SUPPLEMENTARY INFORMATION INCLUDING RAW DATA USED IN ANALYSES.

Table S1: Historical London underground passenger journeys (millions) 1995/6-2005/6 by 4-week periods.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **4-week period** | **1995/6** | **1996/7** | **1997/8** | **1998/9** | **1999/**  **2000** | **2000/1** | **2001/2** | **2002/3** | **2003/4** | **2004/5** | **2005/6** |
| 1 | 58.8 | 56.9 | 58.8 | 56.8 | 76.6 | 72.7 | 72.5 | 71.4 | 67.0 | 80.8 | 81.8 |
| 2 | 59.1 | 59.2 | 60.9 | 65.1 | 68.3 | 72.8 | 73.0 | 73.0 | 71.6 | 74.4 | 77.6 |
| 3 | 58.8 | 59.6 | 60.9 | 63.8 | 69.2 | 73.4 | 72.9 | 71.1 | 71.2 | 73.5 | 76.3 |
| 4 | 61.6 | 58.8 | 65.4 | 67.1 | 71.6 | 77.3 | 76.0 | 74.4 | 72.9 | 74.6 | 71.6 |
| 5 | 59.3 | 53.1 | 62.3 | 66.1 | 68.3 | 74.0 | 72.1 | 71.2 | 69.6 | 71.3 | 64.1 |
| 6 | 57.7 | 57.4 | 62.1 | 64.2 | 68.3 | 73.0 | 70.9 | 70.6 | 69.3 | 72.3 | 68.7 |
| 7 | 62.9 | 61.8 | 65.5 | 68.2 | 72.9 | 77.4 | 73.8 | 73.0 | 75.0 | 77.2 | 76.5 |
| 8 | 64.6 | 63.2 | 68.8 | 71.2 | 76.0 | 78.9 | 76.2 | 78.0 | 76.1 | 80.2 | 78.9 |
| 9 | 64.2 | 63.6 | 67.9 | 71.7 | 76.1 | 79.5 | 77.1 | 76.9 | 77.5 | 81.0 | 80.6 |
| 10 | 54.7 | 53.5 | 57.7 | 60.7 | 61.7 | 66.1 | 63.7 | 64.2 | 65.6 | 66.2 | 65.6 |
| 11 | 59.2 | 58.0 | 62.7 | 66.2 | 70.9 | 73.7 | 72.4 | 71.2 | 72.8 | 75.5 | 74.4 |
| 12 | 59.4 | 61.8 | 65.6 | 67.6 | 73.7 | 75.3 | 75.4 | 71.5 | 73.9 | 77.8 | 77.7 |
| 13 | 63.6 | 63.8 | 73.5 | 77.8 | 73.7 | 75.6 | 76.6 | 75.5 | 85.0 | 71.0 | 77.3 |

Table S2: Linear regression analyses of passenger journey count onto numerical year for each 4-week period using data for the 10 years prior to the attacks (1995-1996 to 2004-5) to predict 2005-6.

|  |  |  |  |
| --- | --- | --- | --- |
| **4-week period** | **PREDICTED 2005/6** | **Standard Error** | **95% Interval** |
| 1 | 79.73 | 5.90 | 13.61 |
| 2 | 78.18 | 2.36 | 5.44 |
| 3 | 77.31 | 2.72 | 6.28 |
| 4 | 79.74 | 3.64 | 8.39 |
| 5 | 76.45 | 4.13 | 9.52 |
| 6 | 75.98 | 2.89 | 6.67 |
| 7 | 80.10 | 2.77 | 6.38 |
| 8 | 83.14 | 2.83 | 6.52 |
| 9 | 83.99 | 2.77 | 6.40 |
| 10 | 69.21 | 1.98 | 4.57 |
| 11 | 78.73 | 2.71 | 6.25 |
| 12 | 80.36 | 3.00 | 6.92 |
| 13 | 81.05 | 5.20 | 11.98 |

Table S3: Observed and predicted journeys for periods before and after the attacks in 2005/6 (millions of passenger journeys),

|  |  |  |
| --- | --- | --- |
|  | **periods 1-3** | **periods 4-13** |
| **PREDICTED** | 235.21 | 788.76 |
| **OBSERVED** | 235.70 | 735.40 |

Table S4: Historical Bicycle Survey data 1999/200-20008/9 by 4 week periods.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **4 week period** | **1999/**  **2000** | **2000/1** | **2001/2** | **2002/3** | **2003/4** | **2004/5** | **2005/6** | **2006/7** | **2007/8** | **2008/9** |
| 1 |  | 57332 | 49880 | 55548 | 66596 | 77287 | 89867 | 100874 | 124103 | 117689 |
| 2 |  | 61000 | 59420 | 60300 | 69647 | 91164 | 101672 | 112688 | 127057 | 140791 |
| 3 |  | 62627 | 61051 | 63537 | 78688 | 96905 | 109143 | 124115 | 127996 | 141667 |
| 4 |  | 62611 | 61573 | 66287 | 76358 | 97433 | 123483 | 127905 | 128771 | 139918 |
| 5 |  | 61241 | 65765 | 65485 | 75529 | 97726 | 120777 | 119618 | 131794 | 142388 |
| 6 |  | 62400 | 62552 | 63453 | 72257 | 92661 | 119317 | 110005 | 128757 | 134155 |
| 7 |  | 61905 | 58457 | 71181 | 73408 | 88439 | 113584 | 123791 | 127275 | 144937 |
| 8 |  | 60811 | 59801 | 59593 | 75729 | 82737 | 108352 | 117330 | 120877 | 131293 |
| 9 |  | 58658 | 57395 | 61855 | 70189 | 81271 | 98278 | 100898 | 100060 |  |
| 10 |  | 55129 | 51829 | 49606 | 50976 | 60507 | 74282 | 78709 | 75046 |  |
| 11 |  | 57712 | 51972 | 55869 | 63836 | 78721 | 95380 | 96439 | 92432 |  |
| 12 |  | 57774 | 50935 | 61129 | 68148 | 72227 | 88404 | 94707 | 97689 |  |
| 13 | 59552 | 57665 | 53248 | 69452 | 69306 | 80440 | 88949 | 106733 | 95490 |  |

Table S5: Linear regression analyses of Bicycle count onto numerical year for each 4-week period using data for the years prior to and after the attacks (1999-2000 to 2008-9) omitting 2005/6 to predict 2005-6.

|  |  |  |  |
| --- | --- | --- | --- |
| **4 week period** | **PREDICTED 2005/6** | **Standard Error** | **95% Interval** |
| 1 | 92042.2866 | 9047.65617 | 20863.9325 |
| 2 | 102630.268 | 8373.43437 | 19309.1743 |
| 3 | 107070.758 | 7156.89661 | 16503.8332 |
| 4 | 107581.019 | 7601.65734 | 17529.4532 |
| 5 | 107370.42 | 6750.49968 | 15566.6802 |
| 6 | 102192.65 | 7415.32353 | 17099.7667 |
| 7 | 106363.325 | 7824.08045 | 18042.3618 |
| 8 | 99860.656 | 7655.02558 | 17652.5206 |
| 9 | 87937.5652 | 4849.69915 | 11183.4263 |
| 10 | 67111.8696 | 6720.1422 | 15496.6757 |
| 11 | 82424.3478 | 6827.51483 | 15744.2774 |
| 12 | 83417.8261 | 5365.42132 | 12372.6837 |
| 13 | 87908.1622 | 8151.60101 | 18797.6256 |

Table S6: Observed and predicted bicycle journeys for periods before and after the attacks in 2005/6

|  |  |  |  |
| --- | --- | --- | --- |
|  | **periods 1-3** | **periods 4-13** |  |
| **PREDICTED** | 301743.312 | 932167.841 |  |
| **OBSERVED** | 300682 | 1030806 |  |

Table S7: Historical London bicycle accident casualties 1995-2005 by month

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Month** | **1995** | **1996** | **1997** | **1998** | **1999** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** |
| Jan | 277 | 268 | 219 | 238 | 266 | 225 | 224 | 196 | 154 | 166 | 157 |
| Feb | 295 | 247 | 258 | 313 | 234 | 217 | 210 | 187 | 188 | 165 | 153 |
| Mar | 305 | 271 | 317 | 317 | 298 | 280 | 201 | 187 | 260 | 186 | 167 |
| Apr | 335 | 304 | 359 | 306 | 322 | 259 | 226 | 259 | 257 | 227 | 255 |
| May | 461 | 382 | 416 | 483 | 416 | 340 | 361 | 269 | 229 | 294 | 271 |
| Jun | 463 | 456 | 402 | 427 | 447 | 384 | 375 | 306 | 317 | 337 | 288 |
| Jul | 555 | 551 | 522 | 445 | 567 | 375 | 356 | 326 | 382 | 315 | 325 |
| Aug | 525 | 463 | 484 | 453 | 384 | 349 | 345 | 293 | 310 | 285 | 330 |
| Sep | 398 | 449 | 440 | 417 | 391 | 343 | 271 | 339 | 323 | 310 | 270 |
| Oct | 404 | 411 | 425 | 362 | 327 | 302 | 311 | 286 | 263 | 263 | 267 |
| Nov | 307 | 333 | 323 | 317 | 321 | 260 | 269 | 265 | 225 | 240 | 246 |
| Dec | 214 | 215 | 265 | 238 | 201 | 172 | 173 | 149 | 148 | 172 | 166 |

Table S8: Linear regression analyses of bicycle accident casualties onto numerical year for each month using data for the 10 years prior to the attacks (1995 to 2004) to predict accidents for each month in 2005.

|  |  |  |  |
| --- | --- | --- | --- |
| **Month** | **PREDICTED 2005** | **Standard Error** | **95% Interval** |
| Jan | 156.80 | 21.55 | 49.68 |
| Feb | 155.94 | 25.15 | 57.98 |
| Mar | 190.07 | 36.29 | 83.68 |
| Apr | 215.26 | 26.72 | 61.62 |
| May | 240.07 | 49.23 | 113.52 |
| Jun | 297.87 | 27.44 | 63.27 |
| Jul | 280.00 | 52.90 | 122.00 |
| Aug | 237.61 | 23.26 | 53.65 |
| Sep | 279.26 | 35.91 | 82.81 |
| Oct | 229.46 | 20.18 | 46.53 |
| Nov | 224.21 | 19.47 | 44.89 |
| Dec | 139.67 | 25.38 | 58.52 |

Table S9: Observed and predicted bicycle accident casualties for months before and after the attacks in 2005

|  |  |  |
| --- | --- | --- |
|  | **JAN-JUN** | **JUL-DEC** |
| **PREDICTED** | 1256 | 1390 |
| **OBSERVED** | 1291 | 1604 |

Table S10: Historical London car accident casualties 2000-2005 by month

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Month** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** |
| Jan | 1780 | 1915 | 1777 | 1595 | 1471 | 1306 |
| Feb | 1644 | 1607 | 1471 | 1399 | 1181 | 1107 |
| Mar | 1688 | 1782 | 1526 | 1447 | 1317 | 1212 |
| Apr | 1980 | 1873 | 1508 | 1435 | 1280 | 1173 |
| May | 1997 | 1639 | 1682 | 1491 | 1352 | 1247 |
| Jun | 1651 | 1676 | 1492 | 1463 | 1400 | 1230 |
| Jul | 1723 | 1750 | 1753 | 1555 | 1351 | 1223 |
| Aug | 1797 | 1641 | 1706 | 1474 | 1314 | 1176 |
| Sep | 1842 | 1723 | 1524 | 1493 | 1348 | 1180 |
| Oct | 1924 | 1896 | 1828 | 1576 | 1542 | 1283 |
| Nov | 1921 | 1742 | 1920 | 1602 | 1354 | 1408 |
| Dec | 2025 | 1851 | 1742 | 1506 | 1253 | 1234 |

Table S11: Linear regression analyses of car accident casualties onto numerical year for each month using data for the 5 years prior to the attacks (2000 to 2004) to predict casualties for each month in 2005.

|  |  |  |  |
| --- | --- | --- | --- |
| **Month** | **PREDICTED 2005** | **Standard Error** | **95% Interval** |
| Jan | 1426.2 | 106.06 | 244.58 |
| Feb | 1120.2 | 53.39 | 123.12 |
| Mar | 1228.9 | 86.27 | 198.95 |
| Apr | 1063.8 | 77.54 | 178.81 |
| May | 1200.8 | 95.34 | 219.86 |
| Jun | 1321.9 | 49.88 | 115.01 |
| Jul | 1344.7 | 105.53 | 243.34 |
| Aug | 1246.5 | 81.86 | 188.77 |
| Sep | 1220.6 | 41.19 | 94.98 |
| Oct | 1428 | 67.48 | 155.60 |
| Nov | 1325.6 | 148.00 | 341.29 |
| Dec | 1108.7 | 50.92 | 117.41 |

Table S12: Observed and predicted car accident casualties for months before and after the attacks in 2005

|  |  |  |
| --- | --- | --- |
|  | **JAN-JUN** | **JUL-DEC** |
| **PREDICTED** | 7361.8 | 7674.1 |
| **OBSERVED** | 7275 | 7504 |

ANALYSES OF HISTORIC TRENDS IN BICYCLE CASUALTIES

A simple plot (Figure S1 below) of the bicycle accident data across ten years for each month shows a linear decrease but doesn’t reveal any obvious signs of non-linearity.

Figure S1: Annual frequency of London bicycle casualties 1995-2004 (plotted separately for each month)

We also analysed the data for bicycle accidents in a Oneway ANOVA with YEAR as an independent variable using months as the random variable. So this is fitting a regression line to each month to show how accidents change over years, but the SAME regression line - i.e. just one slope and intercept - to fit all months. That assumes that the annual decline does not vary from month to month.

The analysis shown in figure S2 (below) shows no obvious non-linearity. There is a hint of the variance across months reducing with time, which could be a function of the overall reduction in the mean (a floor effect).

Figure S2: Linear regression of the downward slope in Bicycle accidents 1995-2004.



The output from our analysis (see table S13 below) shows that there is a strong linear trend, and no evidence for a deviation from linearity. The analysis divides the between years variance into that predicted from the linear model and the residual. Each is tested against the “within years” variance – i.e. the variance across months within each year.

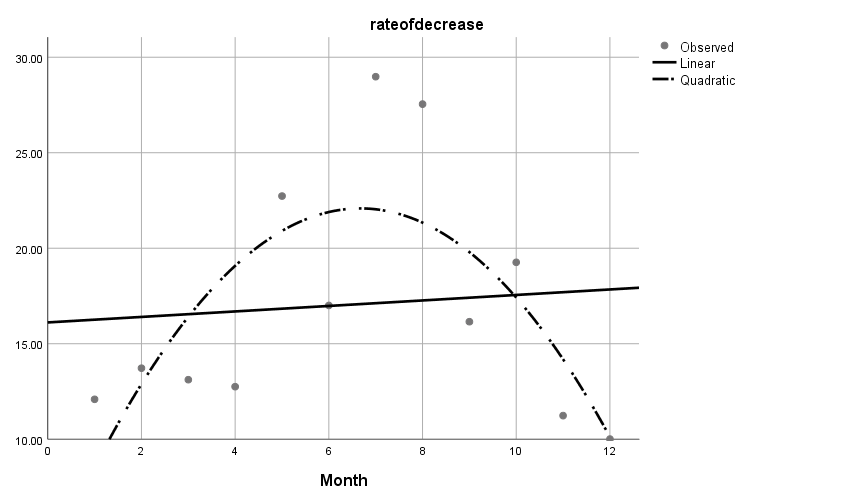
Table S13: Linear regression analysis of variance output.



The strong (downward) linear trend in bicycle accident casualties across the years 1995-2004 is the reason why we performed the regression analyses to generate the predictions. Our regression analyses model the downward trend over years for each time period providing more accurate forecasts. The suggestion that we generate predictions by using the average of previous years would not model the long term trends in the data, and for downward trends produces over-estimates. For the bicycle accident data there was a significant linear decrease for each month across years (Pearson’s r between .758 and .967, mean 0.86).

We can also justify using separate regressions for each month because the rate of decrease in in bicycle accident casualties across the years 1995-2004 was significantly greater in the summer months than in the winter months and this shows up in a quadratic fit to the scatterplot of the rate of decrease across the years 1995-2004 plotted against months (see figure S3 below). (Quadratic fit to months 1 to 12, R2 = .541, F(2,9) = 5.305, *p* = 0.03) so the modelled data needs different slopes to be estimated for the annual trend for each month.

Figure S3: Quadratic fit to the scatterplot of the rate of decrease in bicycle accidents between 1995-2004 per month.



This quadratic fit is not caused by a lower correlation with the year for winter months compared to summer months which shows no similar seasonal pattern (See Figure S4 and Table S14 below).

Figure S4: Size of (negative) correlation between numerical year (1995-2004) and number of annual bicycle casualties for each month.

Table S14: Size of (Negative) Correlations between Numerical year and number of Annual bicycle casualties.

|  |  |
| --- | --- |
| month | correlation |
| jan | 0.874 |
| feb | 0.869 |
| mar | 0.758 |
| apr | 0.837 |
| may | 0.829 |
| jun | 0.894 |
| jul | 0.869 |
| aug | 0.967 |
| sep | 0.822 |
| oct | 0.951 |
| nov | 0.88 |
| dec | 0.785 |