**Distancing 🡨 Case Growth Rate (Days 1-14)**

**[3-level model did not converge; this analysis uses county as only nesting variable]**

Mixed-effects ML regression Number of obs = 243,162

Group variable: county\_fips Number of groups = 3,002

Obs per group:

min = 81

avg = 81.0

max = 81

Wald chi2(23) = 75851.01

Log likelihood = -1023009.1 Prob > chi2 = 0.0000

------------------------------------------------------------------------------------------------

dist | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------------------------+----------------------------------------------------------------

z\_caseRate\_lag\_1to14 | 3.487113 .0359868 96.90 0.000 3.41658 3.557646

state\_policy2 | 8.013891 .0403831 198.45 0.000 7.934742 8.093041

demgov2 | -1.343975 .2060249 -6.52 0.000 -1.747777 -.9401738

weekend2 | 5.781795 .0531546 108.77 0.000 5.677614 5.885976

z\_median\_household\_income\_2018 | 4.333542 .2772824 15.63 0.000 3.790078 4.877005

z\_medianage\_county\_2018 | -2.578453 .5099568 -5.06 0.000 -3.57795 -1.578956

z\_pct\_age0to17 | -2.094546 .2507954 -8.35 0.000 -2.586096 -1.602996

z\_pct\_age65to84 | -.2543283 .5180311 -0.49 0.623 -1.269651 .7609939

z\_pct\_age85plus | .2905008 .2920621 0.99 0.320 -.2819305 .8629321

z\_difflifeexp | -.0726373 .1834365 -0.40 0.692 -.4321663 .2868916

z\_pop\_density | .571857 .1830729 3.12 0.002 .2130407 .9306734

z\_supermarkets | .6478739 .1921377 3.37 0.001 .2712909 1.024457

z\_supermarketsLow | .56427 .1757389 3.21 0.001 .2198281 .908712

region2 | 3.972355 .658504 6.03 0.000 2.681711 5.262999

region3 | -.6650375 .2522109 -2.64 0.008 -1.159362 -.1707133

region4 | -2.49258 .5091803 -4.90 0.000 -3.490555 -1.494605

z\_religion | -.3535375 .2095718 -1.69 0.092 -.7642908 .0572157

z\_percentEmployed | 1.012193 .2404225 4.21 0.000 .5409736 1.483412

z\_gini | 2.467078 .2022703 12.20 0.000 2.070636 2.863521

z\_avgtimetowork | -1.176693 .2218732 -5.30 0.000 -1.611556 -.7418291

z\_perc\_black | -.3106911 .2150141 -1.44 0.148 -.7321109 .1107287

z\_perc\_asian | 1.647023 .2088929 7.88 0.000 1.237601 2.056446

z\_perc\_hisplatin | -.2721075 .1963435 -1.39 0.166 -.6569336 .1127186

\_cons | 24.52167 .1633265 150.14 0.000 24.20156 24.84178

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------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

county\_fips: Identity |

var(\_cons) | 76.93745 2.067718 72.98968 81.09874

-----------------------------+------------------------------------------------

var(Residual) | 253.7448 .7322583 252.3136 255.184

------------------------------------------------------------------------------

LR test vs. linear model: chibar2(01) = 54104.64 Prob >= chibar2 = 0.0000

**Distancing 🡨 Case Growth Rate (Days 1-14) + Same-Day Case Growth Rate**

**[3-level model did not converge; this analysis uses county as only nesting variable]**

Mixed-effects ML regression Number of obs = 243,162

Group variable: county\_fips Number of groups = 3,002

Obs per group:

min = 81

avg = 81.0

max = 81

Wald chi2(24) = 76938.12

Log likelihood = -1022594.2 Prob > chi2 = 0.0000

------------------------------------------------------------------------------------------------

dist | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------------------------+----------------------------------------------------------------

z\_caseRate\_lag\_1to14 | 3.369036 .0361577 93.18 0.000 3.298169 3.439904

z\_caseRate | .9456015 .0327982 28.83 0.000 .8813182 1.009885

state\_policy2 | 8.00983 .0403143 198.68 0.000 7.930815 8.088845

demgov2 | -1.343541 .2058716 -6.53 0.000 -1.747042 -.9400404

weekend2 | 5.789061 .053064 109.10 0.000 5.685058 5.893065

z\_median\_household\_income\_2018 | 4.311991 .2770783 15.56 0.000 3.768928 4.855055

z\_medianage\_county\_2018 | -2.570505 .5095796 -5.04 0.000 -3.569263 -1.571747

z\_pct\_age0to17 | -2.093949 .2506099 -8.36 0.000 -2.585136 -1.602763

z\_pct\_age65to84 | -.2470728 .5176479 -0.48 0.633 -1.261644 .7674986

z\_pct\_age85plus | .2954107 .2918461 1.01 0.311 -.2765972 .8674186

z\_difflifeexp | -.0741548 .1833008 -0.40 0.686 -.4334177 .2851082

z\_pop\_density | .567949 .1829376 3.10 0.002 .209398 .9265

z\_supermarkets | .6654296 .1919965 3.47 0.001 .2891233 1.041736

z\_supermarketsLow | .5682739 .175609 3.24 0.001 .2240867 .9124612

region2 | 3.918294 .6580194 5.95 0.000 2.628599 5.207988

region3 | -.6567128 .2520244 -2.61 0.009 -1.150672 -.1627539

region4 | -2.473344 .5088041 -4.86 0.000 -3.470581 -1.476106

z\_religion | -.3480808 .2094169 -1.66 0.096 -.7585303 .0623687

z\_percentEmployed | 1.006686 .2402447 4.19 0.000 .5358146 1.477556

z\_gini | 2.456244 .202121 12.15 0.000 2.060095 2.852394

z\_avgtimetowork | -1.179415 .2217091 -5.32 0.000 -1.613956 -.7448727

z\_perc\_black | -.3389263 .2148571 -1.58 0.115 -.7600386 .082186

z\_perc\_asian | 1.643491 .2087384 7.87 0.000 1.234372 2.052611

z\_perc\_hisplatin | -.2813657 .1961985 -1.43 0.152 -.6659077 .1031762

\_cons | 24.51871 .1632057 150.23 0.000 24.19883 24.83859

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Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

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county\_fips: Identity |

var(\_cons) | 76.82979 2.064645 72.88788 80.98488

-----------------------------+------------------------------------------------

var(Residual) | 252.8742 .729746 251.448 254.3085

------------------------------------------------------------------------------

LR test vs. linear model: chibar2(01) = 54221.43 Prob >= chibar2 = 0.0000

**Distancing 🡨 Same-Day Case Growth Rate**

**[3-level model did not converge; this analysis uses county as only nesting variable]**

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -1039793.3

Iteration 1: log likelihood = -1039793.3

Computing standard errors:

Mixed-effects ML regression Number of obs = 246,164

Group variable: county\_fips Number of groups = 3,002

Obs per group:

min = 82

avg = 82.0

max = 82

Wald chi2(23) = 69056.49

Log likelihood = -1039793.3 Prob > chi2 = 0.0000

------------------------------------------------------------------------------------------------

dist | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------------------------+----------------------------------------------------------------

z\_caseRate | 1.33132 .0331913 40.11 0.000 1.266267 1.396374

state\_policy2 | 8.93893 .0396894 225.22 0.000 8.86114 9.01672

demgov2 | -1.611246 .2089665 -7.71 0.000 -2.020813 -1.201679

weekend2 | 5.981862 .053951 110.88 0.000 5.87612 6.087604

z\_median\_household\_income\_2018 | 4.603206 .281273 16.37 0.000 4.051921 5.154491

z\_medianage\_county\_2018 | -2.670724 .5173376 -5.16 0.000 -3.684687 -1.656761

z\_pct\_age0to17 | -2.059012 .2544256 -8.09 0.000 -2.557677 -1.560346

z\_pct\_age65to84 | -.3671017 .5255285 -0.70 0.485 -1.397119 .6629152

z\_pct\_age85plus | .3281209 .2962896 1.11 0.268 -.252596 .9088378

z\_difflifeexp | -.1110676 .1860912 -0.60 0.551 -.4757997 .2536644

z\_pop\_density | .6757119 .185719 3.64 0.000 .3117094 1.039714

z\_supermarkets | .4774395 .1949075 2.45 0.014 .0954278 .8594511

z\_supermarketsLow | .550164 .1782827 3.09 0.002 .2007362 .8995917

region2 | 4.532048 .6679965 6.78 0.000 3.222799 5.841297

region3 | -.7586739 .2558591 -2.97 0.003 -1.260149 -.2571992

region4 | -2.548049 .5165497 -4.93 0.000 -3.560468 -1.53563

z\_religion | -.370701 .2126052 -1.74 0.081 -.7873995 .0459975

z\_percentEmployed | 1.108168 .2438989 4.54 0.000 .6301344 1.586201

z\_gini | 2.579009 .2051912 12.57 0.000 2.176842 2.981177

z\_avgtimetowork | -1.169706 .2250844 -5.20 0.000 -1.610864 -.7285491

z\_perc\_black | -.0425876 .2180993 -0.20 0.845 -.4700544 .3848793

z\_perc\_asian | 1.678472 .211916 7.92 0.000 1.263124 2.09382

z\_perc\_hisplatin | -.2037196 .1991824 -1.02 0.306 -.5941099 .1866706

\_cons | 24.38265 .1656902 147.16 0.000 24.05791 24.7074

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Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

county\_fips: Identity |

var(\_cons) | 79.20311 2.127949 75.14032 83.48558

-----------------------------+------------------------------------------------

var(Residual) | 262.5619 .7530107 261.0901 264.0419

------------------------------------------------------------------------------

LR test vs. linear model: chibar2(01) = 54605.52 Prob >= chibar2 = 0.0000

**Distancing 🡨 Death Growth Rate (Days 1-14)**

**[3-level model did not converge; this analysis uses county as only nesting variable]**

Mixed-effects ML regression Number of obs = 243,162

Group variable: county\_fips Number of groups = 3,002

Obs per group:

min = 81

avg = 81.0

max = 81

Wald chi2(23) = 64364.52

Log likelihood = -1027467 Prob > chi2 = 0.0000

------------------------------------------------------------------------------------------------

dist | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------------------------+----------------------------------------------------------------

z\_deathRate\_lag\_1to14 | .6759453 .0392119 17.24 0.000 .5990914 .7527993

state\_policy2 | 8.771776 .0405773 216.17 0.000 8.692246 8.851306

demgov2 | -1.593686 .2099054 -7.59 0.000 -2.005093 -1.182279

weekend2 | 5.845708 .0541338 107.99 0.000 5.739608 5.951809

z\_median\_household\_income\_2018 | 4.592286 .282566 16.25 0.000 4.038467 5.146105

z\_medianage\_county\_2018 | -2.69709 .5195974 -5.19 0.000 -3.715483 -1.678698

z\_pct\_age0to17 | -2.109283 .2555398 -8.25 0.000 -2.610132 -1.608434

z\_pct\_age65to84 | -.3611499 .5278257 -0.68 0.494 -1.395669 .6733695

z\_pct\_age85plus | .2803295 .2975849 0.94 0.346 -.3029263 .8635853

z\_difflifeexp | -.1044665 .1869049 -0.56 0.576 -.4707933 .2618603

z\_pop\_density | .6539483 .1865439 3.51 0.000 .2883289 1.019568

z\_supermarkets | .4570217 .1957637 2.33 0.020 .0733319 .8407116

z\_supermarketsLow | .5256749 .1790651 2.94 0.003 .1747138 .876636

region2 | 4.454579 .6710641 6.64 0.000 3.139317 5.76984

region3 | -.7204281 .2569906 -2.80 0.005 -1.22412 -.2167358

region4 | -2.57703 .5188123 -4.97 0.000 -3.593884 -1.560177

z\_religion | -.3763845 .2135345 -1.76 0.078 -.7949045 .0421355

z\_percentEmployed | 1.123361 .2449665 4.59 0.000 .6432356 1.603487

z\_gini | 2.576931 .2061189 12.50 0.000 2.172946 2.980917

z\_avgtimetowork | -1.18817 .2260742 -5.26 0.000 -1.631268 -.7450731

z\_perc\_black | -.0511539 .2191219 -0.23 0.815 -.4806249 .3783171

z\_perc\_asian | 1.651075 .2128615 7.76 0.000 1.233874 2.068276

z\_perc\_hisplatin | -.1925239 .2000602 -0.96 0.336 -.5846347 .199587

\_cons | 24.51483 .1664146 147.31 0.000 24.18867 24.841

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Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

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county\_fips: Identity |

var(\_cons) | 79.877 2.147478 75.77699 84.19885

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var(Residual) | 263.2187 .7596019 261.7341 264.7117

------------------------------------------------------------------------------

LR test vs. linear model: chibar2(01) = 53712.11 Prob >= chibar2 = 0.0000

**Distancing 🡨 Death Growth Rate (Days 1-14) + Same-Day Death Growth Rate**

**[3-level model did not converge; this analysis uses county as only nesting variable]**

Mixed-effects ML regression Number of obs = 243,162

Group variable: county\_fips Number of groups = 3,002

Obs per group:

min = 81

avg = 81.0

max = 81

Wald chi2(24) = 64486.32

Log likelihood = -1027419.9 Prob > chi2 = 0.0000

------------------------------------------------------------------------------------------------

dist | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------------------------+----------------------------------------------------------------

z\_deathRate\_lag\_1to14 | .6551887 .0392631 16.69 0.000 .5782345 .7321429

z\_deathRate | .3245399 .0334244 9.71 0.000 .2590293 .3900505

state\_policy2 | 8.756287 .0406006 215.67 0.000 8.676712 8.835863

demgov2 | -1.589829 .2097061 -7.58 0.000 -2.000845 -1.178813

weekend2 | 5.855349 .0541329 108.17 0.000 5.74925 5.961447

z\_median\_household\_income\_2018 | 4.577014 .2823007 16.21 0.000 4.023715 5.130313

z\_medianage\_county\_2018 | -2.697329 .5191013 -5.20 0.000 -3.714748 -1.679909

z\_pct\_age0to17 | -2.112068 .255296 -8.27 0.000 -2.612439 -1.611697

z\_pct\_age65to84 | -.3576245 .5273219 -0.68 0.498 -1.391156 .6759074

z\_pct\_age85plus | .2789486 .2973009 0.94 0.348 -.3037504 .8616477

z\_difflifeexp | -.1033733 .1867265 -0.55 0.580 -.4693505 .2626038

z\_pop\_density | .6483417 .1863667 3.48 0.001 .2830696 1.013614

z\_supermarkets | .4616232 .1955774 2.36 0.018 .0782985 .8449478

z\_supermarketsLow | .5227686 .1788944 2.92 0.003 .1721421 .8733952

region2 | 4.418725 .6704338 6.59 0.000 3.104699 5.732751

region3 | -.7137848 .2567462 -2.78 0.005 -1.216998 -.2105715

region4 | -2.57016 .5183175 -4.96 0.000 -3.586044 -1.554277

z\_religion | -.3754485 .2133307 -1.76 0.078 -.793569 .0426719

z\_percentEmployed | 1.120983 .2447327 4.58 0.000 .6413158 1.60065

z\_gini | 2.568131 .2059242 12.47 0.000 2.164527 2.971735

z\_avgtimetowork | -1.192004 .2258588 -5.28 0.000 -1.634679 -.7493288

z\_perc\_black | -.0661574 .2189183 -0.30 0.762 -.4952294 .3629145

z\_perc\_asian | 1.644351 .2126594 7.73 0.000 1.227546 2.061155

z\_perc\_hisplatin | -.1970764 .1998698 -0.99 0.324 -.588814 .1946612

\_cons | 24.51435 .1662558 147.45 0.000 24.1885 24.84021

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Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

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county\_fips: Identity |

var(\_cons) | 79.71954 2.14341 75.6273 84.03321

-----------------------------+------------------------------------------------

var(Residual) | 263.1217 .7593221 261.6376 264.6141

------------------------------------------------------------------------------

LR test vs. linear model: chibar2(01) = 53618.63 Prob >= chibar2 = 0.0000

**Distancing 🡨 Same-Day Death Growth Rate**

**[3-level model did not converge; this analysis uses county as only nesting variable]**

Mixed-effects ML regression Number of obs = 246,164

Group variable: county\_fips Number of groups = 3,002

Obs per group:

min = 82

avg = 82.0

max = 82

Wald chi2(23) = 67178.90

Log likelihood = -1040529.8 Prob > chi2 = 0.0000

------------------------------------------------------------------------------------------------

dist | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------------------------+----------------------------------------------------------------

z\_deathRate | .3821534 .03343 11.43 0.000 .3166319 .447675

state\_policy2 | 8.967467 .0398363 225.11 0.000 8.88939 9.045545

demgov2 | -1.620637 .2093946 -7.74 0.000 -2.031043 -1.210231

weekend2 | 5.98918 .0541214 110.66 0.000 5.883104 6.095255

z\_median\_household\_income\_2018 | 4.628801 .2818517 16.42 0.000 4.076382 5.18122

z\_medianage\_county\_2018 | -2.687736 .5183948 -5.18 0.000 -3.703771 -1.671701

z\_pct\_age0to17 | -2.063412 .2549459 -8.09 0.000 -2.563097 -1.563727

z\_pct\_age65to84 | -.3784433 .5266026 -0.72 0.472 -1.410565 .6536788

z\_pct\_age85plus | .3196565 .2968952 1.08 0.282 -.2622473 .9015604

z\_difflifeexp | -.1094831 .1864716 -0.59 0.557 -.4749608 .2559946

z\_pop\_density | .6789814 .1860996 3.65 0.000 .3142328 1.04373

z\_supermarkets | .4491626 .1953047 2.30 0.021 .0663723 .8319528

z\_supermarketsLow | .5397577 .1786474 3.02 0.003 .1896153 .8899002

region2 | 4.59033 .6693709 6.86 0.000 3.278387 5.902273

region3 | -.765359 .2563831 -2.99 0.003 -1.267861 -.2628574

region4 | -2.571019 .5176054 -4.97 0.000 -3.585507 -1.556531

z\_religion | -.3781983 .2130396 -1.78 0.076 -.7957483 .0393518

z\_percentEmployed | 1.118713 .2443974 4.58 0.000 .6397026 1.597723

z\_gini | 2.589661 .2056126 12.59 0.000 2.186668 2.992655

z\_avgtimetowork | -1.170877 .2255449 -5.19 0.000 -1.612937 -.7288172

z\_perc\_black | -.0077677 .2185484 -0.04 0.972 -.4361146 .4205792

z\_perc\_asian | 1.676196 .2123507 7.89 0.000 1.259996 2.092395

z\_perc\_hisplatin | -.192203 .1995898 -0.96 0.336 -.5833917 .1989857

\_cons | 24.38271 .1660288 146.86 0.000 24.0573 24.70812

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Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

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county\_fips: Identity |

var(\_cons) | 79.52101 2.136722 75.44148 83.82114

-----------------------------+------------------------------------------------

var(Residual) | 264.1439 .7575481 262.6633 265.6328

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LR test vs. linear model: chibar2(01) = 54457.36 Prob >= chibar2 = 0.0000