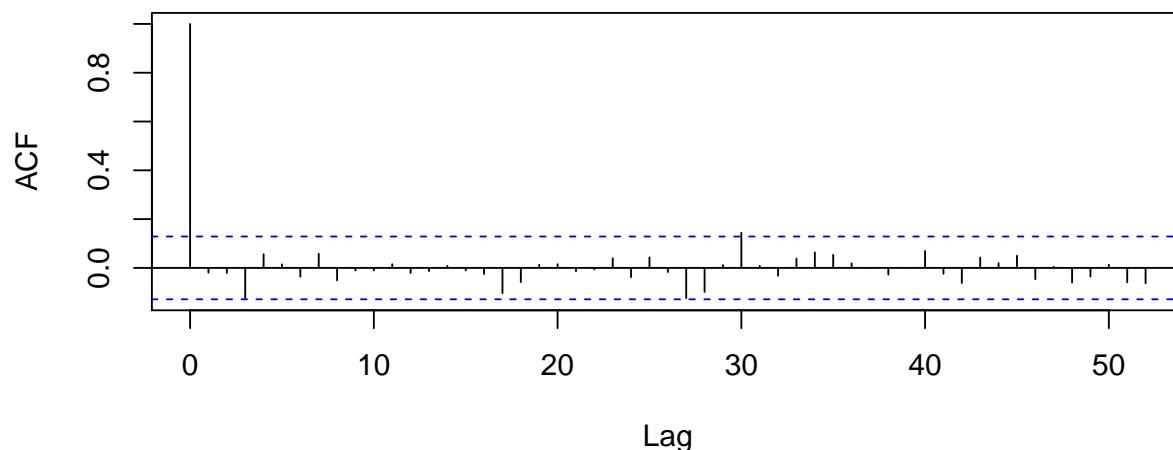
## shooting.western



Autocorrelation Function for the Observed Outcome for Model (2)



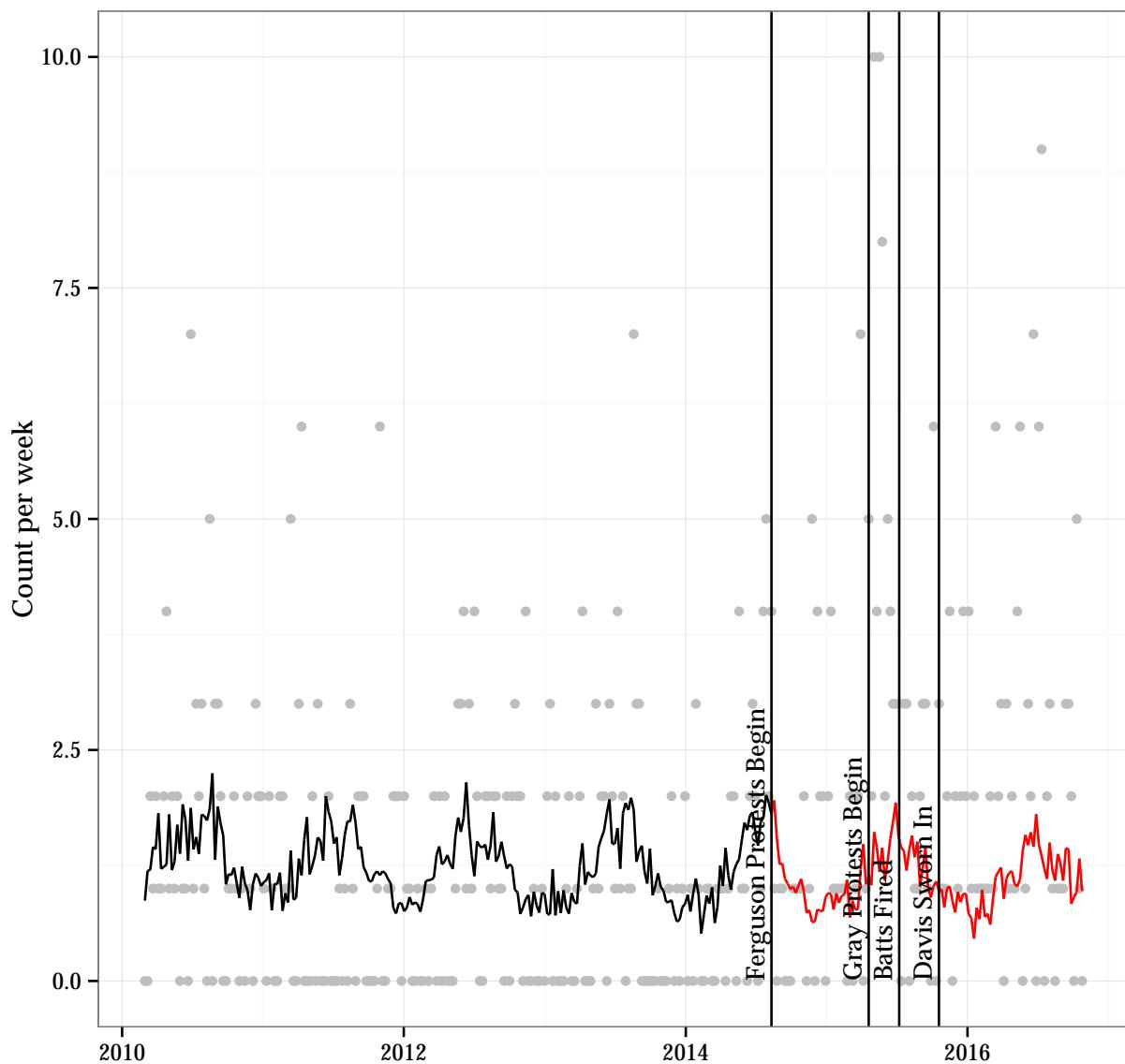
Autocorrelation Function for the Residuals from Model (2)



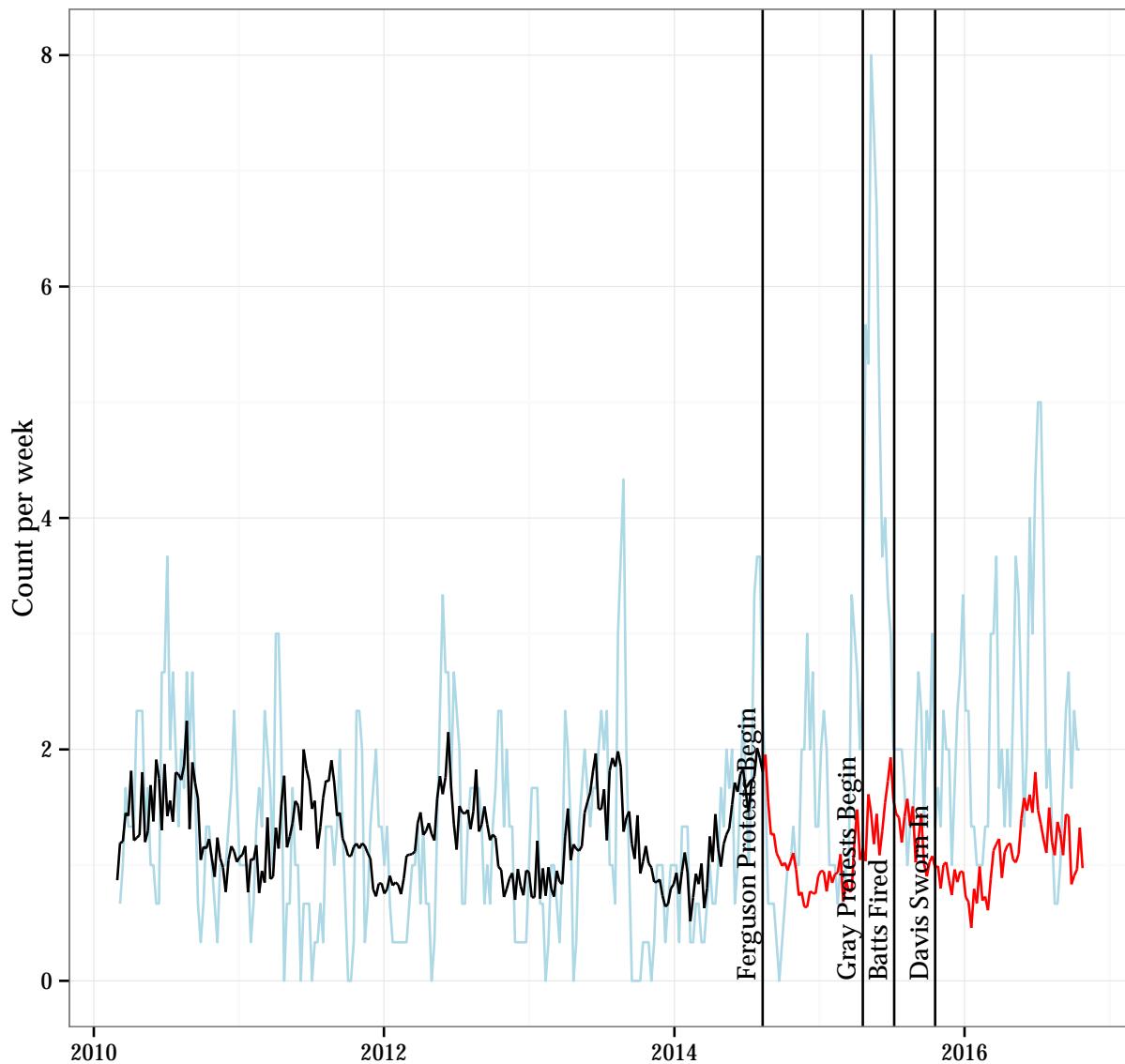
#### 40.4 A Poisson Regression Model as an Alternative to Model (2) for shooting.western

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-2.1199 -1.4068 -0.1667  0.6368  3.1908  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) 1.8621467 1.3436568 1.386 0.1658  
t            -0.0006629 0.0008891 -0.746 0.4560  
tmax.f.spline1 -0.0297898 0.0251681 -1.184 0.2366  
tmax.f.spline2  0.0811568 0.0514969 1.576 0.1150  
tmax.f.spline3 -0.0798770 0.0586736 -1.361 0.1734  
tmax.f.spline4  0.0802544 0.0527392 1.522 0.1281  
tmax.f.spline5 -0.0943989 0.0427241 -2.209 0.0271 *  
snow.in       -0.2733709 0.3822716 -0.715 0.4745  
precip.in     -0.1210020 0.3323176 -0.364 0.7158  
dark.before.12 -0.0660338 0.0915683 -0.721 0.4708  
school        -0.2466599 0.2492204 -0.990 0.3223  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 368.94 on 231 degrees of freedom  
Residual deviance: 344.80 on 221 degrees of freedom  
AIC: 725.83  
  
Number of Fisher Scoring iterations: 5
```

## shooting.western



## shooting.western



## 41 Results for shooting.central

### 41.1 Summary Values for shooting.central

Table 41.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic        | N   | Mean  | St. Dev. | Min | Median | Max |
|------------------|-----|-------|----------|-----|--------|-----|
| shooting.central | 232 | 0.552 | 0.910    | 0   | 0      | 5   |

Table 41.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic        | N   | Mean  | St. Dev. | Min | Median | Max |
|------------------|-----|-------|----------|-----|--------|-----|
| shooting.central | 116 | 0.638 | 0.982    | 0   | 0      | 5   |

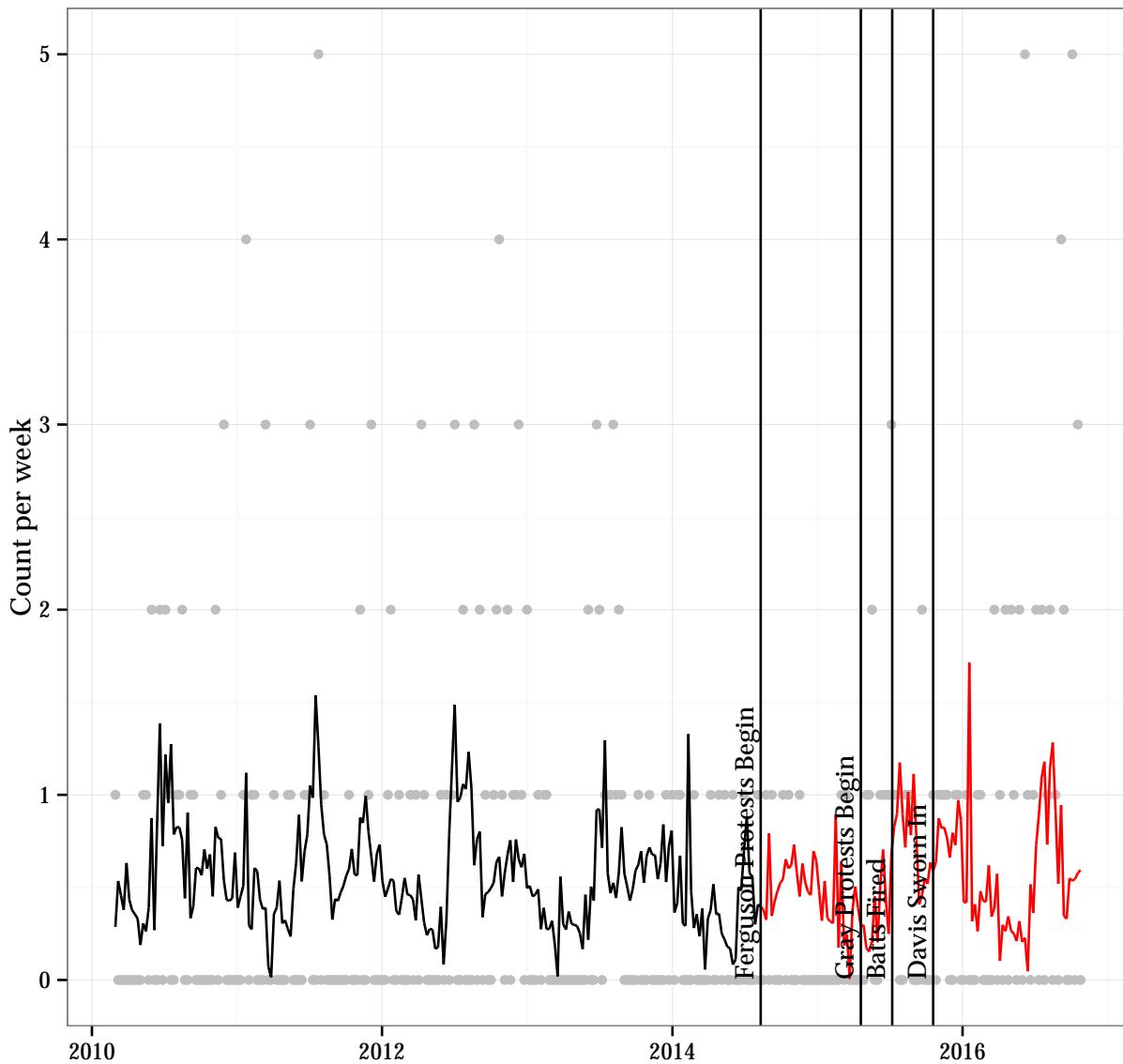
## 41.2 Four Models for shooting.central

Table 41.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

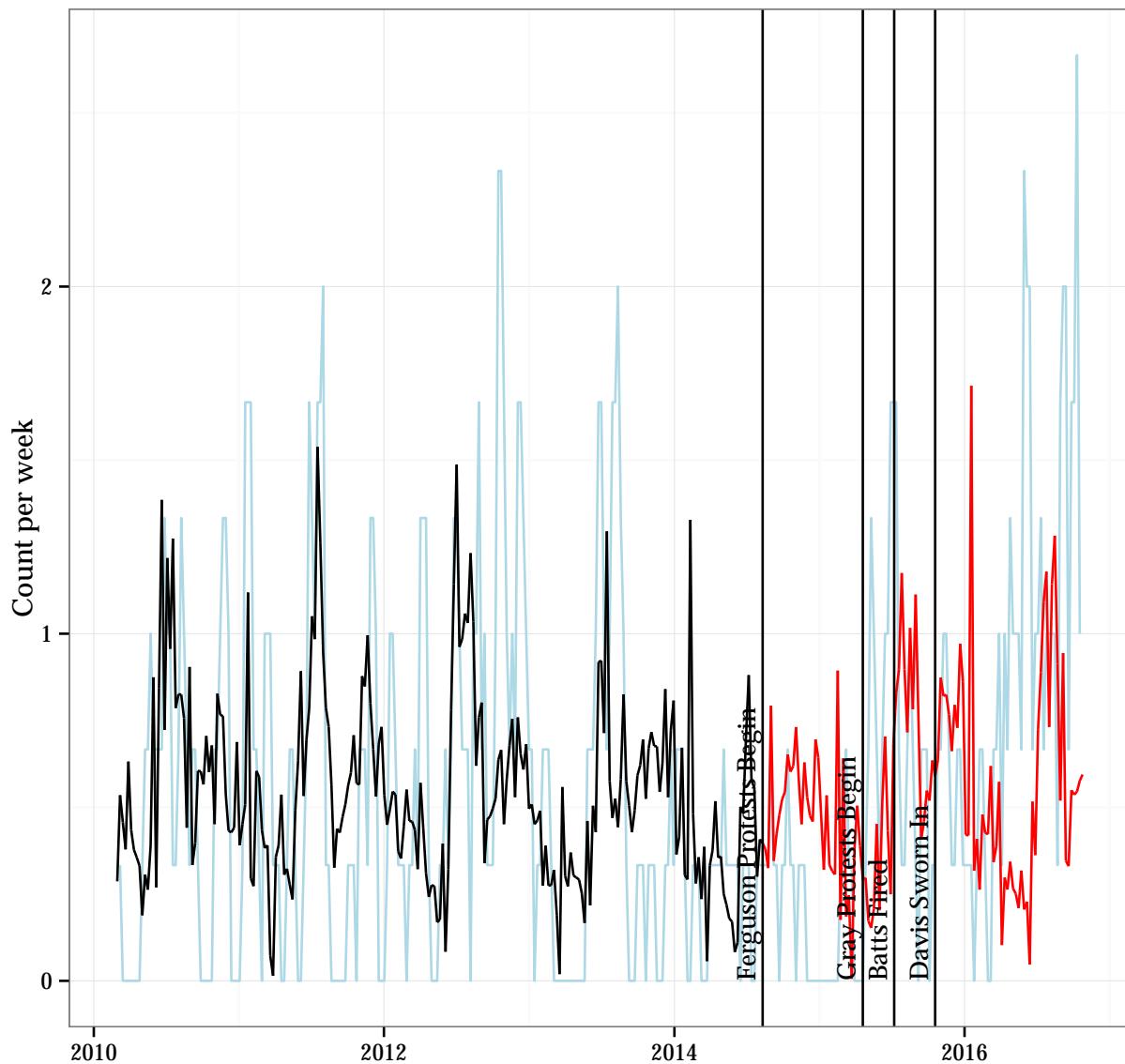
|  | Outcome: Count Per Week |         |       |        |
|--|-------------------------|---------|-------|--------|
|  | (1)                     | (2)     | (3)   | (4)    |
| Time (counter in weeks)                                | -0.0004                 | -0.0001 |       | 0.0001 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.31                   |         | -0.28 | -0.28  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 0.81                    |         | 0.91  | 0.76   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -1.00                   |         | -0.93 | -0.93  |
| After Batts Fired (week of 7/13/15 onward)             | -0.50                   |         | -0.90 | -0.80  |
| After Davis Sworn In (week of 10/19/15 onward)         | 0.42                    |         | 0.59  | 0.62   |
| Average Maximum Temperature to 50 Degrees              |                         | 0.01    |       | 0.01   |
| Plus Degrees in the 50s                                |                         | 0.02    |       | 0.003  |
| Plus Degrees in the 60s                                |                         | -0.02   |       | 0.01   |
| Plus Degrees in the 70s                                |                         | -0.03   |       | -0.02  |
| Plus Degrees Greater Than 80                           |                         | 0.09    |       | 0.05   |
| Snowfall (inches)                                      | 0.42                    |         | 0.18  |        |
| Precipitation (inches)                                 |                         | 0.08    |       | -0.29  |
| Darkness Before Midnight (hours)                       |                         | 0.19    |       | 0.13   |
| School Days (proportion of week)                       |                         | -0.29   |       | -0.07  |
| Observations   | 348                     | 232     | 348   | 348    |
| R <sup>2</sup>   | 0.05                    | 0.09    | 0.05  | 0.10   |

### 41.3 Least Squares Model (2) for shooting.central

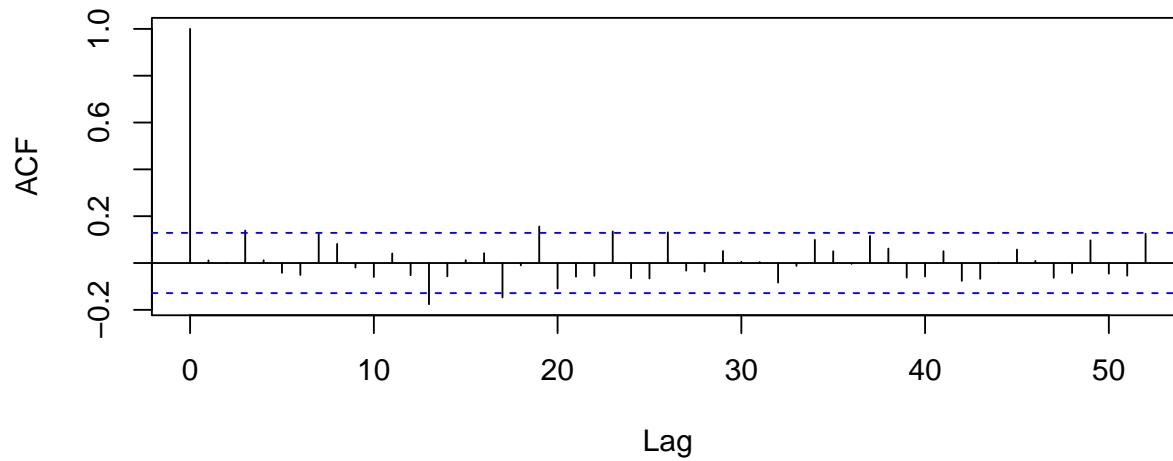
shooting.central



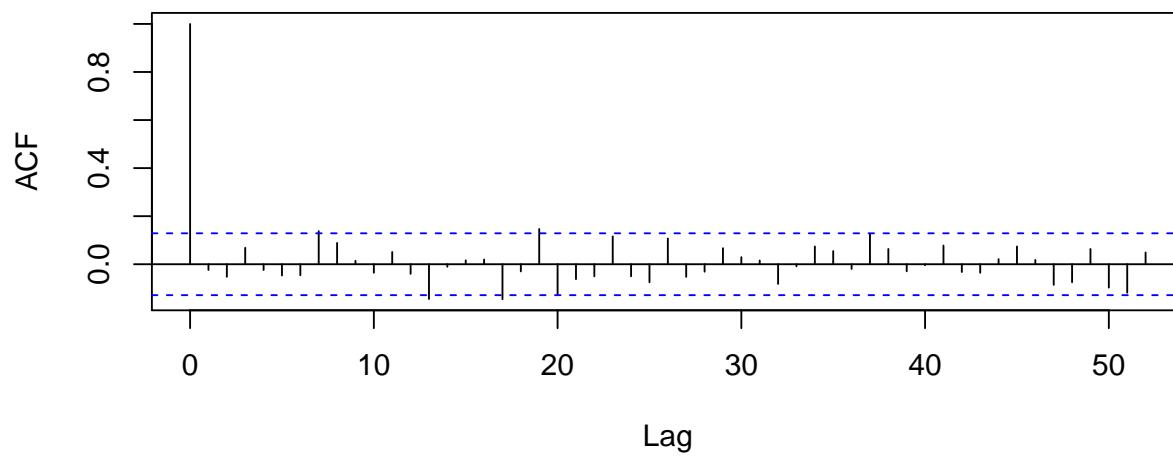
## shooting.central



Autocorrelation Function for the Observed Outcome for Model (2)



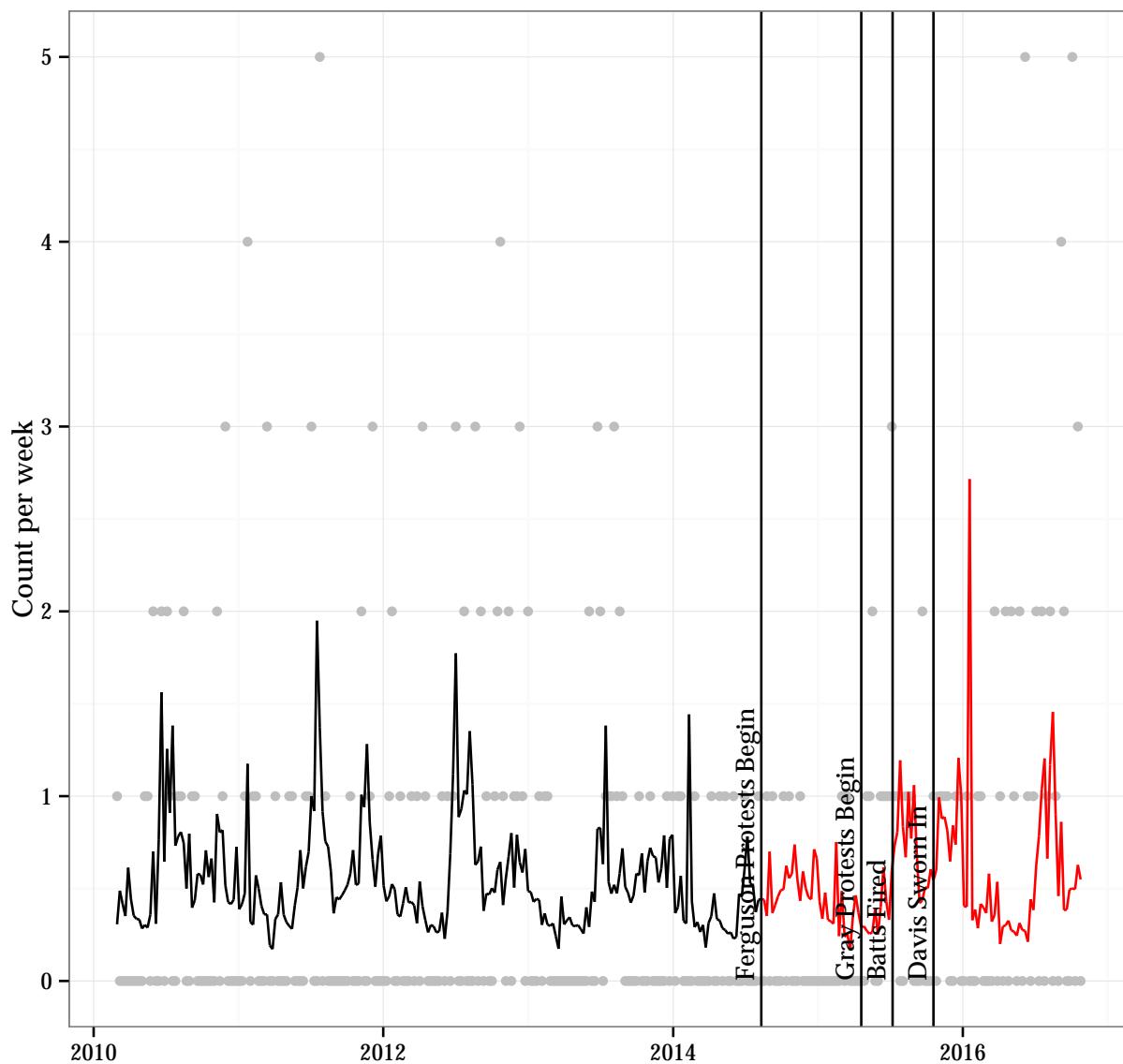
Autocorrelation Function for the Residuals from Model (2)



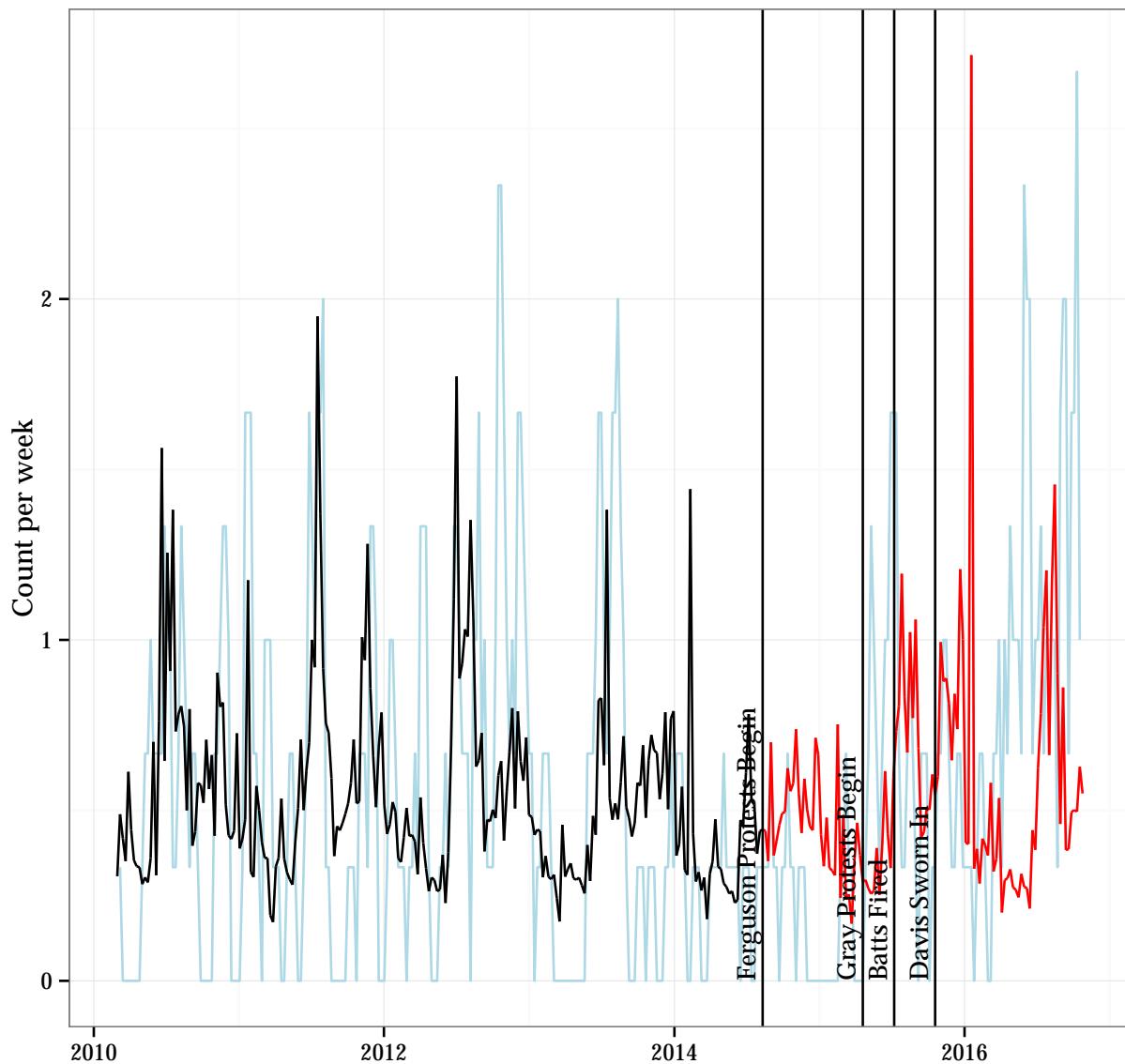
#### 41.4 A Poisson Regression Model as an Alternative to Model (2) for shooting.central

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-1.9745 -1.0061 -0.8031  0.6265  2.8097  
  
Coefficients:  
            Estimate Std. Error z value Pr(>|z|)  
(Intercept) -4.0473978  2.0129334 -2.011  0.0444 *  
t             -0.0002926  0.0014170 -0.206  0.8364  
tmax.f.spline1  0.0193993  0.0372241  0.521  0.6023  
tmax.f.spline2  0.0420324  0.0736475  0.571  0.5682  
tmax.f.spline3 -0.0405003  0.0887141 -0.457  0.6480  
tmax.f.spline4 -0.0356468  0.0845115 -0.422  0.6732  
tmax.f.spline5  0.1178637  0.0662426  1.779  0.0752 .  
snow.in        0.6373629  0.3388245  1.881  0.0600 .  
precip.in       0.1265629  0.5119502  0.247  0.8047  
dark.before.12  0.3988640  0.1427390  2.794  0.0052 **  
school         -0.6337797  0.3969185 -1.597  0.1103  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 298.03 on 231 degrees of freedom  
Residual deviance: 269.39 on 221 degrees of freedom  
AIC: 480.53  
  
Number of Fisher Scoring iterations: 6
```

## shooting.central



## shooting.central



## 42 Results for shooting.eastern

### 42.1 Summary Values for shooting.eastern

Table 42.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic        | N   | Mean  | St. Dev. | Min | Median | Max |
|------------------|-----|-------|----------|-----|--------|-----|
| shooting.eastern | 232 | 1.185 | 1.394    | 0   | 1      | 8   |

Table 42.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic        | N   | Mean  | St. Dev. | Min | Median | Max |
|------------------|-----|-------|----------|-----|--------|-----|
| shooting.eastern | 116 | 1.888 | 2.101    | 0   | 1      | 11  |

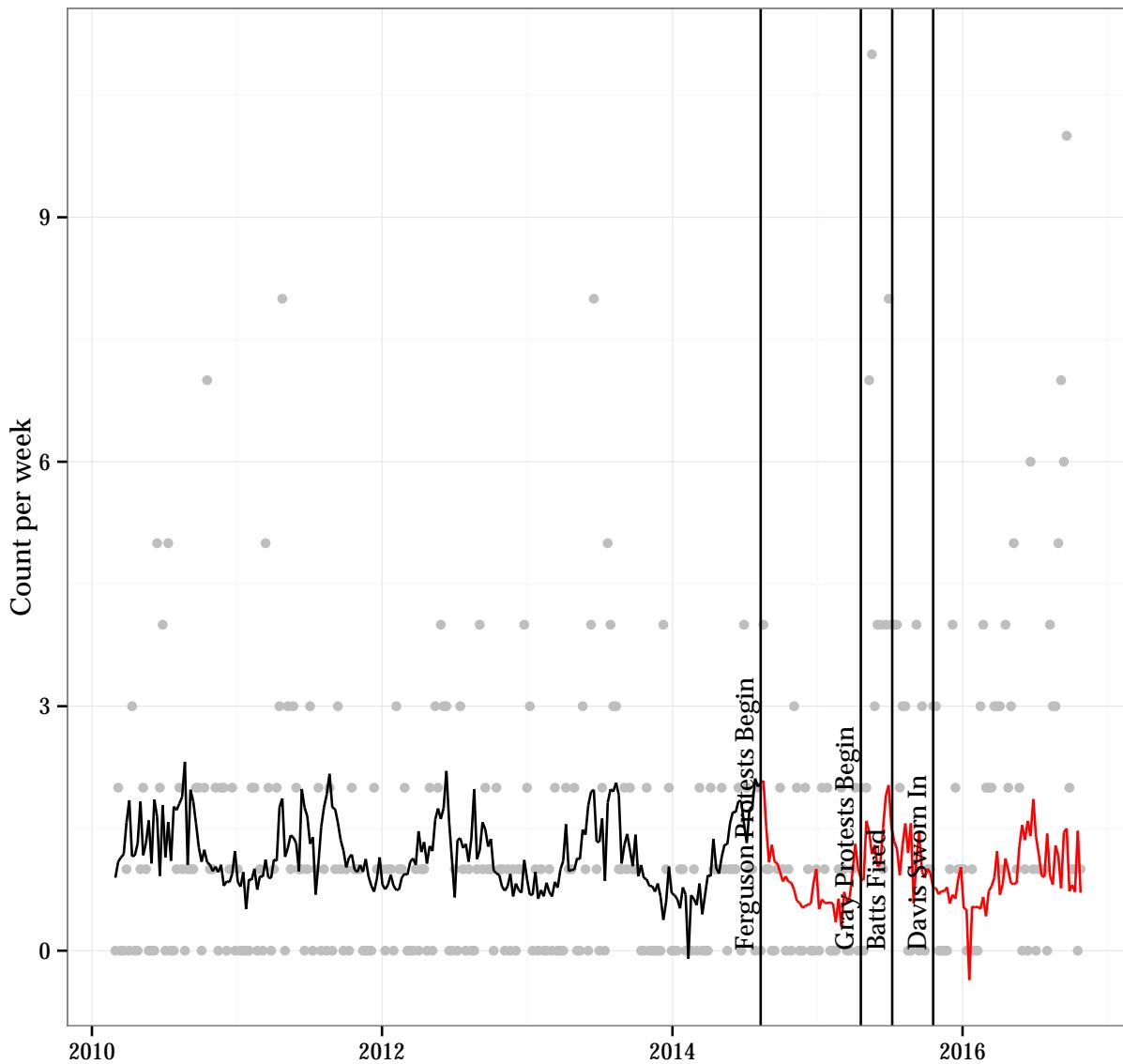
## 42.2 Four Models for shooting.eastern

Table 42.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

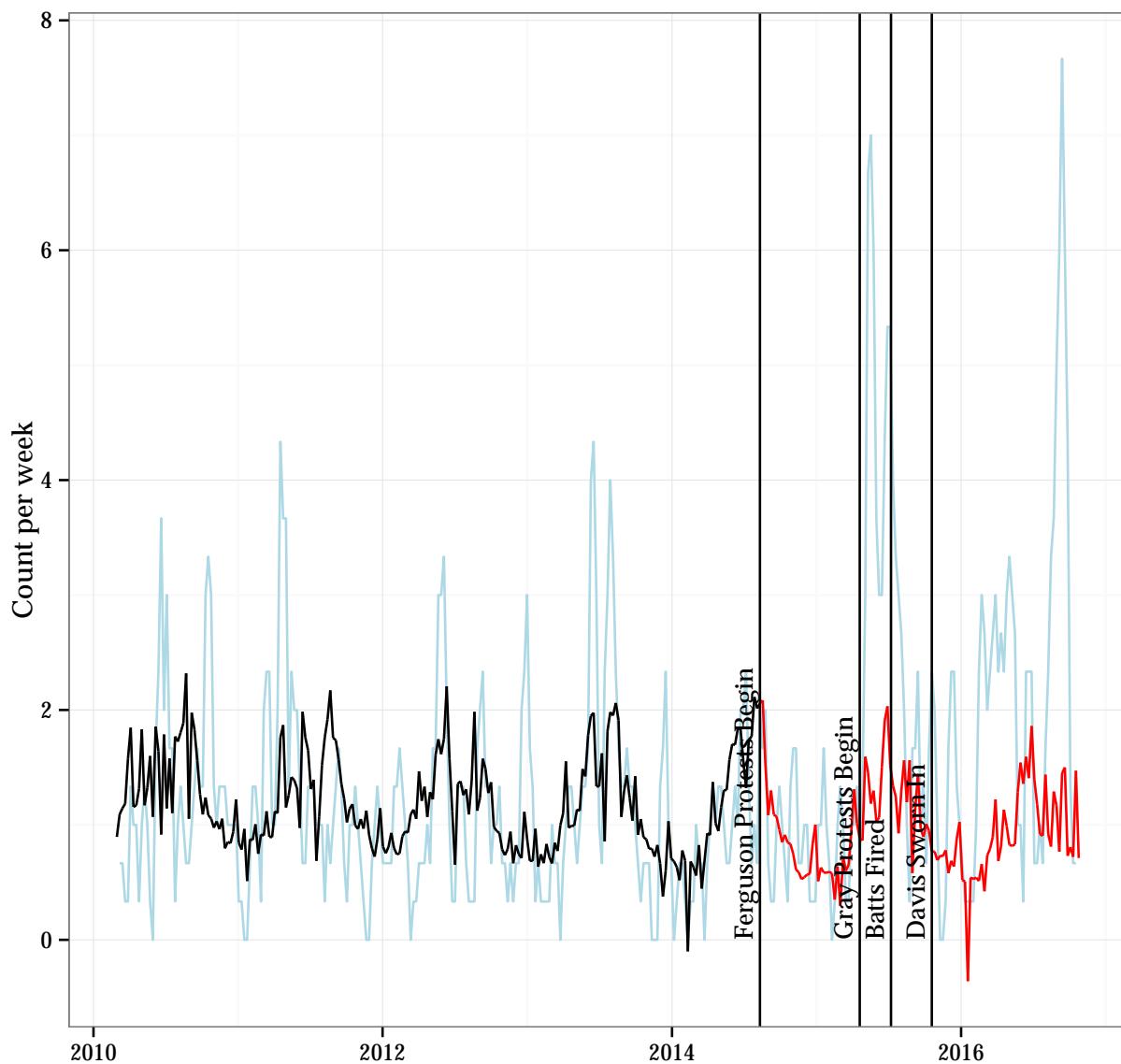
|  | Outcome: Count Per Week |        |       |        |
|--|-------------------------|--------|-------|--------|
|  | (1)                     | (2)    | (3)   | (4)    |
| Time (counter in weeks)                                | -0.0005                 | -0.001 |       | -0.001 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | -0.23                   |        | 0.04  | 0.01   |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 3.67                    |        | 3.10  | 3.02   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | -4.55                   |        | -4.00 | -4.01  |
| After Batts Fired (week of 7/13/15 onward)             | -2.68                   |        | -2.43 | -2.39  |
| After Davis Sworn In (week of 10/19/15 onward)         | 0.21                    |        | 0.44  | 0.44   |
| Average Maximum Temperature to 50 Degrees              |                         | -0.01  |       | -0.003 |
| Plus Degrees in the 50s                                |                         | 0.03   |       | 0.02   |
| Plus Degrees in the 60s                                |                         | -0.03  |       | -0.02  |
| Plus Degrees in the 70s                                |                         | 0.08   |       | 0.09   |
| Plus Degrees Greater Than 80                           |                         | -0.18  |       | -0.17  |
| Snowfall (inches)                                      |                         | -0.31  |       | -0.34  |
| Precipitation (inches)                                 |                         | 0.02   |       | 0.07   |
| Darkness Before Midnight (hours)                       |                         | -0.04  |       | -0.09  |
| School Days (proportion of week)                       |                         | -0.59  |       | -0.19  |
| Observations   | 348                     | 232    | 348   | 348    |
| R <sup>2</sup>   | 0.16                    | 0.09   | 0.16  | 0.21   |

### 42.3 Least Squares Model (2) for shooting.eastern

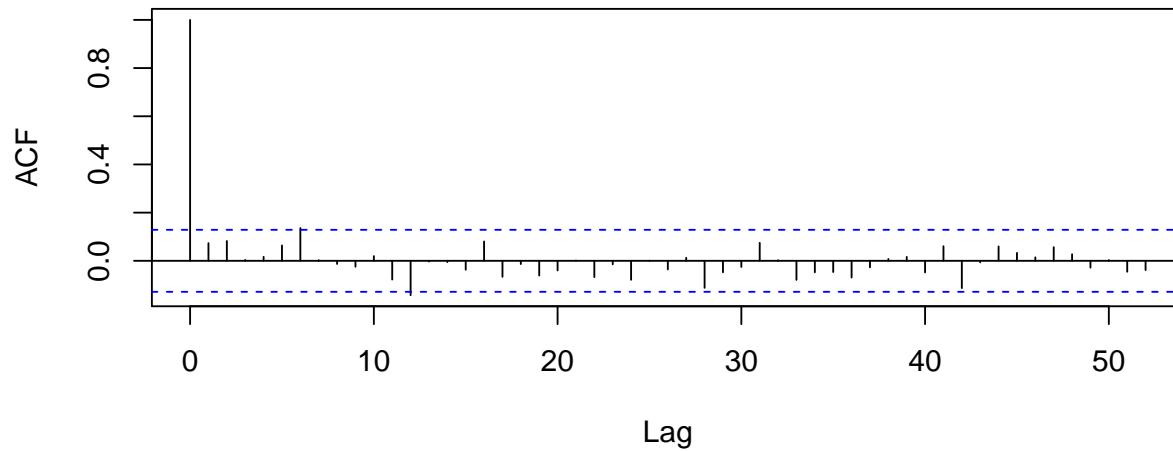
shooting.eastern



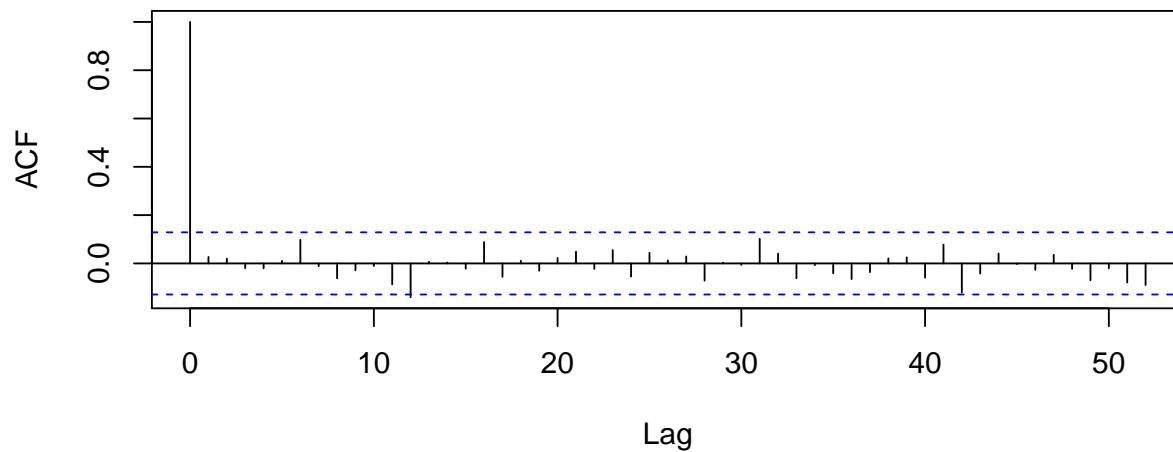
## shooting.eastern



Autocorrelation Function for the Observed Outcome for Model (2)



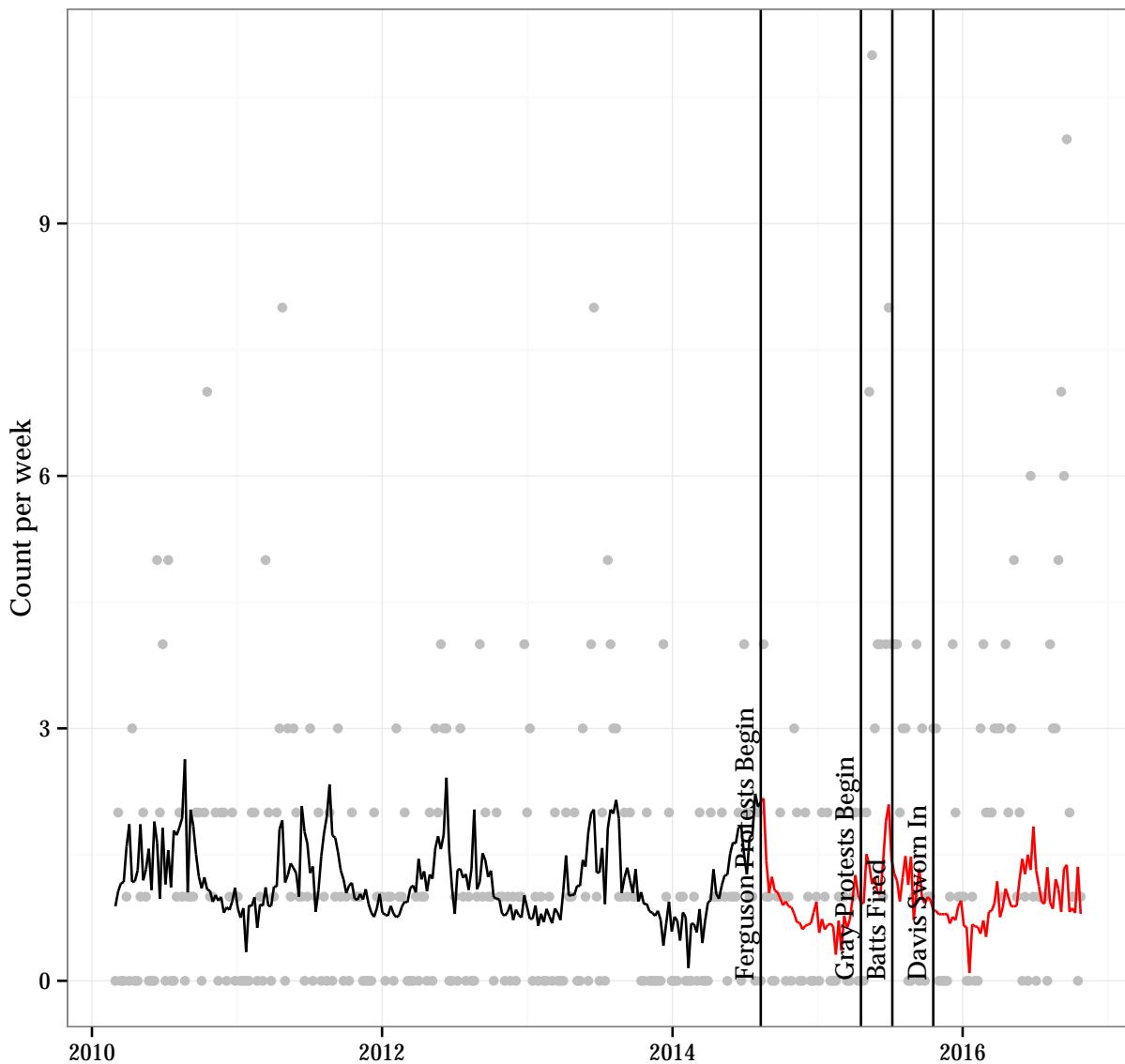
Autocorrelation Function for the Residuals from Model (2)



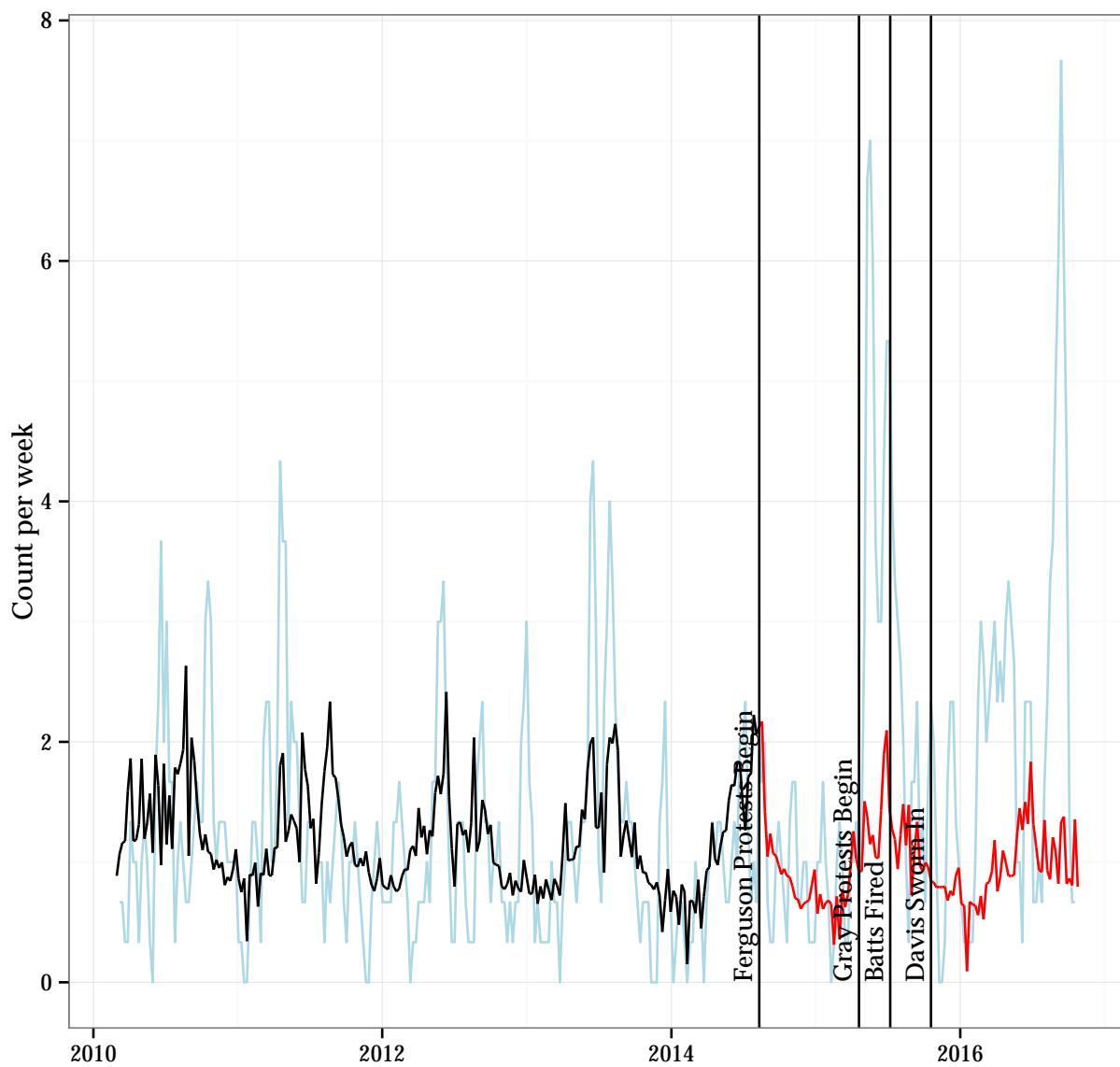
## 42.4 A Poisson Regression Model as an Alternative to Model (2) for shooting.eastern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-2.2942 -1.3095 -0.2214  0.6021  3.7789  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) 0.8688805 1.4665591  0.592  0.55354  
t            -0.0009619 0.0009112 -1.056  0.29114  
tmax.f.spline1 -0.0087566 0.0276352 -0.317  0.75135  
tmax.f.spline2  0.0330503 0.0546526  0.605  0.54536  
tmax.f.spline3 -0.0254545 0.0622705 -0.409  0.68271  
tmax.f.spline4  0.0544537 0.0541785  1.005  0.31486  
tmax.f.spline5 -0.1260040 0.0438605 -2.873  0.00407 **  
snow.in       -0.6289179 0.5394547 -1.166  0.24368  
precip.in      0.0042904 0.3219615  0.013  0.98937  
dark.before.12 -0.0431526 0.0950080 -0.454  0.64969  
school        -0.4356910 0.2511225 -1.735  0.08275 .  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 363.15 on 231 degrees of freedom  
Residual deviance: 329.39 on 221 degrees of freedom  
AIC: 702.54  
  
Number of Fisher Scoring iterations: 7
```

## shooting.eastern



## shooting.eastern



## 43 Results for shooting.southwestern

### 43.1 Summary Values for shooting.southwestern

Table 43.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic             | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------------------|-----|-------|----------|-----|--------|-----|
| shooting.southwestern | 232 | 0.948 | 1.123    | 0   | 1      | 6   |

Table 43.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic             | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------------------|-----|-------|----------|-----|--------|-----|
| shooting.southwestern | 116 | 1.819 | 1.757    | 0   | 1      | 8   |

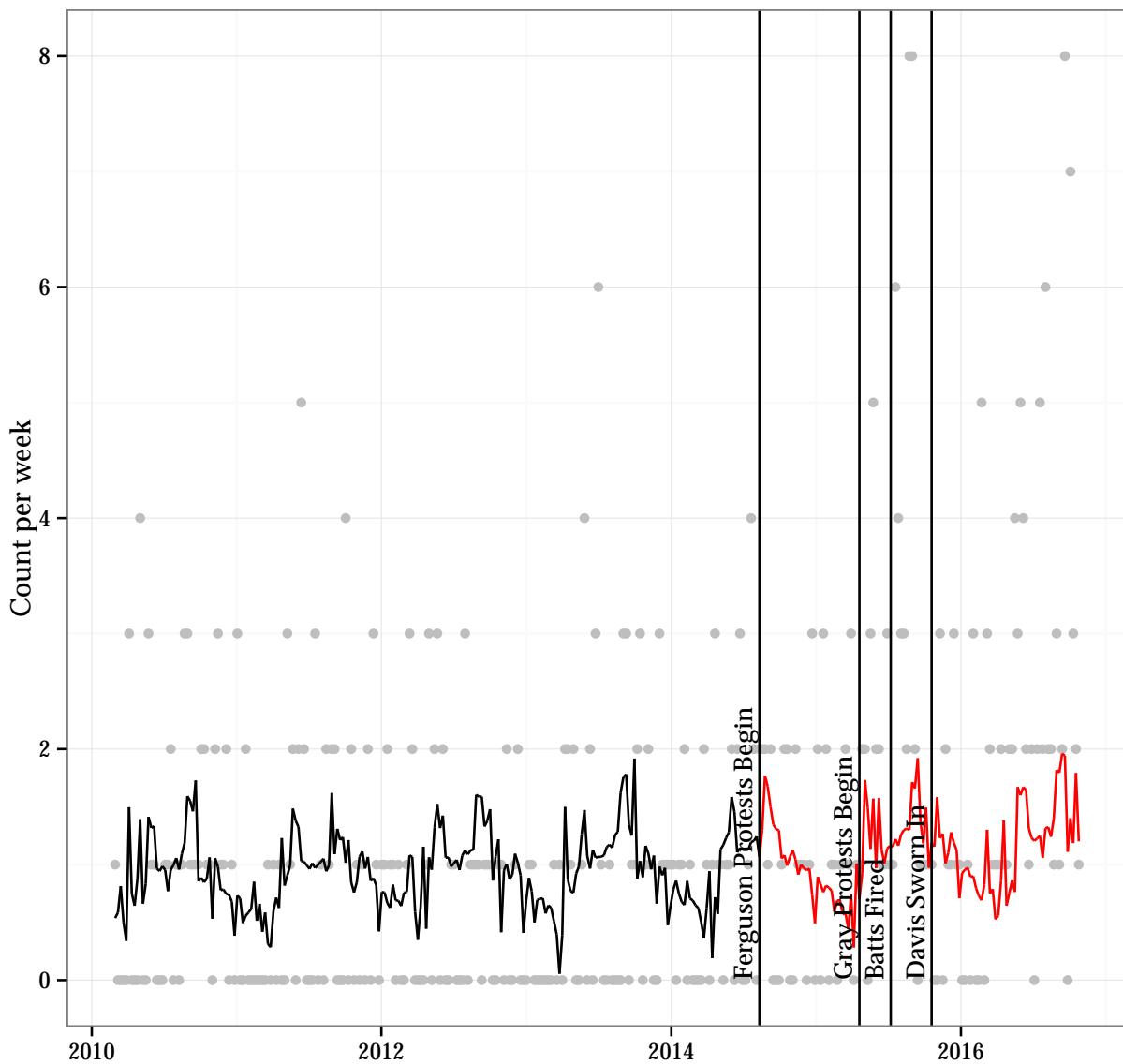
## 43.2 Four Models for shooting.southwestern

Table 43.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

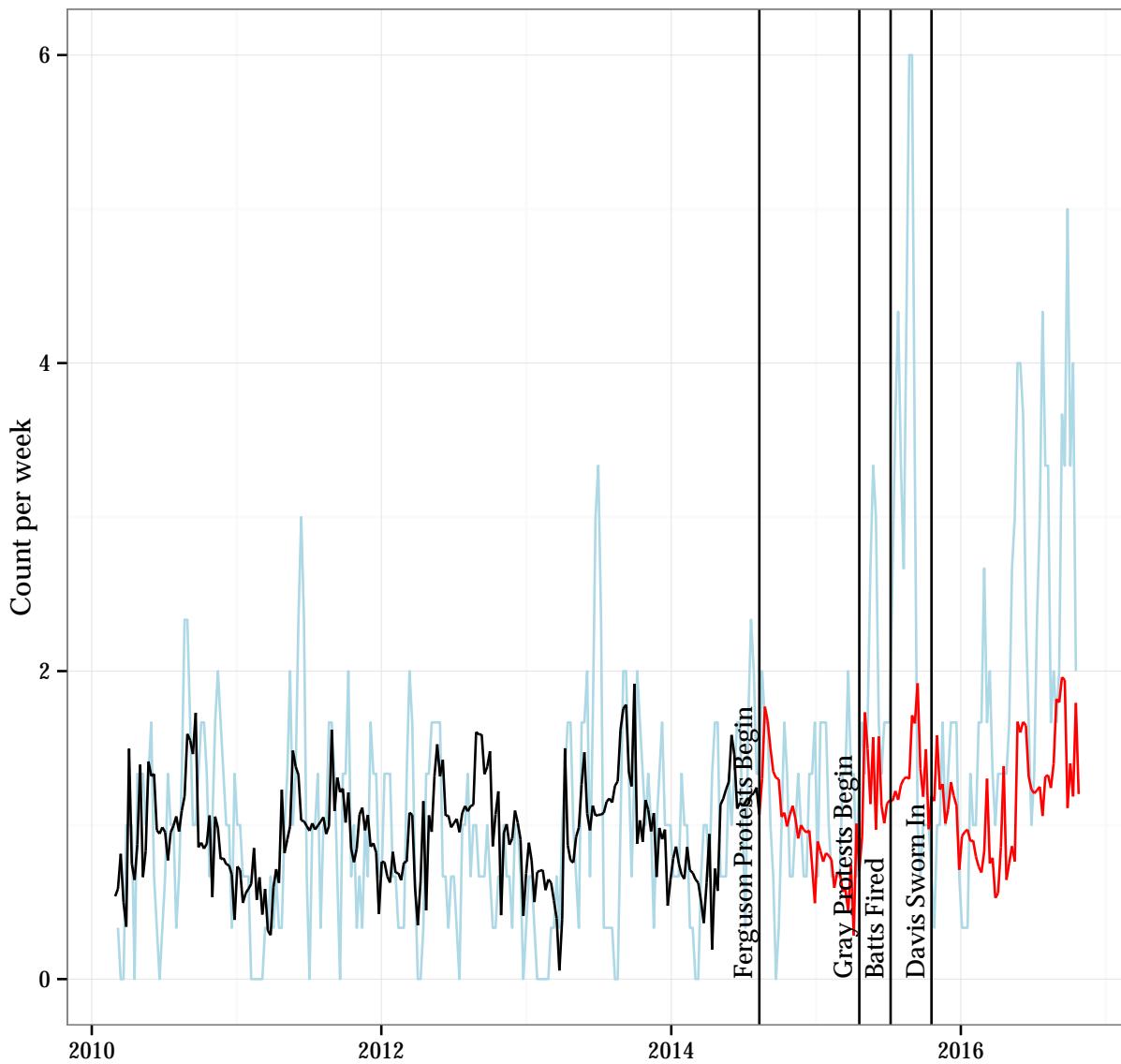
|  | Outcome: Count Per Week |       |       |       |
|--|-------------------------|-------|-------|-------|
|  | (1)                     | (2)   | (3)   | (4)   |
| Time (counter in weeks)                                | 0.001                   | 0.001 | 0.001 | 0.001 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | 0.07                    |       | 0.19  | 0.22  |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 0.75                    |       | 0.48  | 0.29  |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 0.10                    |       | 0.41  | 0.56  |
| After Batts Fired (week of 7/13/15 onward)             | 1.01                    |       | 0.90  | 0.96  |
| After Davis Sworn In (week of 10/19/15 onward)         | -1.00                   |       | -0.78 | -0.73 |
| Average Maximum Temperature to 50 Degrees              |                         | 0.01  |       | 0.02  |
| Plus Degrees in the 50s                                |                         | 0.02  |       | -0.01 |
| Plus Degrees in the 60s                                |                         | 0.01  |       | 0.001 |
| Plus Degrees in the 70s                                |                         | 0.04  |       | 0.08  |
| Plus Degrees Greater Than 80                           |                         | -0.08 |       | -0.09 |
| Snowfall (inches)                                      |                         | 0.09  |       | 0.09  |
| Precipitation (inches)                                 |                         | -0.31 |       | -0.38 |
| Darkness Before Midnight (hours)                       |                         | 0.20  |       | 0.08  |
| School Days (proportion of week)                       |                         | 0.57  |       | 0.56  |
| Observations   | 348                     | 232   | 348   | 348   |
| R <sup>2</sup>   | 0.13                    | 0.08  | 0.09  | 0.20  |

### 43.3 Least Squares Model (2) for shooting.southwestern

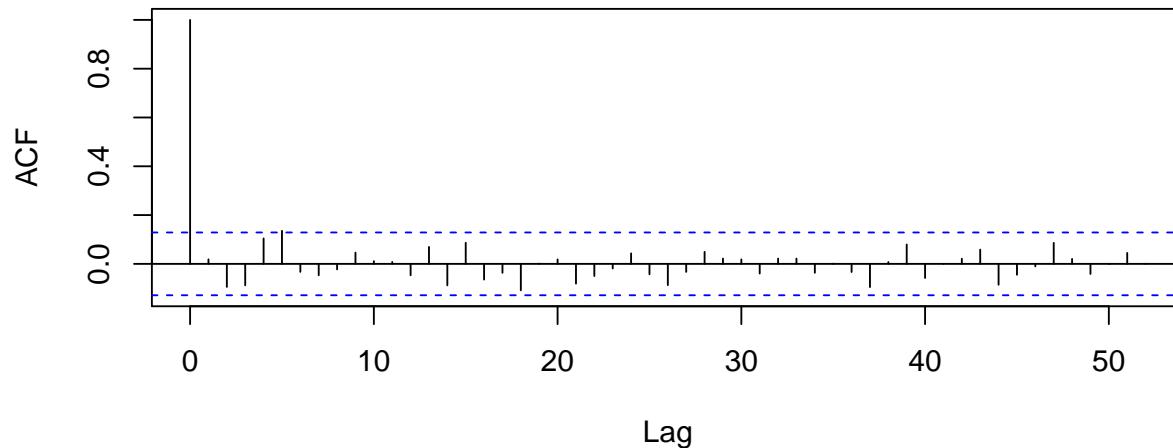
shooting.southwestern



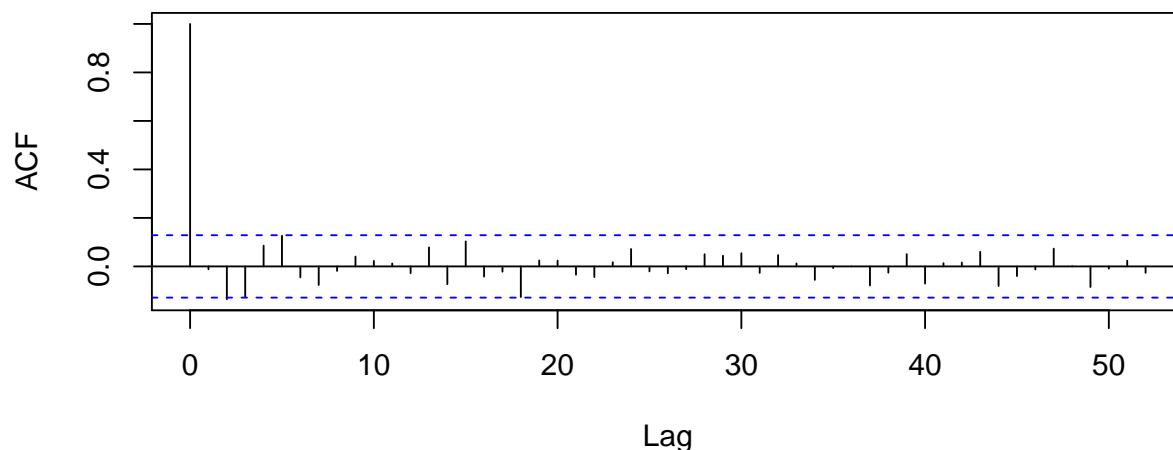
## shooting.southwestern



Autocorrelation Function for the Observed Outcome for Model (2)



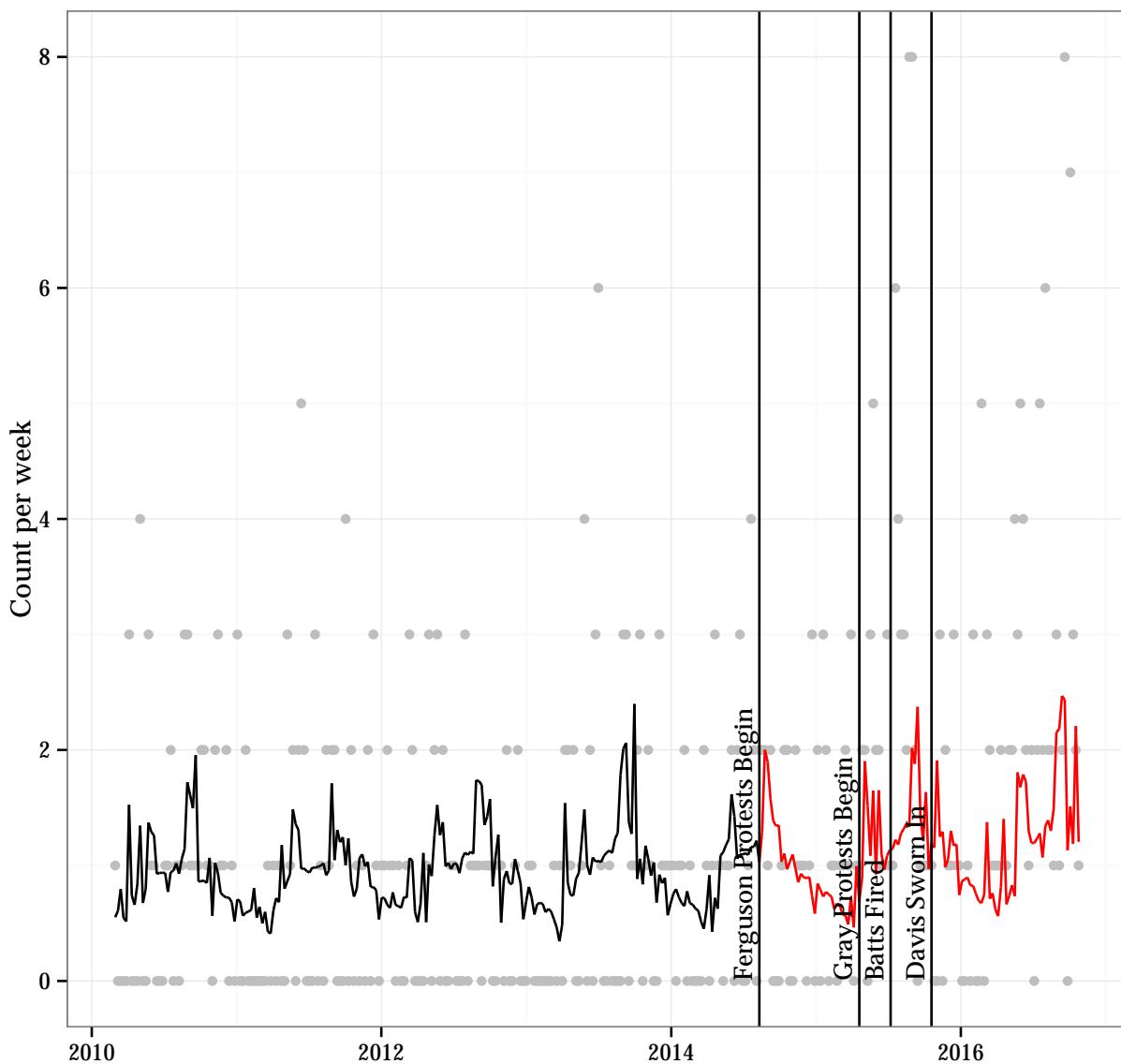
Autocorrelation Function for the Residuals from Model (2)



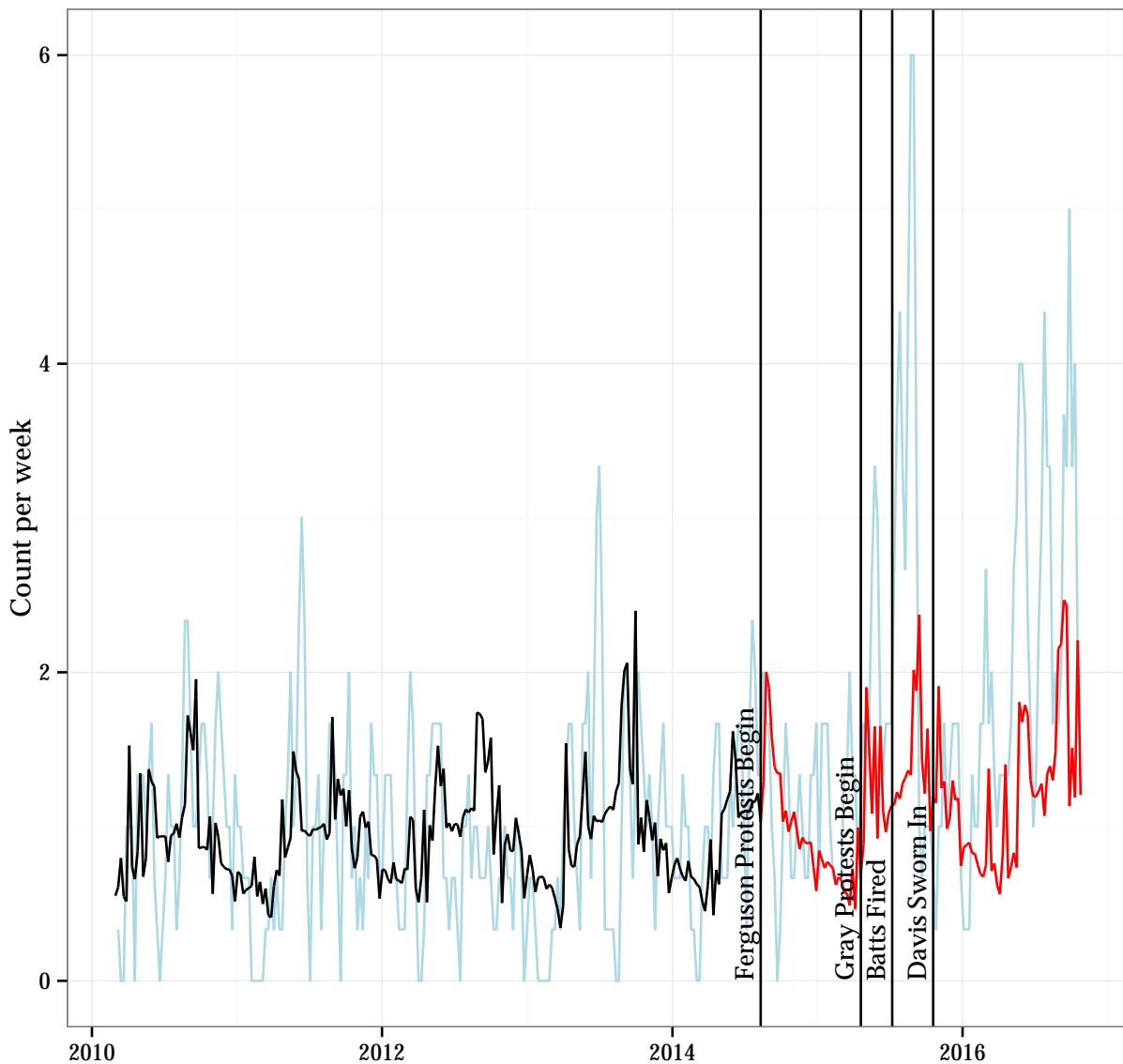
#### 43.4 A Poisson Regression Model as an Alternative to Model (2) for shooting.southwestern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-1.8893 -1.2614 -0.2433  0.5460  3.3334  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) -2.5178006  1.5798803 -1.594  0.1110  
t             0.0008725  0.0010412  0.838  0.4020  
tmax.f.spline1 0.0040242  0.0301732  0.133  0.8939  
tmax.f.spline2 0.0280344  0.0609407  0.460  0.6455  
tmax.f.spline3 0.0115164  0.0711556  0.162  0.8714  
tmax.f.spline4 0.0269089  0.0607306  0.443  0.6577  
tmax.f.spline5 -0.0705336  0.0487829 -1.446  0.1482  
snow.in       0.0761887  0.3800873  0.200  0.8411  
precip.in     -0.2979349  0.4000259 -0.745  0.4564  
dark.before.12 0.2289599  0.1056773  2.167  0.0303 *  
school        0.5114365  0.2963419  1.726  0.0844 .  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 323.11 on 231 degrees of freedom  
Residual deviance: 297.49 on 221 degrees of freedom  
AIC: 622.55  
  
Number of Fisher Scoring iterations: 5
```

## shooting.southwestern



## shooting.southwestern



## 44 Results for shooting.southern

### 44.1 Summary Values for shooting.southern

Table 44.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic         | N   | Mean  | St. Dev. | Min | Median | Max |
|-------------------|-----|-------|----------|-----|--------|-----|
| shooting.southern | 232 | 0.776 | 1.058    | 0   | 0      | 5   |

Table 44.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic         | N   | Mean  | St. Dev. | Min | Median | Max |
|-------------------|-----|-------|----------|-----|--------|-----|
| shooting.southern | 116 | 1.284 | 1.376    | 0   | 1      | 6   |

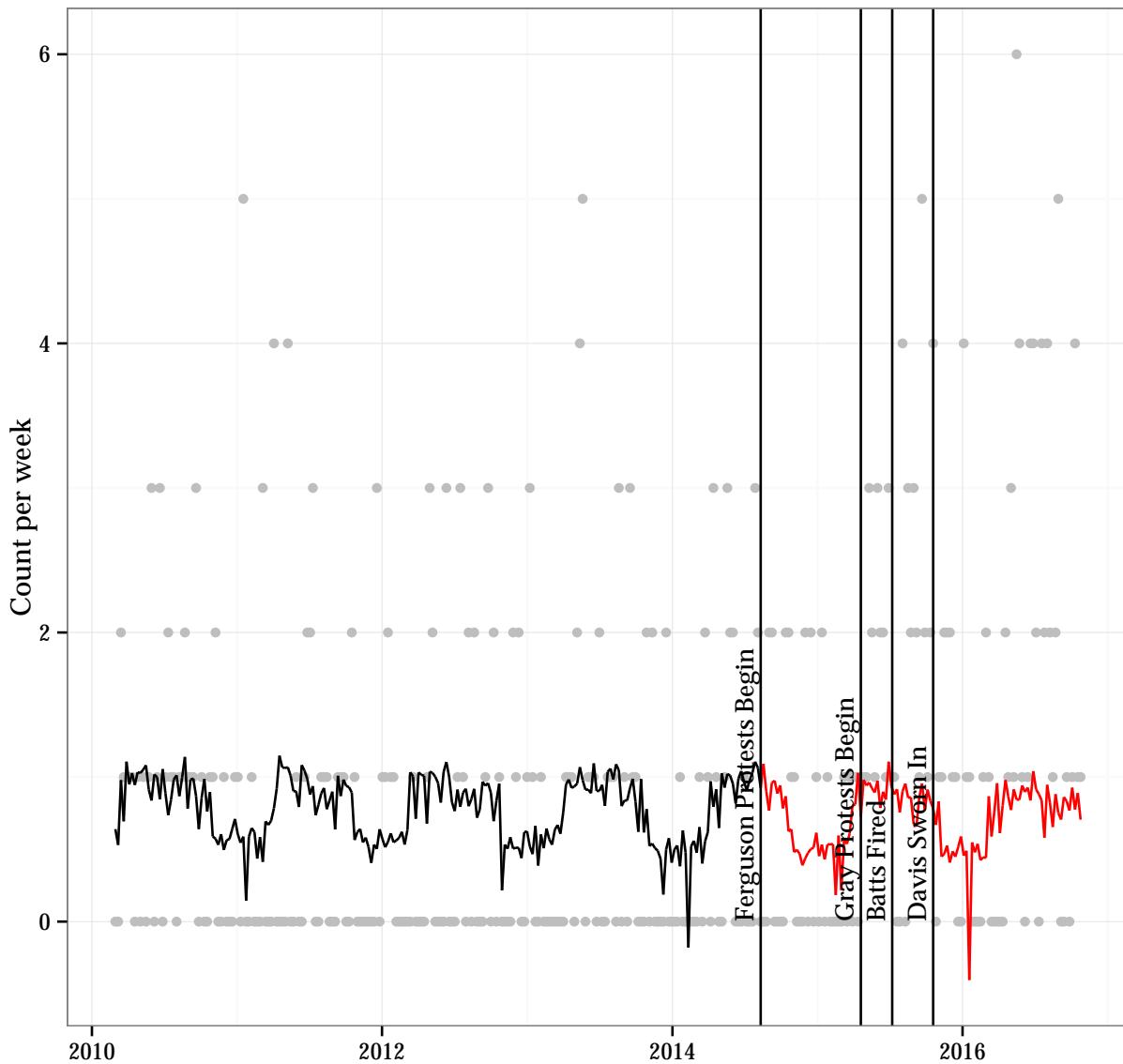
## 44.2 Four Models for shooting.southern

Table 44.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

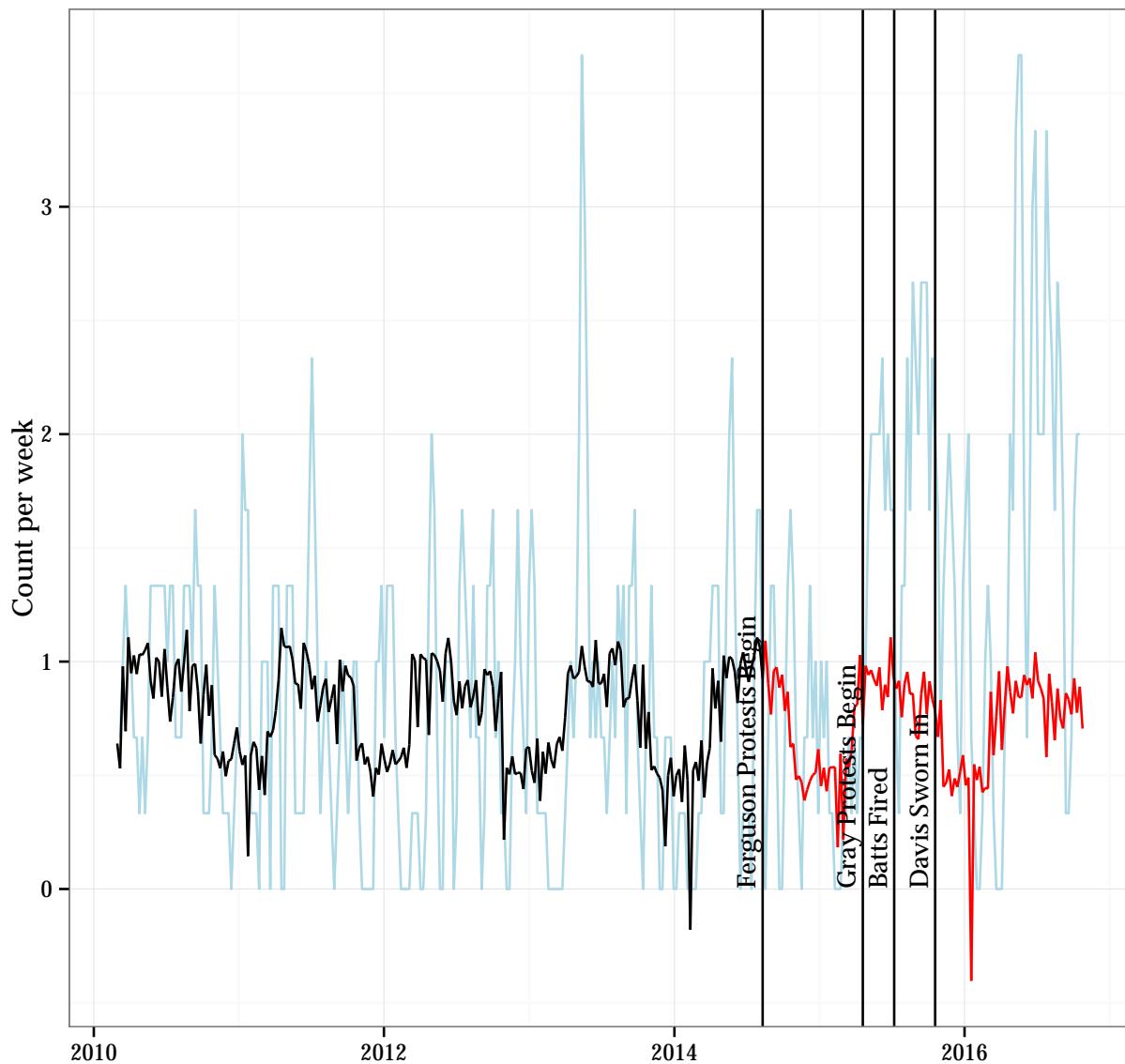
|  | Outcome: Count Per Week |         |       |         |
|--|-------------------------|---------|-------|---------|
|  | (1)                     | (2)     | (3)   | (4)     |
| Time (counter in weeks)                                | −0.0002                 | −0.0003 |       | −0.0000 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | −0.17                   |         | −0.06 | −0.07   |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 1.24                    |         | 0.97  | 0.94    |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | −0.82                   |         | −0.89 | −0.90   |
| After Batts Fired (week of 7/13/15 onward)             | 0.04                    |         | 0.11  | 0.07    |
| After Davis Sworn In (week of 10/19/15 onward)         | −0.35                   |         | −0.21 | −0.19   |
| Average Maximum Temperature to 50 Degrees              |                         | −0.01   |       | −0.001  |
| Plus Degrees in the 50s                                |                         | 0.01    |       | −0.01   |
| Plus Degrees in the 60s                                |                         | 0.03    |       | 0.05    |
| Plus Degrees in the 70s                                |                         | −0.04   |       | −0.05   |
| Plus Degrees Greater Than 80                           |                         | −0.01   |       | 0.01    |
| Snowfall (inches)                                      |                         | −0.27   |       | −0.23   |
| Precipitation (inches)                                 |                         | −0.36   |       | −0.32   |
| Darkness Before Midnight (hours)                       |                         | −0.06   |       | −0.07   |
| School Days (proportion of week)                       |                         | −0.20   |       | −0.01   |
| Observations   | 348                     | 232     | 348   | 348     |
| R <sup>2</sup>   | 0.10                    | 0.04    | 0.10  | 0.13    |

#### 44.3 Least Squares Model (2) for shooting.southern

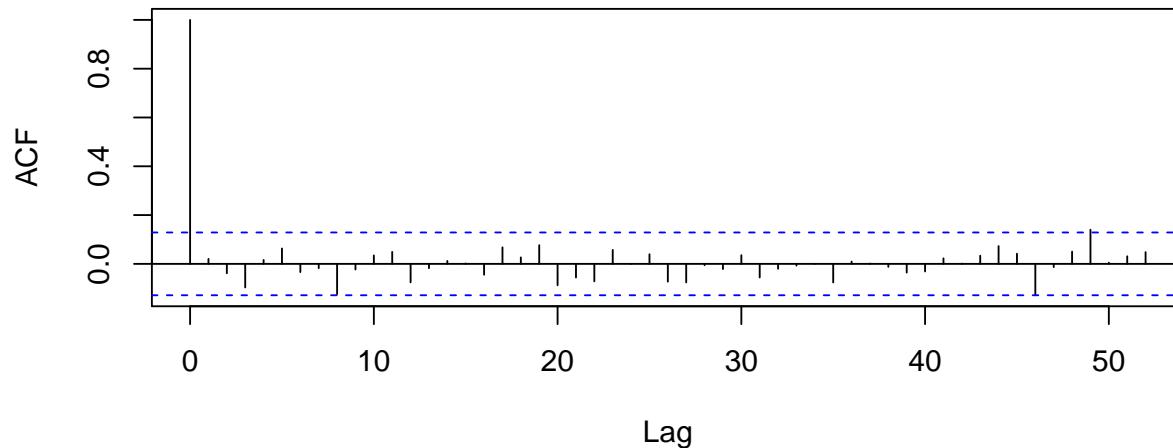
shooting.southern



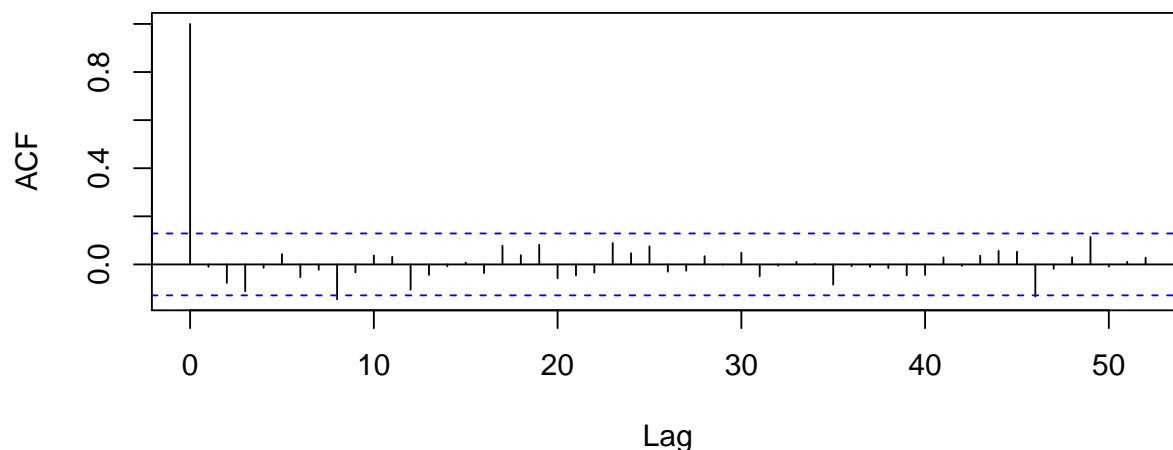
## shooting.southern



Autocorrelation Function for the Observed Outcome for Model (2)



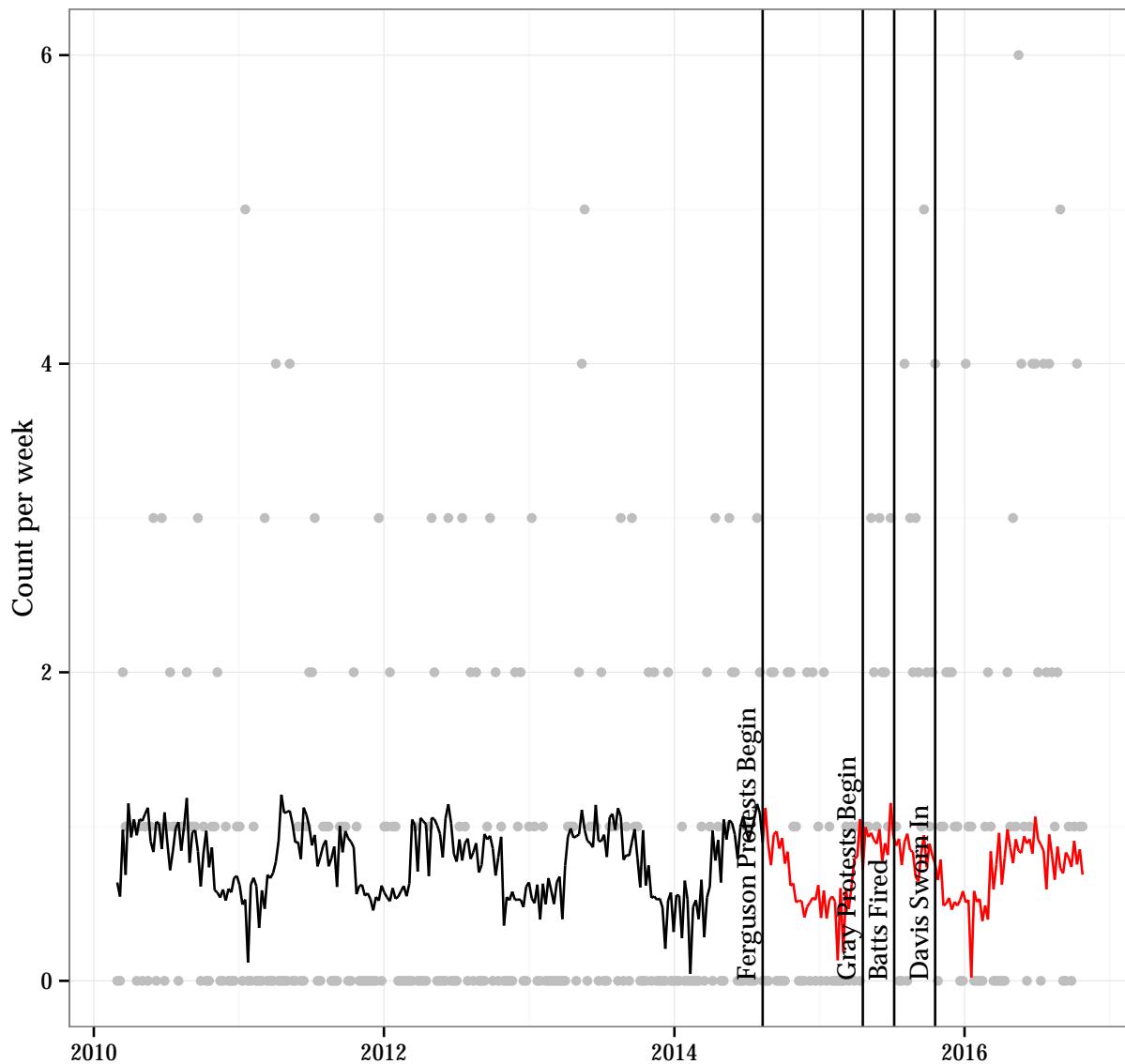
Autocorrelation Function for the Residuals from Model (2)



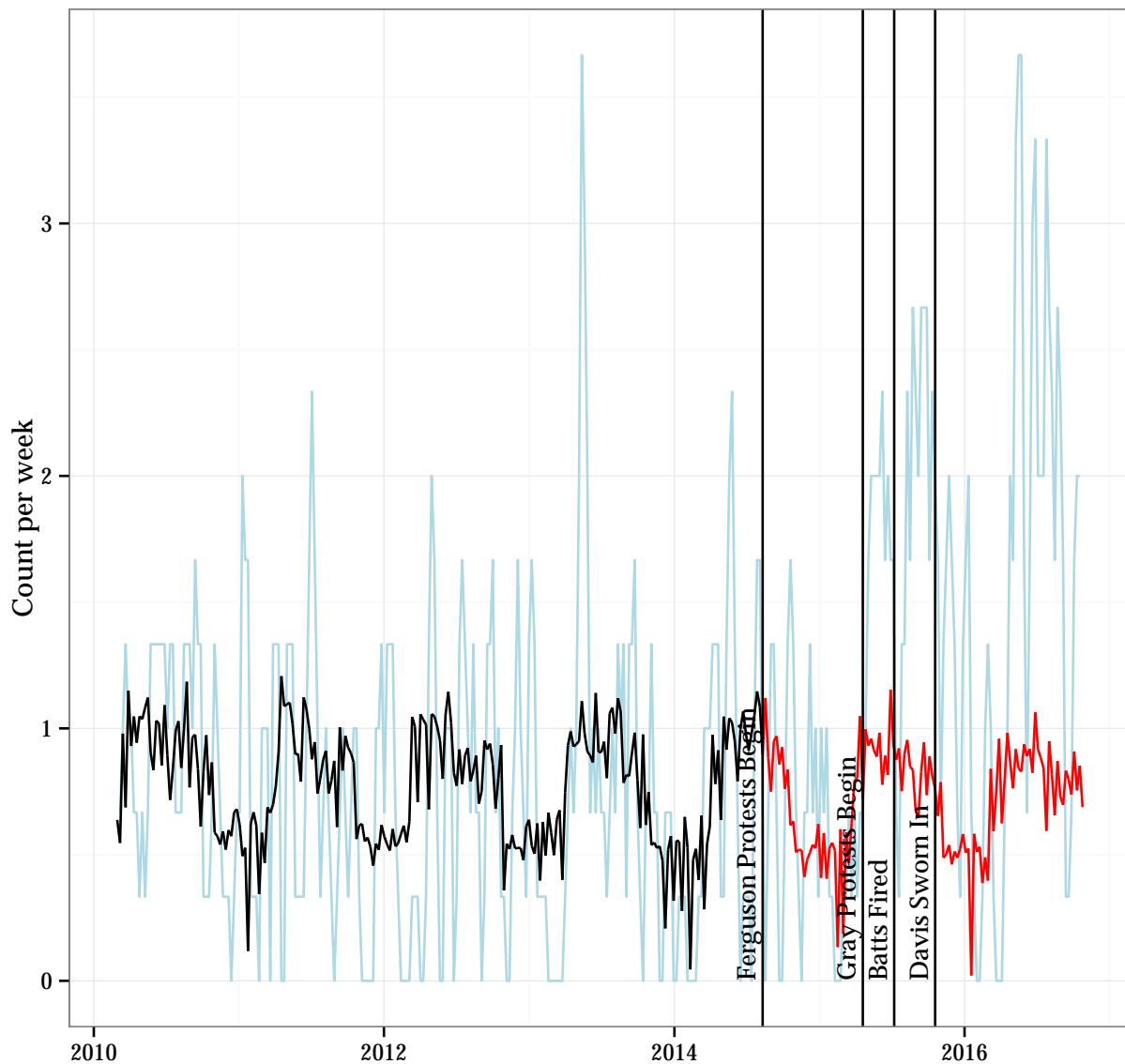
#### 44.4 A Poisson Regression Model as an Alternative to Model (2) for shooting.southern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-1.5535 -1.1861 -0.8930  0.4011  3.6811  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) 0.9120436 1.7779347  0.513   0.608  
t            -0.0003273 0.0011297 -0.290   0.772  
tmax.f.spline1 -0.0124119 0.0334913 -0.371   0.711  
tmax.f.spline2  0.0152043 0.0668322  0.227   0.820  
tmax.f.spline3  0.0388445 0.0765388  0.508   0.612  
tmax.f.spline4 -0.0555989 0.0644444 -0.863   0.388  
tmax.f.spline5 -0.0151079 0.0540069 -0.280   0.780  
snow.in       -0.9768393 0.7890552 -1.238   0.216  
precip.in      -0.4876208 0.4544471 -1.073   0.283  
dark.before.12 -0.0961645 0.1152394 -0.834   0.404  
school        -0.2557203 0.3203512 -0.798   0.425  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 326.06 on 231 degrees of freedom  
Residual deviance: 309.43 on 221 degrees of freedom  
AIC: 584.18  
  
Number of Fisher Scoring iterations: 6
```

## shooting.southern



## shooting.southern



## 45 Results for shooting.southeastern

### 45.1 Summary Values for shooting.southeastern

Table 45.1: Descriptives for Outcome Before Ferguson Protests Begin

| Statistic             | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------------------|-----|-------|----------|-----|--------|-----|
| shooting.southeastern | 232 | 0.526 | 0.863    | 0   | 0      | 5   |

Table 45.2: Descriptives for Outcome After Ferguson Protests Begin

| Statistic             | N   | Mean  | St. Dev. | Min | Median | Max |
|-----------------------|-----|-------|----------|-----|--------|-----|
| shooting.southeastern | 116 | 0.595 | 0.791    | 0   | 0      | 3   |

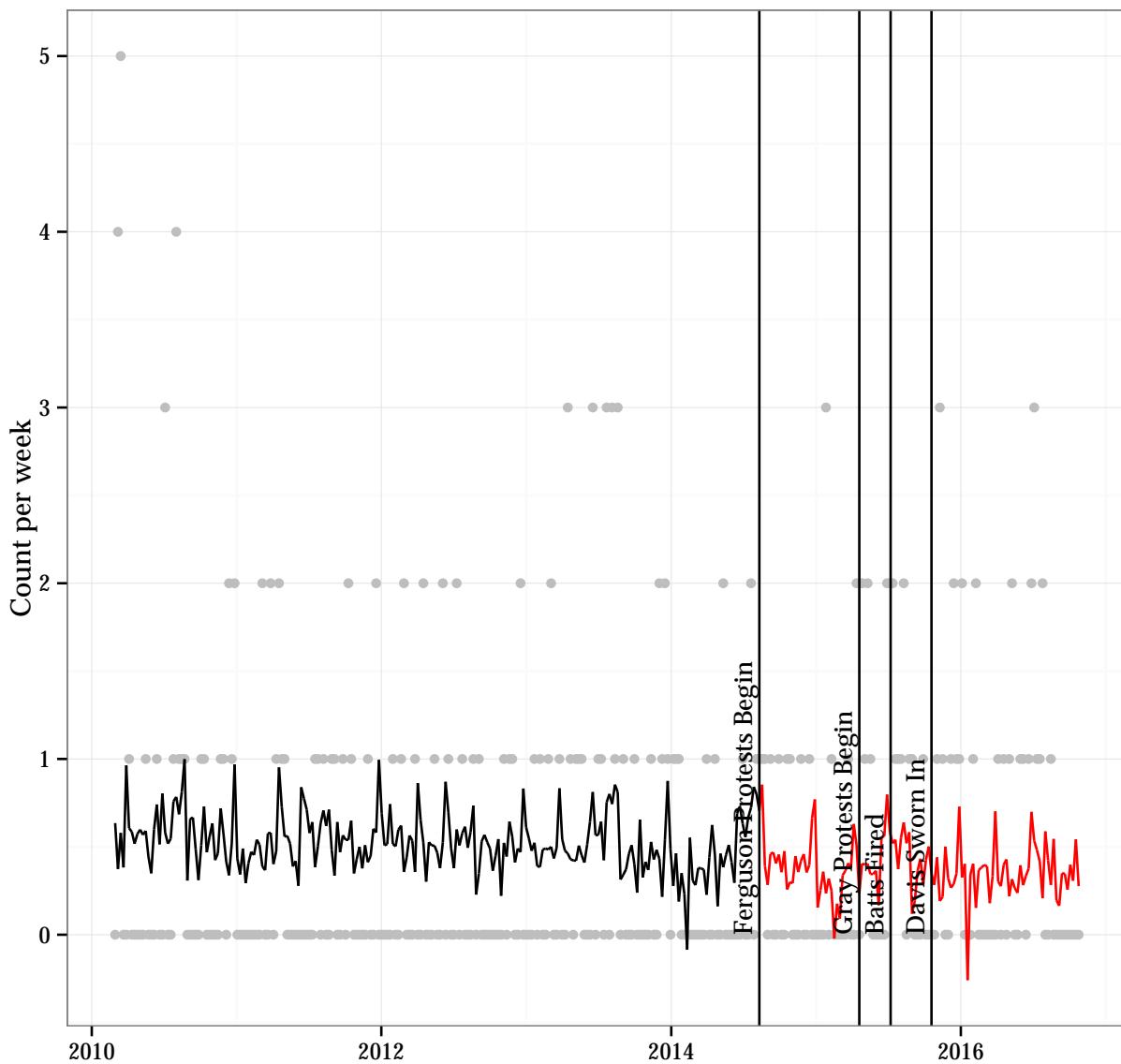
## 45.2 Four Models for shooting.southeastern

Table 45.3: Four Models that Differ on the Specification of Adjustment and Intervention Variables

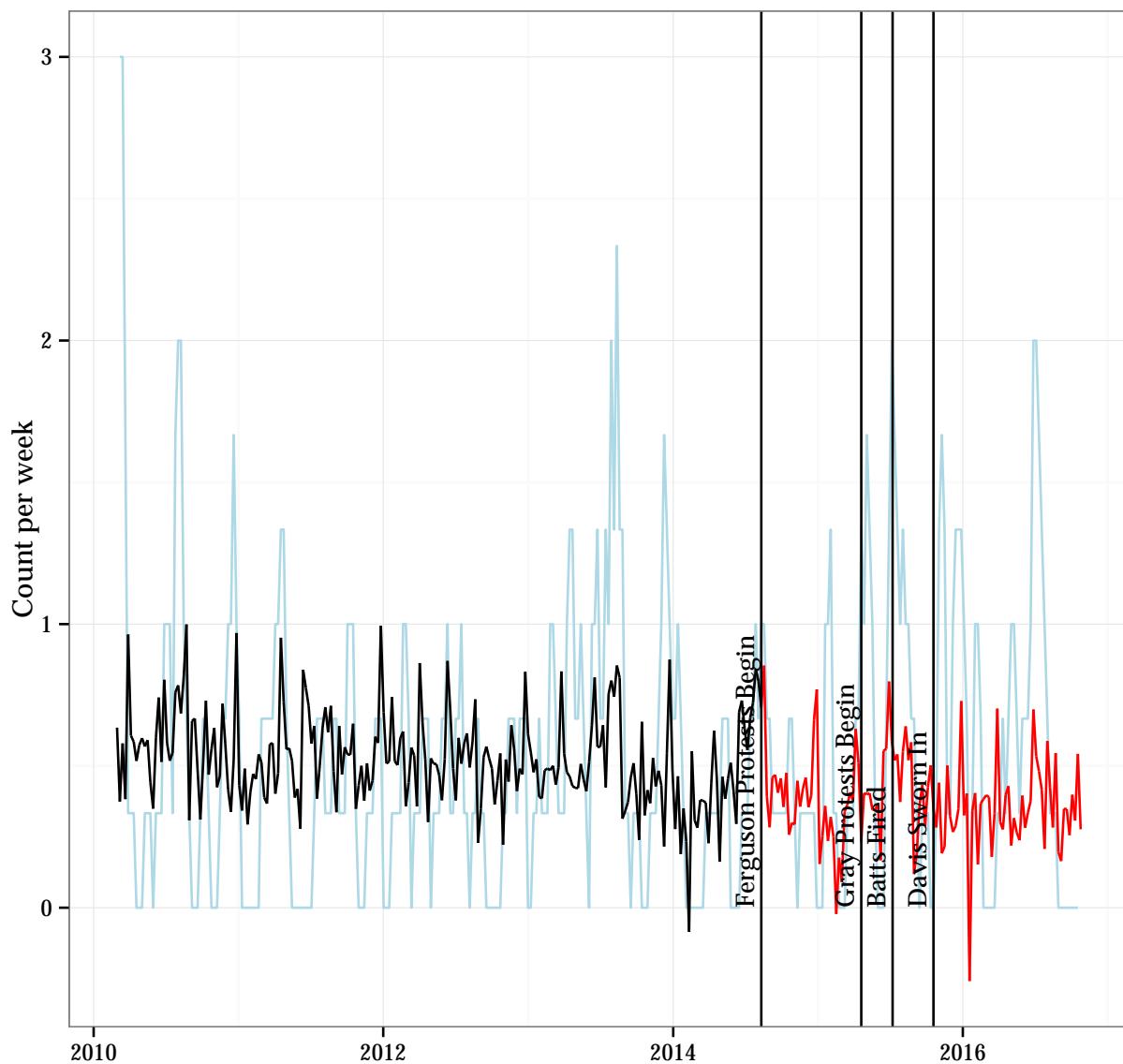
|  | Outcome: Count Per Week |        |       |        |
|--|-------------------------|--------|-------|--------|
|  | (1)                     | (2)    | (3)   | (4)    |
| Time (counter in weeks)                                | -0.001                  | -0.001 |       | -0.001 |
| After Ferguson Protests Begin (week of 8/11/14 onward) | 0.004                   |        | 0.06  | 0.06   |
| After Gray Protests Begin (wee of 4/20/15 onward)      | 0.30                    |        | 0.24  | 0.23   |
| Unrest and National Guard (4/27/15 - 5/3/2015)         | 1.27                    |        | 1.30  | 1.39   |
| After Batts Fired (week of 7/13/15 onward)             | -0.005                  |        | -0.01 | -0.002 |
| After Davis Sworn In (week of 10/19/15 onward)         | -0.08                   |        | -0.02 | 0.001  |
| Average Maximum Temperature to 50 Degrees              | 0.02                    |        |       | -0.002 |
| Plus Degrees in the 50s                                | -0.04                   |        |       | -0.01  |
| Plus Degrees in the 60s                                | 0.05                    |        |       | 0.02   |
| Plus Degrees in the 70s                                | -0.02                   |        |       | -0.003 |
| Plus Degrees Greater Than 80                           | -0.03                   |        |       | -0.03  |
| Snowfall (inches)                                      | -0.11                   |        |       | -0.22  |
| Precipitation (inches)                                 | -0.30                   |        |       | -0.14  |
| Darkness Before Midnight (hours)                       | 0.01                    |        |       | -0.003 |
| School Days (proportion of week)                       | -0.58                   |        |       | -0.54  |
| Observations   | 348                     | 232    | 348   | 348    |
| R <sup>2</sup>   | 0.02                    | 0.04   | 0.03  | 0.05   |

### 45.3 Least Squares Model (2) for shooting.southeastern

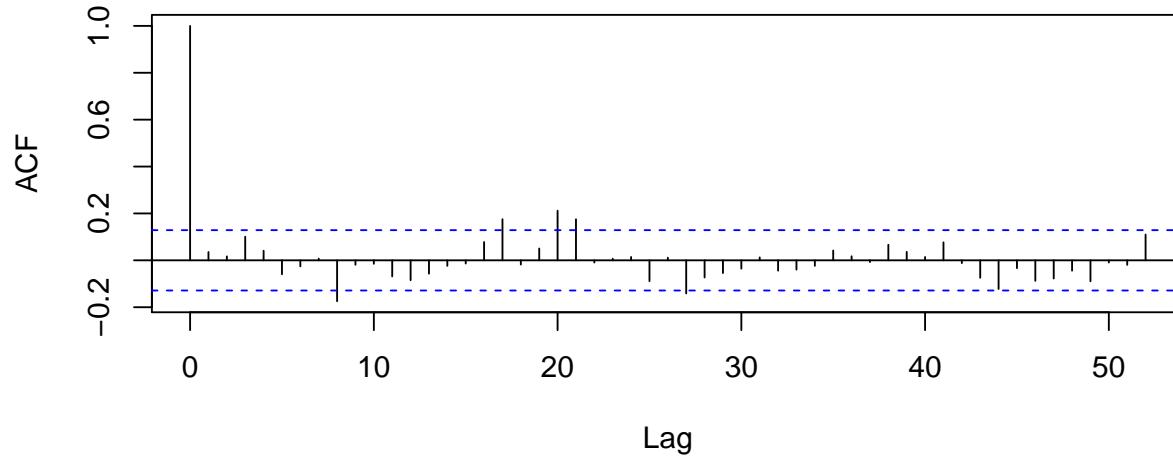
shooting.southeastern



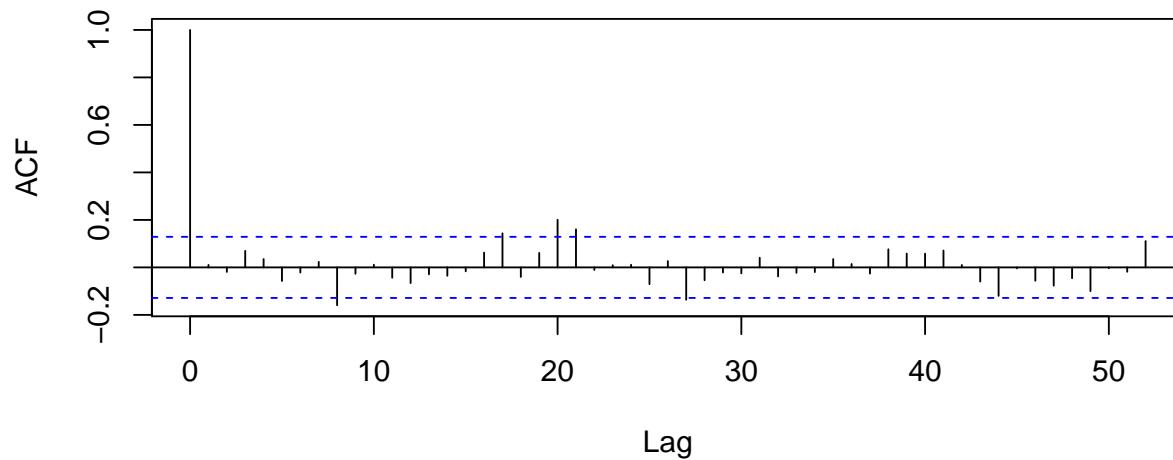
## shooting.southeastern



Autocorrelation Function for the Observed Outcome for Model (2)



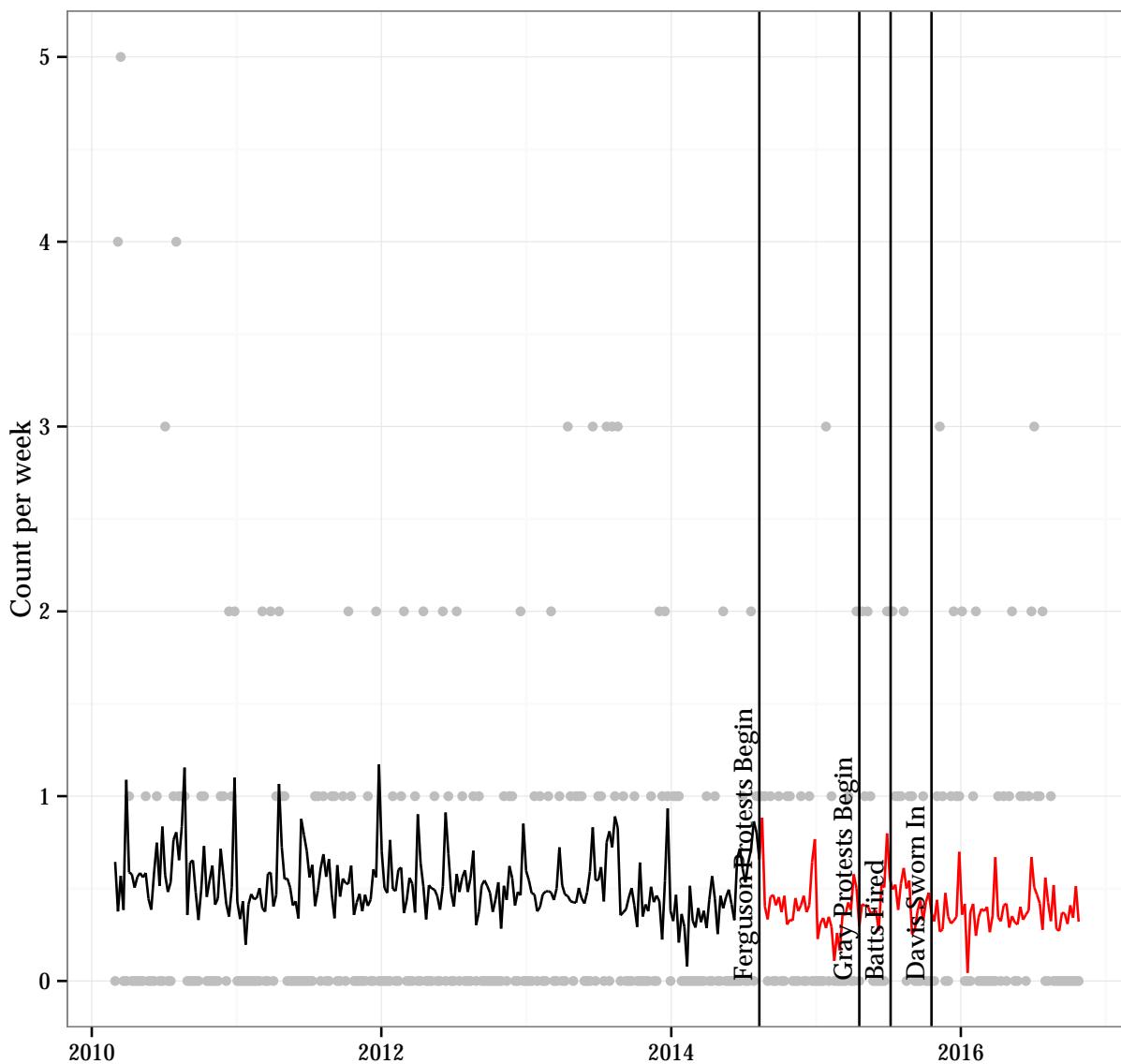
Autocorrelation Function for the Residuals from Model (2)



#### 45.4 A Poisson Regression Model as an Alternative to Model (2) for shooting.southeastern

```
Call:  
glm(formula = model.formula, family = poisson, data = df.windowed.pre)  
  
Deviance Residuals:  
    Min      1Q  Median      3Q     Max  
-1.5309 -1.0083 -0.8973  0.5348  3.5880  
  
Coefficients:  
              Estimate Std. Error z value Pr(>|z|)  
(Intercept) -1.325472  2.049648 -0.647  0.51784  
t            -0.001295  0.001391 -0.931  0.35168  
tmax.f.spline1  0.032211  0.037087  0.869  0.38510  
tmax.f.spline2 -0.081391  0.073351 -1.110  0.26717  
tmax.f.spline3  0.091899  0.092520  0.993  0.32057  
tmax.f.spline4 -0.049328  0.082773 -0.596  0.55121  
tmax.f.spline5 -0.050650  0.069186 -0.732  0.46412  
snow.in       -0.489126  0.703945 -0.695  0.48716  
precip.in      -0.594194  0.567392 -1.047  0.29499  
dark.before.12  0.010226  0.137435  0.074  0.94069  
school        -0.989370  0.369222 -2.680  0.00737 **  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
(Dispersion parameter for poisson family taken to be 1)  
  
Null deviance: 281.78 on 231 degrees of freedom  
Residual deviance: 269.91 on 221 degrees of freedom  
AIC: 478.3  
  
Number of Fisher Scoring iterations: 6
```

## shooting.southeastern



## shooting.southeastern

