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| Appendix B: Regression Equations Used For Estimating Expected Weekly Deaths |
|  | All-ages | Age 80 plus | Ages 60-79 | Ages 30-59 | Ages 0-29 |
| Population (log) | 989.163 | 432.633 | 360.709 | 91.129 | 104.645 |
|  | (212.039) | (150.972) | (106.027) | (58.153) | (31.110) |
| Time index | -6.342 | -1.931 | -1.923 | -0.670 | -1.817 |
|  | (3.712) | (2.643) | (1.856) | (1.018) | (0.545) |
| *Weekly fixed effects* |  |  |  |  |  |
| Week\_2 | -10.200 | 0.300 | -3.300 | -4.200 | -3.000 |
|  | (13.665) | (9.730) | (6.833) | (3.748) | (2.004) |
| Week\_3 | 6.700 | 14.400 | -3.500 | -1.200 | -3.000 |
|  | (13.665) | (9.730) | (6.833) | (3.748) | (2.004) |
| Week\_4 | -18.000 | 3.500 | -15.800 | -2.600 | -3.100 |
|  | (13.665) | (9.730) | (6.833) | (3.748) | (2.004) |
| Week\_5 | -19.600 | 1.300 | -15.700 | -1.600 | -3.600 |
|  | (13.665) | (9.730) | (6.833) | (3.748) | (2.004) |
| Week\_6 | -8.500 | -0.800 | -5.500 | 1.100 | -3.300 |
|  | (13.665) | (9.730) | (6.833) | (3.748) | (2.004) |
| Week\_7 | -20.700 | -10.300 | -3.100 | -4.100 | -3.200 |
|  | (13.665) | (9.730) | (6.833) | (3.748) | (2.004) |
| Week\_8 | -20.200 | -4.900 | -10.300 | -2.200 | -2.800 |
|  | (13.665) | (9.730) | (6.833) | (3.748) | (2.004) |
| Week\_9 | -12.072 | 2.630 | -7.025 | -4.090 | -3.587 |
|  | (14.047) | (10.002) | (7.024) | (3.853) | (2.060) |
| Week\_10 | -17.800 | -0.200 | -4.600 | -7.600 | -5.400 |
|  | (13.665) | (9.730) | (6.833) | (3.748) | (2.004) |
| Week\_11 | -11.478 | 11.402 | -13.899 | -4.658 | -4.323 |
|  | (14.041) | (9.997) | (7.021) | (3.851) | (2.059) |
| Week\_12 | -6.900 | 8.400 | -8.600 | -2.400 | -4.300 |
|  | (13.665) | (9.730) | (6.833) | (3.748) | (2.004) |
| Week\_13 | -6.517 | 2.718 | -1.552 | -3.438 | -4.263 |
|  | (13.665) | (9.730) | (6.833) | (3.748) | (2.004) |
| Week\_14 | 3.072 | 6.827 | -2.505 | 1.390 | -2.639 |
|  | (14.056) | (10.008) | (7.028) | (3.855) | (2.061) |
| Week\_15 | -5.706 | 10.160 | -6.061 | -4.054 | -5.750 |
|  | (14.056) | (10.008) | (7.028) | (3.855) | (2.061) |
| Week\_16 | 12.628 | 18.938 | 2.606 | -2.721 | -6.195 |
|  | (14.056) | (10.008) | (7.028) | (3.855) | (2.061) |
| Week\_17 | 14.294 | 19.494 | -1.505 | -2.165 | -1.528 |
|  | (14.056) | (10.008) | (7.028) | (3.855) | (2.061) |
| Week\_18 | 12.517 | 23.160 | -0.950 | -3.832 | -5.861 |
|  | (14.056) | (10.008) | (7.028) | (3.855) | (2.061) |
| Week\_19 | 32.739 | 31.160 | 9.495 | -2.832 | -5.084 |
|  | (14.056) | (10.008) | (7.028) | (3.855) | (2.061) |
| Week\_20 | 33.628 | 37.938 | 3.939 | -4.610 | -3.639 |
|  | (14.056) | (10.008) | (7.028) | (3.855) | (2.061) |
| Week\_21 | 33.850 | 33.827 | 5.272 | -0.054 | -5.195 |
|  | (14.056) | (10.008) | (7.028) | (3.855) | (2.061) |
| Week\_22 | 56.517 | 50.494 | 10.939 | -1.721 | -3.195 |
|  | (14.056) | (10.008) | (7.028) | (3.855) | (2.061) |
| Week\_23 | 54.405 | 52.716 | 8.161 | -2.054 | -4.417 |
|  | (14.056) | (10.008) | (7.028) | (3.855) | (2.061) |
| Week\_24 | 51.850 | 44.938 | 14.606 | -1.943 | -5.750 |
|  | (14.056) | (10.008) | (7.028) | (3.855) | (2.061) |
| Week\_25 | 74.739 | 61.938 | 13.383 | 1.835 | -2.417 |
|  | (14.056) | (10.008) | (7.028) | (3.855) | (2.061) |
| Week\_26 | 79.566 | 69.988 | 10.462 | -0.091 | -0.792 |
|  | (14.059) | (10.010) | (7.030) | (3.856) | (2.062) |
| Week\_27 | 80.054 | 71.583 | 11.828 | -0.585 | -2.771 |
|  | (14.105) | (10.043) | (7.053) | (3.868) | (2.068) |
| Week\_28 | 100.721 | 82.805 | 21.495 | -1.696 | -1.883 |
|  | (14.105) | (10.043) | (7.053) | (3.868) | (2.068) |
| Week\_29 | 103.054 | 87.805 | 22.383 | -4.363 | -2.771 |
|  | (14.105) | (10.043) | (7.053) | (3.868) | (2.068) |
| Week\_30 | 122.054 | 103.028 | 23.717 | -2.252 | -2.438 |
|  | (14.105) | (10.043) | (7.053) | (3.868) | (2.068) |
| Week\_31 | 119.609 | 97.250 | 23.828 | 3.304 | -4.771 |
|  | (14.105) | (10.043) | (7.053) | (3.868) | (2.068) |
| Week\_32 | 132.165 | 100.805 | 31.050 | 1.748 | -1.438 |
|  | (14.105) | (10.043) | (7.053) | (3.868) | (2.068) |
| Week\_33 | 119.498 | 91.250 | 24.717 | 6.081 | -2.549 |
|  | (14.105) | (10.043) | (7.053) | (3.868) | (2.068) |
| Week\_34 | 104.165 | 88.694 | 16.828 | 3.415 | -4.771 |
|  | (14.105) | (10.043) | (7.053) | (3.868) | (2.068) |
| Week\_35 | 86.721 | 71.361 | 16.050 | 1.081 | -1.771 |
|  | (14.105) | (10.043) | (7.053) | (3.868) | (2.068) |
| Week\_36 | 82.054 | 70.361 | 18.606 | -2.919 | -3.994 |
|  | (14.105) | (10.043) | (7.053) | (3.868) | (2.068) |
| Week\_37 | 99.054 | 77.472 | 29.050 | -3.585 | -3.883 |
|  | (14.105) | (10.043) | (7.053) | (3.868) | (2.068) |
| Week\_38 | 87.832 | 62.028 | 18.939 | 9.859 | -2.994 |
|  | (14.105) | (10.043) | (7.053) | (3.868) | (2.068) |
| Week\_39 | 65.165 | 57.028 | 14.939 | -2.919 | -3.883 |
|  | (14.105) | (10.043) | (7.053) | (3.868) | (2.068) |
| Week\_40 | 49.828 | 54.006 | 1.994 | -2.964 | -3.207 |
|  | (14.216) | (10.122) | (7.108) | (3.899) | (2.085) |
| Week\_41 | 61.163 | 52.131 | 15.469 | -4.096 | -2.341 |
|  | (14.223) | (10.127) | (7.112) | (3.901) | (2.086) |
| Week\_42 | 26.496 | 31.909 | 4.691 | -4.429 | -5.675 |
|  | (14.223) | (10.127) | (7.112) | (3.901) | (2.086) |
| Week\_43 | 20.496 | 33.242 | -2.198 | -5.318 | -5.230 |
|  | (14.223) | (10.127) | (7.112) | (3.901) | (2.086) |
| Week\_44 | 23.940 | 30.909 | -3.420 | 0.460 | -4.008 |
|  | (14.223) | (10.127) | (7.112) | (3.901) | (2.086) |
| Week\_45 | 27.496 | 30.576 | 1.025 | -1.651 | -2.452 |
|  | (14.223) | (10.127) | (7.112) | (3.901) | (2.086) |
| Week\_46 | 6.496 | 21.465 | -5.531 | -6.096 | -3.341 |
|  | (14.223) | (10.127) | (7.112) | (3.901) | (2.086) |
| Week\_47 | 3.051 | 15.687 | -4.309 | -3.985 | -4.341 |
|  | (14.223) | (10.127) | (7.112) | (3.901) | (2.086) |
| Week\_48 | 7.274 | 11.465 | 3.358 | -2.763 | -4.786 |
|  | (14.223) | (10.127) | (7.112) | (3.901) | (2.086) |
| Week\_49 | -10.060 | 10.020 | -15.531 | 0.126 | -4.675 |
|  | (14.223) | (10.127) | (7.112) | (3.901) | (2.086) |
| Week\_50 | -14.504 | 2.687 | -4.420 | -9.096 | -3.675 |
|  | (14.223) | (10.127) | (7.112) | (3.901) | (2.086) |
| Week\_51 | -1.726 | 7.020 | -2.642 | -5.207 | -0.897 |
|  | (14.223) | (10.127) | (7.112) | (3.901) | (2.086) |
| Week\_52 | -7.564 | 4.008 | -6.556 | -2.247 | -2.769 |
|  | (13.549) | (9.647) | (6.775) | (3.716) | (1.987) |
| *Shocks* |  |  |  |  |  |
|  Chch earthquake | 149.722 | -7.302 | 20.250 | 80.904 | 55.872 |
|  | (32.541) | (23.169) | (16.272) | (8.925) | (4.772) |
|  Mosque shooting | 76.782 | -5.019 | 47.986 | 18.584 | 15.231 |
|  | (32.275) | (22.980) | (16.138) | (8.851) | (4.733) |
| Constant | -1,834.061 | -2,473.826 | -1,461.046 | 23.522 | 2,076.075 |
|  | (4,282.831) | (3,049.381) | (2,141.572) | (1,174.587) | (628.258) |
| R-squared | 0.781 | 0.754 | 0.580 | 0.316 | 0.353 |
| *Notes:* Estimated using *n*=483 weekly observations from the beginning of 2011 until the end of March 2020. Standard errors in ( ). Coefficients from these equations are used to estimate expected deaths from April 2020 onwards. |