

# Primary\_Analysis\_one\_lag

JLee

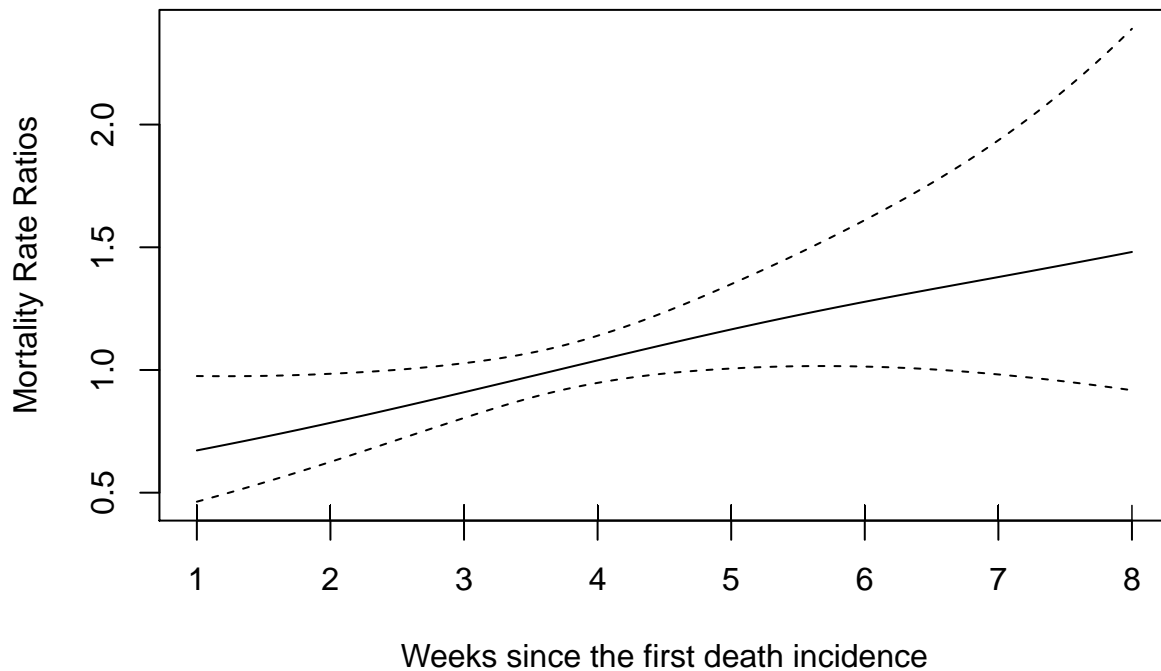
5/23/2020

## Model 2

(1) Weekly\_death ~ s(days\_since\_first) + scaled independent variables + the current positive test ratio + PC1 + PC2 + Mask indicator + random intercept

```
##
## Family: Negative Binomial(1)
## Link function: log
##
## Formula:
## weekly_death ~ s(weeks_since_first, k = 8, bs = "cr") + factor(q_popdensity) +
##   scale(Age_gp1) + scale(Age_gp3) + scale(Age_gp4) + scale(poverty_perc) +
##   scale(Black.perc) + scale(Hispanic.or.Latino.perc) + scale(temp) +
##   scale(perc) + scale(Bachelor_orhigher_perc) + scale(bed_rate) +
##   scale(smoke_perc) + scale(obese_perc) + rptest + PC1 + PC2 +
##   factor(Mask) + offset(log(population))
##
## Parametric coefficients:
##               Estimate Std. Error z value Pr(>|z|)
## (Intercept)    -12.462304   0.342201 -36.418 < 2e-16 ***
## factor(q_popdensity)2    0.628419   0.289728   2.169 0.030083 *
## factor(q_popdensity)3    0.915974   0.361524   2.534 0.011288 *
## factor(q_popdensity)4    0.800225   0.368748   2.170 0.029998 *
## factor(q_popdensity)5    1.628018   0.473587   3.438 0.000587 ***
## scale(Age_gp1)          0.253743   0.249393   1.017 0.308943
## scale(Age_gp3)          0.395503   0.173570   2.279 0.022688 *
## scale(Age_gp4)         -0.039329   0.214326  -0.184 0.854405
## scale(poverty_perc)     0.293576   0.166234   1.766 0.077389 .
## scale(Black.perc)       0.321868   0.188987   1.703 0.088545 .
## scale(Hispanic.or.Latino.perc) 0.147208   0.170225   0.865 0.387158
## scale(temp)            -0.206985   0.224532  -0.922 0.356608
## scale(perc)            -0.151888   0.194922  -0.779 0.435850
## scale(Bachelor_orhigher_perc) 0.007004   0.203754   0.034 0.972579
## scale(bed_rate)         0.134419   0.100493   1.338 0.181029
## scale(smoke_perc)       -0.106494   0.172295  -0.618 0.536514
## scale(obese_perc)       -0.107317   0.163348  -0.657 0.511191
## rptest                0.041089   0.007909   5.195 2.05e-07 ***
## PC1                  -0.046014   0.067272  -0.684 0.493982
## PC2                  -0.161377   0.126607  -1.275 0.202439
## factor(Mask)1          0.239532   0.232031   1.032 0.301920
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
##
## Approximate significance of smooth terms:
##               edf Ref.df Chi.sq p-value
## s(weeks_since_first) 1.314  1.314  4.097   0.051 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## R-sq.(adj) =  0.814
## glmer.ML = 112.23  Scale est. = 1          n = 346
```



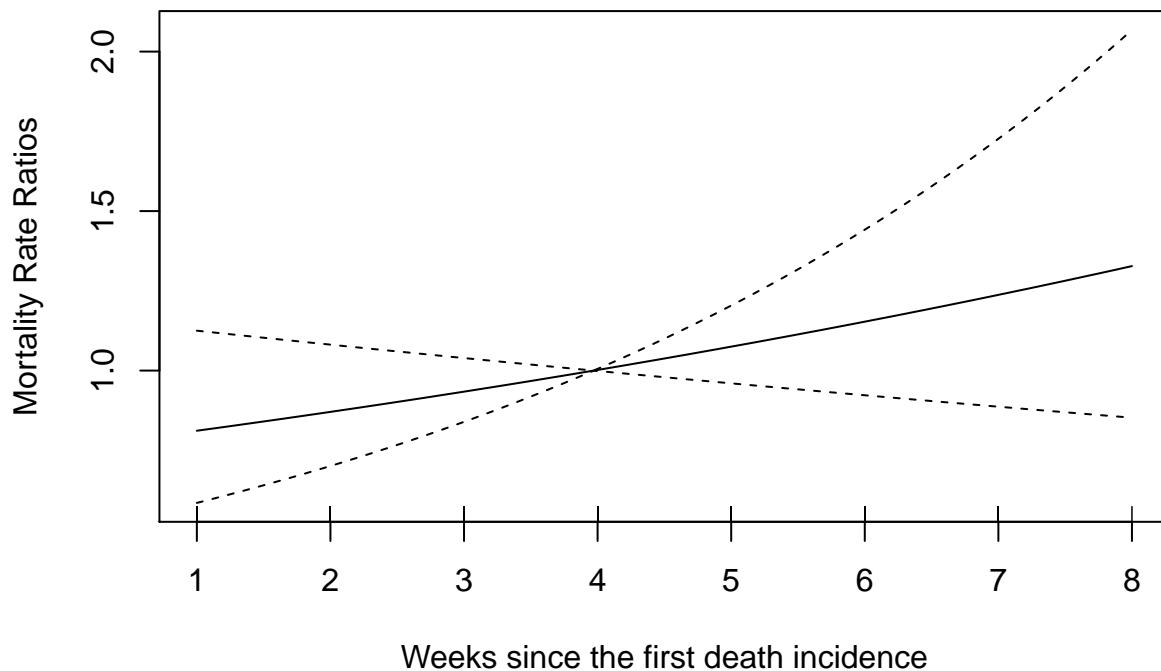
(2)  $\text{Weekly\_death} \sim \text{s}(\text{days\_since\_first}) + \text{scaled independent variables} + \text{the 1 week lag positive test ratio} + \text{PC1} + \text{PC2} + \text{Mask indicator} + \text{random intercept}$

```
##
## Family: Negative Binomial(1)
## Link function: log
##
## Formula:
## weekly_death ~ s(weeks_since_first, k = 8, bs = "cr") + factor(q_popdensity) +
##   scale(Age_gp1) + scale(Age_gp3) + scale(Age_gp4) + scale(poverty_perc) +
##   scale(Black_perc) + scale(Hispanic.or.Latino_perc) + scale(temp) +
##   scale(perc) + scale(Bachelor_orhigher_perc) + scale(bed_rate) +
##   scale(smoke_perc) + scale(obese_perc) + ptest_weeks_ago1 +
##   PC1 + PC2 + factor(Mask) + offset(log(population))
##
## Parametric coefficients:
##               Estimate Std. Error z value Pr(>|z|)
## (Intercept)    -12.419679   0.328405  -37.818  < 2e-16 ***
## factor(q_popdensity)2    0.589657   0.290871   2.027   0.0426 *
## factor(q_popdensity)3    0.892839   0.362376   2.464   0.0137 *
## factor(q_popdensity)4    0.739105   0.370923   1.993   0.0463 *
## factor(q_popdensity)5    1.517285   0.477975   3.174   0.0015 **
## scale(Age_gp1)         0.206751   0.249013   0.830   0.4064
```

```

## scale(Age_gp3)          0.358733  0.174539  2.055  0.0398 *
## scale(Age_gp4)         -0.016710  0.214402 -0.078  0.9379
## scale(poverty_perc)     0.234932  0.166885  1.408  0.1592
## scale(Black_perc)       0.373664  0.188866  1.978  0.0479 *
## scale(Hispanic.or.Latino_perc) 0.176283  0.170585  1.033  0.3014
## scale(temp)             -0.206187  0.224784 -0.917  0.3590
## scale(perc)             -0.142603  0.195721 -0.729  0.4662
## scale(Bachelor_orhigher_perc) 0.002816  0.203406  0.014  0.9890
## scale(bed_rate)         0.133766  0.100427  1.332  0.1829
## scale(smoke_perc)       -0.120989  0.172571 -0.701  0.4832
## scale(obese_perc)       -0.084248  0.163247 -0.516  0.6058
## ptest_weeks_ago1        0.041388  0.007152  5.787 7.16e-09 ***
## PC1                    -0.011243  0.067363 -0.167  0.8675
## PC2                    -0.189700  0.126489 -1.500  0.1337
## factor(Mask)1           0.195922  0.213151  0.919  0.3580
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Approximate significance of smooth terms:
##              edf Ref.df Chi.sq p-value
## s(weeks_since_first)  1      1  1.635  0.201
##
## R-sq.(adj) =  0.839
## glmer.ML = 110.95  Scale est. = 1          n = 346

```



(3)  $\text{Weekly\_death} \sim \text{s}(\text{days\_since\_first}) + \text{scaled independent variables} + \text{the 2 week lag positive test ratio} + \text{PC1} + \text{PC2} + \text{Mask indicator} + \text{random intercept}$

```

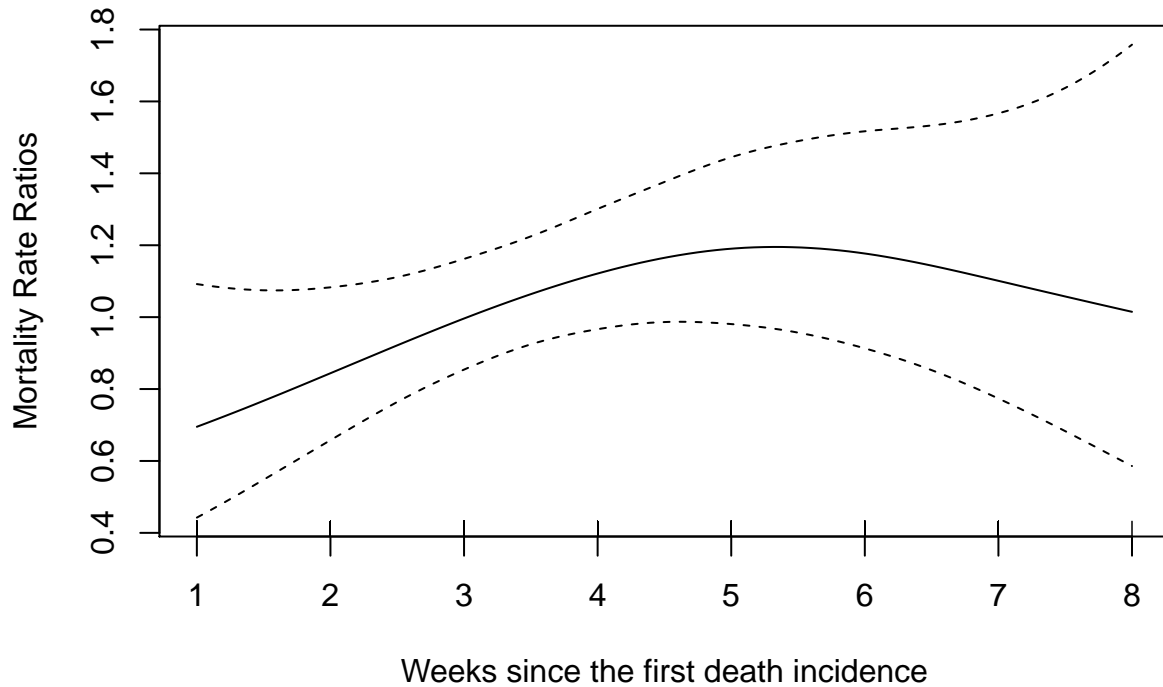
##
## Family: Negative Binomial(1)
## Link function: log
##
## Formula:

```

```

## weekly_death ~ s(weeks_since_first, k = 8, bs = "cr") + factor(q_popdensity) +
##   scale(Age_gp1) + scale(Age_gp3) + scale(Age_gp4) + scale(poverty_perc) +
##   scale(Black.perc) + scale(Hispanic.or.Latino.perc) + scale(temp) +
##   scale(perc) + scale(Bachelor_orhigher_perc) + scale(bed_rate) +
##   scale(smoke_perc) + scale(obese_perc) + ptest_weeks_ago2 +
##   PC1 + PC2 + factor(Mask) + offset(log(population))
##
## Parametric coefficients:
##
##               Estimate Std. Error z value Pr(>|z|)
## (Intercept)      -12.209097   0.391353 -31.197 < 2e-16 ***
## factor(q_popdensity)2    0.763370   0.327095   2.334 0.01961 *
## factor(q_popdensity)3    1.039144   0.408717   2.542 0.01101 *
## factor(q_popdensity)4    0.977258   0.416212   2.348 0.01888 *
## factor(q_popdensity)5    1.995181   0.532613   3.746 0.00018 ***
## scale(Age_gp1)          0.424281   0.272004   1.560 0.11880
## scale(Age_gp3)          0.463171   0.195682   2.367 0.01793 *
## scale(Age_gp4)          0.041169   0.241301   0.171 0.86453
## scale(poverty_perc)      0.260967   0.188004   1.388 0.16511
## scale(Black.perc)        0.418995   0.213752   1.960 0.04997 *
## scale(Hispanic.or.Latino.perc) 0.197996   0.193126   1.025 0.30526
## scale(temp)             -0.244281   0.250535  -0.975 0.32954
## scale(perc)             -0.216151   0.221969  -0.974 0.33016
## scale(Bachelor_orhigher_perc) 0.103563   0.227142   0.456 0.64844
## scale(bed_rate)         0.173608   0.112800   1.539 0.12379
## scale(smoke_perc)       -0.072608   0.194411  -0.373 0.70879
## scale(obese_perc)       -0.067121   0.184992  -0.363 0.71673
## ptest_weeks_ago2        0.011671   0.004825   2.419 0.01556 *
## PC1                    -0.074188   0.072559  -1.022 0.30657
## PC2                    -0.200889   0.132734  -1.513 0.13016
## factor(Mask)1           0.115765   0.271240   0.427 0.66952
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Approximate significance of smooth terms:
##               edf Ref.df Chi.sq p-value
## s(weeks_since_first) 1.885  1.885  2.462  0.194
##
## R-sq.(adj) =  0.636
## glmer.ML = 104.42  Scale est. = 1          n = 346

```



(4)  $\text{Weekly\_death} \sim \text{s}(\text{days\_since\_first}) + \text{scaled independent variables} + \text{the 3 week lag positive test ratio} + \text{PC1} + \text{PC2} + \text{Mask indicator} + \text{random intercept}$

```
##
## Family: Negative Binomial(1)
## Link function: log
##
## Formula:
## weekly_death ~ s(weeks_since_first, k = 8, bs = "cr") + factor(q_popdensity) +
##   scale(Age_gp1) + scale(Age_gp3) + scale(Age_gp4) + scale(poverty_perc) +
##   scale(Black.perc) + scale(Hispanic.or.Latino.perc) + scale(temp) +
##   scale(perc) + scale(Bachelor_orhigher_perc) + scale.bed_rate) +
##   scale(smoke_perc) + scale(obese_perc) + ptest_weeks_ago3 +
##   PC1 + PC2 + factor(Mask) + offset(log(population))
##
## Parametric coefficients:
##
```

	Estimate	Std. Error	z value	Pr(> z )
## (Intercept)	-12.181978	0.402061	-30.299	< 2e-16 ***
## factor(q_popdensity)2	0.819739	0.336715	2.435	0.0149 *
## factor(q_popdensity)3	1.074393	0.421576	2.549	0.0108 *
## factor(q_popdensity)4	1.050585	0.427864	2.455	0.0141 *
## factor(q_popdensity)5	2.128822	0.543800	3.915	9.05e-05 ***
## scale(Age_gp1)	0.479168	0.278432	1.721	0.0853 .
## scale(Age_gp3)	0.481527	0.202122	2.382	0.0172 *
## scale(Age_gp4)	0.065497	0.249090	0.263	0.7926
## scale(poverty_perc)	0.277846	0.194204	1.431	0.1525
## scale(Black.perc)	0.415958	0.220916	1.883	0.0597 .
## scale(Hispanic.or.Latino.perc)	0.209007	0.199696	1.047	0.2953
## scale(temp)	-0.272379	0.258471	-1.054	0.2920
## scale(perc)	-0.230512	0.228867	-1.007	0.3138
## scale(Bachelor_orhigher_perc)	0.146097	0.234066	0.624	0.5325
## scale.bed_rate)	0.187689	0.116360	1.613	0.1067

```
## scale(smoke_perc)          -0.049897  0.200788 -0.249  0.8037
## scale(obese_perc)         -0.056605  0.191095 -0.296  0.7671
## ptest_weeks_ago3          0.006734  0.003906  1.724  0.0847 .
## PC1                       -0.082200  0.074386 -1.105  0.2691
## PC2                       -0.199212  0.134353 -1.483  0.1381
## factor(Mask)1             0.080625  0.276692  0.291  0.7708
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Approximate significance of smooth terms:
##              edf Ref.df Chi.sq p-value
## s(weeks_since_first) 2.038  2.038  4.022  0.122
##
## R-sq.(adj) =  0.585
## glmer.ML = 99.861  Scale est. = 1          n = 346
```

