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| Appendix C: Full Results of Regressions Relating Excess Mortality to Booster Rollout  |
|  | Ordinary Least Squares | Distributed Lag Model | Instrumental Variables |
|  | Bivariate | w/ controls | Bivariate | w/ controls | Bivariate | w/ controls |
|  |  |  |  |  |  |  |
| Booster doses | 15.593\*\* | 12.124\*\* | 47.964 | 23.667 | 53.813\* | 15.515\*\* |
|  | (4.758) | (3.217) | (35.886) | (14.438) | (21.927) | (5.446) |
| Original doses |  | -5.920 |  | 2.078 |  | -4.897\* |
|  |  | (3.570) |  | (16.168) |  | (2.424) |
| COVID-19 deaths |  | 14.058\*\* |  | 13.024\*\* |  | 14.272\*\* |
|  |  | (1.289) |  | (2.184) |  | (2.213) |
| Constant | 7.246 | 10.969 | 0.241 | 8.864 | -12.057 | 7.482 |
|  | (9.291) | (5.866) | (6.579) | (8.746) | (7.322) | (5.656) |
| *Lagged variables* |  |  |  |  |  |  |
| Booster*t*-1 |  |  | -37.487 | -48.145 |  |  |
|  |  |  | (51.547) | (26.630) |  |  |
| Booster*t*-2 |  |  | -100.350 | 23.427 |  |  |
|  |  |  | (67.151) | (22.153) |  |  |
| Booster*t*-3 |  |  | 122.014\* | 18.062 |  |  |
|  |  |  | (49.569) | (10.694) |  |  |
| Original*t*-1 |  |  |  | 3.676 |  |  |
|  |  |  |  | (23.409) |  |  |
| Original*t*-2 |  |  |  | -3.720 |  |  |
|  |  |  |  | (22.311) |  |  |
| Original*t*-3 |  |  |  | -8.082 |  |  |
|  |  |  |  | (13.375) |  |  |
| COVID-deaths*t*-1 |  |  |  | 0.772 |  |  |
|  |  |  |  | (2.561) |  |  |
| COVID-deaths*t*-2 |  |  |  | -10.666\*\* |  |  |
|  |  |  |  | (3.565) |  |  |
| COVID-deaths*t*-3 |  |  |  | 26.391\* |  |  |
|  |  |  |  | (10.629) |  |  |
| *Long-run Impact* |  |  |  |  |  |
| Booster doses |  |  | 32.141\*\* | 17.011\*\* |  |  |
|  |  |  | (5.642) | (3.419) |  |  |
| Original doses |  |  |  | -6.048 |  |  |
|  |  |  |  | (3.841) |  |  |
| COVID-19 deaths |  |  |  | 29.520\*\* |  |  |
|  |  |  |  | (9.582) |  |  |
| R-squared | 0.140 | 0.744 | 0.634 | 0.863 | 0.391 | 0.739 |
| Observations | 51 | 51 | 48 | 48 | 51 | 51 |
| First-stage *F*-test |  |  |  |  | 15.8\*\* | 17.6\*\* |
| *Notes:* Excess mortality, booster doses, and original doses are first differences of the series shown in Panel B of Figure 1. Doses are in units of 100,000, deaths in units of ones. The long-run impact for the distributed lag model is the sum of the contemporaneous and lagged terms. The instrumental variable is the available stock of vaccine doses. Heteroscedasticity and autocorrelation consistent Newey-West standard errors in ( ); \*\*, \* denote statistical significance at 1% and 5% level.  |