**Appendix**

**A.1. Detailed Description of Previous Literature**

**A.1.1. Average cost per reported crime, *Cohen, Miller and Rossman*** *(1994)*

The average cost of crimes reported to police is generated from two pieces of information: data on the time it takes to conduct ‘policing and investigation’ reported by multiple local police agencies in Dade County, Florida (original unpublished, see Rhodes (1990) for an explanation) and a survey of several police departments across Dade County, Florida, San Antonio, Texas, and San Jose, California, on police emergency response time. The former, time for policing and investigation, is not crime-specific; rather, it is an average over the total number of Part 1 violent and property reported crimes and drug-related arrests. This is crucial because according to UCR data for Dade County in 1989 (the closest year available to 1987), over 80% of arrests for these crime types were Part 1 property or drug-related crimes (FDLA 2016). Therefore, the policing and investigation cost estimate is heavily weighted by time spent on non-violent and drug-related crimes.

Cohen et al. (1994) use the estimate of police and investigation costs of $477 in 1987 dollars ($1,097 adjusted to 2010 to using the National Average Wage Index (SSA 2015)) on average for Part 1 violent and property crime and drug-related crimes. If we compare their estimate to our estimates for Part 1 property crimes, we find costs on a similar scale of $350 to $900 (mean=$708). The study also includes the cost of police emergency response administrative costs per victimization (not per reported crime) in the cost of law enforcement: $265 for murder, $180 for rape, $115 for robbery, and $69 for assault (in 2010 dollars using average wage index).

The study then uses the costs identified in Dade County, Florida for other stages of the criminal justice system and probability of each crime type to progress through each stage to generate estimates of the overall criminal justice costs per crime by type.

**A.1.2. Cost per arrest in Washington state, *Aos et al.* *(2006)***

The marginal cost of arrests in Washington came from cross-sectional analysis of multiple local police agencies and county sheriffs’ departments in Washington State (Aos et al., 2006). The study used a top-down approach by regressing the natural log of operating expenditures[[1]](#footnote-1) on the natural log of number arrests by offense category in 2004. The regression coefficients give the elasticity, or percentage change in total costs for a one percent change in the number of arrests, which are then transformed into the per unit costs given in Table 1 (after being multiplied by 1.33 to adjust to 2010 dollars).[[2]](#footnote-2)

**A.1.3. Cost per arrest in Vermont, Schlueter et al.** (2014)

Pew-MacArthur Results First Initiative is currently working with states more generally to implement cost-benefit analysis approaches, and has a program to generate costs per unit by crime type for each key phase of the criminal justice system in multiple states more specifically.[[3]](#footnote-3) One study has been completed thus far with law enforcement estimates of the average variable cost per arrest by crime type in Vermont (Schlueter et al. 2014). The study uses a bottom-up approach of collecting data on the time spent by personnel in Vermont on crimes as recorded in its Computer Aided Dispatch / Records Management System (CAD/RMS). The working group then reclassified crimes types from the criminal code tables into broader categories, which were similar to the FBI’s Uniform Crime Reporting system of categorization. Specifically, the average time spent per case per year was gathered for three years (from 2010 to 2012) and the three-year average was used as the law enforcement time spent per crime type. Time and cost for other personnel, besides police officers,[[4]](#footnote-4) were estimated by asking agencies to complete a standardized data collection form that identified the components of an arrest that incurred expenses. The personnel costs per hour were based on Vermont State Police’s salary rates except for adult sexual crimes, for which Burlington Police Department salary rates were used because of that Department’s experience with the Chittenden Unit for Special Investigations. As a final stage, the expenditure is then divided into the number of arrests.

The study labelled costs separately into ‘opportunity costs’, which appears to be defined as police salaried time working on a crime, and ‘marginal costs’, which was overtime spent on a crime. Regarding the former, the definition of an opportunity cost is the net benefit of the best alternative forgone, so estimating the opportunity cost of a homicide for example would require knowing what officers would have done with their time if not for the homicide occurring and estimating the costs and benefits of that alternative activity. The methodology described in the report does not appear to have estimated the net benefit of the next best activity. Regarding the term of ‘marginal cost’, since the paper divides the total time spent responding to crime into the number of arrests, this is more accurately an average variable cost of an arrest.

**A.1.4.** **Cost per reported crime in Utah, *Fowles and Nyström (2012)***

Fowles and Nyström (2012) collect detailed cost data from the Office of the Utah State Auditor to build a panel of law enforcement operating expenses for 86 county sheriffs’ offices or local police departments over a period of 6 years. The authors used a top-down approach of regressing annual operating expenditures for each agency on the number of violent crimes (summation of murder, rape, robbery, and aggravated assault) and the number of property crimes (summation of burglary, theft, motor vehicle theft). They control for population, presumably as a proxy for the provision of general services (or the non-crime-responding output), which would be similar to the approach in Gyapong and Gyimah-Brempong (1988). The study estimates a random effect model, thereby taking into account individual-level time-invariant characteristics across departments. The model does not include location-time fixed effects, so any differential changes across jurisdictions over time that can affect the costs of crime are not captured and may bias these estimates.

**A.1.5. Cost per crime committed, *McCollister et al. (2010)***

McCollister et al. (2010) calculate the national average law enforcement cost per victimization to be used in BCAs identifying the impact of a program on the actual crimes committed or victimizations. Authors generate an average total cost that takes into account all the activities police perform under the assumption that all their activities are ultimately to address Part 1 and Part 2 crime. They use total law enforcement expenditures and divide by the total number of victimizations using data from the Uniform Crime Report (UCR) for homicide, National Fire Incident Reporting System (NFIRS) and National Fire Protection Association’s annual survey for arson, National Crime Victimization Survey (NCVS) for all other Part 1 offenses except homicide and arson, and the National Incident-Based Reporting System (NIBRS) for Part 2 offenses.

A key limitation of this estimate, also noted by authors, is that it is the same for all crime types and yet police resources are known to vary by crime type (i.e. more benefits are accrued by avoiding a homicide than the theft of a motor vehicle). Authors indicate this is less of an issue for their purposes because they aim to estimate costs of victimization, which would also include ‘pre-offense’ expenditures (e.g. patrol). And these activities would not expect to vary by type of crime. Furthermore, the unit of analysis is a crime committed, so the cost of a crime takes into account that some crimes are not reported and no police resources are used for those crimes. Since interventions are typically based on the change in reported crime or arrests instead of victimization, an analyst would need to adjust the quantity of crime or arrest by the propensity to report crime by crime type in each jurisdiction, which could be extremely challenging.

**A.2. Supplementary Tables**

Table A-1: Labor Expenditures for Law Enforcement Services, $2010

|  | Direct Current Expenditure | Expenditure per capita | Annual wages per employee |
| --- | --- | --- | --- |
| Alabama | 1,096,235,000 | 123.383 | 43,794 |
| Alaska | 297,887,000 | 192.259 | 54,608 |
| Arizona | 2,019,263,000 | 205.327 | 45,205 |
| Arkansas | 518,123,000 | 114.402 | 41,368 |
| California | 14,846,201,000 | 235.288 | 65,542 |
| Colorado | 1,525,302,000 | 193.114 | 51,946 |
| Connecticut | 1,023,483,000 | 147.028 | 66,014 |
| Delaware | 279,261,000 | 180.909 | 49,321 |
| Florida | 7,002,043,000 | 203.376 | 38,561 |
| Georgia | 2,079,152,000 | 118.377 | 39,251 |
| Hawaii | 368,220,000 | 211.506 | 51,254 |
| Idaho | 353,176,000 | 129.555 | 41,178 |
| Illinois | 4,436,874,000 | 226.029 | 69,938 |
| Indiana | 1,211,916,000 | 120.028 | 40,374 |
| Iowa | 616,682,000 | 127.155 | 57,493 |
| Kansas | 711,716,000 | 154.837 | 41,203 |
| Kentucky | 647,959,000 | 111.392 | 40,615 |
| Louisiana | 1,362,320,000 | 167.433 | 48,677 |
| Maine | 252,225,000 | 80.3276 | 42,851 |
| Maryland | 1,946,559,000 | 215.584 | 48,397 |
| Massachusetts | 1,893,379,000 | 214.964 | 65,562 |
| Michigan | 2,341,600,000 | 119.703 | 61,637 |
| Minnesota | 1,567,322,000 | 144.663 | 54,186 |
| Mississippi | 607,453,000 | 111.216 | 38,590 |
| Missouri | 1,469,105,000 | 145.779 | 34,367 |
| Montana | 231,855,000 | 123.904 | 44,250 |
| Nebraska | 371,951,000 | 143.572 | 42,732 |
| Nevada | 1,086,534,000 | 237.067 | 49,919 |
| New Hampshire | 336,056,000 | 97.6703 | 46,850 |
| New Jersey | 3,241,194,000 | 225.379 | 74,077 |
| New Mexico | 606,251,000 | 153.615 | 47,380 |
| New York | 8,360,273,000 | 351.012 | 66,279 |
| North Carolina | 2,239,700,000 | 130.495 | 42,632 |
| North Dakota | 132,006,000 | 107.548 | 48,312 |
| Ohio | 3,150,117,000 | 146.101 | 56,884 |
| Oklahoma | 805,848,000 | 136.892 | 39,989 |
| Oregon | 1,043,174,000 | 155.026 | 52,550 |
| Pennsylvania | 3,052,780,000 | 127.978 | 55,931 |
| Rhode Island | 338,311,000 | 136.261 | 66,538 |
| South Carolina | 954,374,000 | 119.116 | 36,989 |
| South Dakota | 153,301,000 | 106.797 | 42,004 |
| Tennessee | 1,588,477,000 | 137.555 | 42,207 |
| Texas | 6,017,310,000 | 154.039 | 43,596 |
| Utah | 608,702,000 | 113.783 | 43,888 |
| Vermont | 143,929,000 | 122.293 | 52,998 |
| Virginia | 1,837,049,000 | 149.549 | 45,546 |
| Washington | 1,477,072,000 | 158.479 | 55,076 |
| West Virginia | 323,899,000 | 84.6479 | 38,321 |
| Wisconsin | 1,597,508,000 | 154.751 | 51,377 |
| Wyoming | 206,559,000 | 189.062 | 53,429 |

Source: BJS (2014), BLS (2012b)

Table A-2: Proportion of Officer Roles and Duties in LEMAS, 2007

|  | Types of Sworn Officers | | |  | Assigned Duties\* | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | General | Investigator | Other |  | Task Force | General/Patrol | Community policing |
| Alabama | 0.664 | 0.209 | 0.127 |  | 0.027 | 0.896 | 0.301 |
| Alaska | 0.785 | 0.201 | 0.013 |  | 0.009 | 0.973 | 0.530 |
| Arizona | 0.739 | 0.243 | 0.018 |  | 0.042 | 0.653 | 0.075 |
| Arkansas | 0.729 | 0.233 | 0.038 |  | 0.015 | 0.902 | 0.217 |
| California | 0.683 | 0.214 | 0.103 |  | 0.024 | 0.711 | 0.113 |
| Colorado | 0.658 | 0.189 | 0.153 |  | 0.035 | 0.864 | 0.081 |
| Connecticut | 0.793 | 0.197 | 0.010 |  | 0.024 | 0.708 | 0.027 |
| Delaware | 0.730 | 0.252 | 0.017 |  | 0.036 | 0.956 | 0.169 |
| Florida | 0.711 | 0.206 | 0.084 |  | 0.025 | 0.779 | 0.212 |
| Georgia | 0.631 | 0.182 | 0.187 |  | 0.021 | 0.841 | 0.119 |
| Hawaii | 0.824 | 0.147 | 0.029 |  | 0.023 | 0.633 | 0.034 |
| Idaho | 0.723 | 0.235 | 0.042 |  | 0.022 | 0.849 | 0.302 |
| Illinois | 0.735 | 0.199 | 0.066 |  | 0.017 | 0.871 | 0.147 |
| Indiana | 0.681 | 0.247 | 0.073 |  | 0.023 | 0.881 | 0.358 |
| Iowa | 0.609 | 0.174 | 0.217 |  | 0.052 | 0.957 | 0.362 |
| Kansas | 0.715 | 0.152 | 0.134 |  | 0.061 | 0.936 | 0.192 |
| Kentucky | 0.666 | 0.199 | 0.135 |  | 0.070 | 0.904 | 0.317 |
| Louisiana | 0.498 | 0.194 | 0.308 |  | 0.123 | 0.799 | 0.263 |
| Maine | 0.796 | 0.204 | 0.000 |  | 0.035 | 0.838 | 0.234 |
| Maryland | 0.723 | 0.191 | 0.086 |  | 0.018 | 0.819 | 0.279 |
| Massachusetts | 0.777 | 0.197 | 0.026 |  | 0.087 | 0.866 | 0.212 |
| Michigan | 0.724 | 0.178 | 0.098 |  | 0.017 | 0.842 | 0.192 |
| Minnesota | 0.621 | 0.187 | 0.193 |  | 0.017 | 0.900 | 0.280 |
| Mississippi | 0.586 | 0.136 | 0.278 |  | 0.061 | 0.907 | 0.409 |
| Missouri | 0.671 | 0.199 | 0.130 |  | 0.054 | 0.870 | 0.196 |
| Montana | 0.887 | 0.108 | 0.005 |  | 0.046 | 0.952 | 0.182 |
| Nebraska | 0.643 | 0.181 | 0.176 |  | 0.181 | 0.953 | 0.451 |
| Nevada | 0.678 | 0.145 | 0.177 |  | 0.052 | 0.848 | 0.139 |
| New Hampshire | 0.759 | 0.238 | 0.003 |  | 0.013 | 0.920 | 0.256 |
| New Jersey | 0.592 | 0.205 | 0.203 |  | 0.017 | 0.818 | 0.176 |
| New Mexico | 0.810 | 0.188 | 0.002 |  | 0.035 | 0.861 | 0.204 |
| New York | 0.736 | 0.196 | 0.068 |  | 0.017 | 0.826 | 0.170 |
| North Carolina | 0.645 | 0.188 | 0.167 |  | 0.021 | 0.819 | 0.259 |
| North Dakota | 0.913 | 0.083 | 0.004 |  | 0.024 | 0.918 | 0.543 |
| Ohio | 0.594 | 0.167 | 0.238 |  | 0.059 | 0.872 | 0.185 |
| Oklahoma | 0.674 | 0.158 | 0.169 |  | 0.131 | 0.934 | 0.483 |
| Oregon | 0.619 | 0.169 | 0.212 |  | 0.020 | 0.853 | 0.313 |
| Pennsylvania | 0.761 | 0.176 | 0.062 |  | 0.086 | 0.945 | 0.177 |
| Rhode Island | 0.738 | 0.258 | 0.005 |  | 0.007 | 0.769 | 0.094 |
| South Carolina | 0.702 | 0.204 | 0.095 |  | 0.020 | 0.878 | 0.196 |
| South Dakota | 0.859 | 0.141 | 0.000 |  | 0.133 | 0.901 | 0.522 |
| Tennessee | 0.701 | 0.198 | 0.100 |  | 0.016 | 0.792 | 0.175 |
| Texas | 0.632 | 0.218 | 0.150 |  | 0.027 | 0.844 | 0.306 |
| Utah | 0.592 | 0.229 | 0.179 |  | 0.022 | 0.784 | 0.299 |
| Vermont | 0.713 | 0.208 | 0.078 |  | 0.022 | 0.770 | 0.182 |
| Virginia | 0.754 | 0.246 | 0.000 |  | 0.007 | 0.840 | 0.591 |
| Washington | 0.765 | 0.209 | 0.026 |  | 0.020 | 0.874 | 0.259 |
| West Virginia | 0.649 | 0.158 | 0.193 |  | 0.059 | 0.829 | 0.097 |
| Wisconsin | 0.900 | 0.100 | 0.000 |  | 0.019 | 0.961 | 0.388 |
| Wyoming | 1.000 | 0.000 | 0.000 |  | 0.035 | 0.927 | 0.109 |

Source: USDOJ (2011) . \*This does not sum to one because officers can be assigned to multiple duties.

Table A-3: Distribution of Roles used in the Simulation, by State

|  | General | Task | Community PO | Investigator | Other |
| --- | --- | --- | --- | --- | --- |
| Alabama | 0.488 | 0.015 | 0.164 | 0.172 | 0.161 |
| Alaska | 0.537 | 0.005 | 0.292 | 0.141 | 0.024 |
| Arizona | 0.445 | 0.028 | 0.051 | 0.224 | 0.252 |
| Arkansas | 0.562 | 0.009 | 0.135 | 0.199 | 0.093 |
| California | 0.444 | 0.015 | 0.070 | 0.196 | 0.274 |
| Colorado | 0.528 | 0.022 | 0.050 | 0.176 | 0.225 |
| Connecticut | 0.540 | 0.018 | 0.021 | 0.189 | 0.232 |
| Delaware | 0.607 | 0.023 | 0.108 | 0.219 | 0.043 |
| Florida | 0.474 | 0.015 | 0.129 | 0.176 | 0.206 |
| Georgia | 0.488 | 0.012 | 0.069 | 0.168 | 0.264 |
| Hawaii | 0.498 | 0.018 | 0.026 | 0.140 | 0.317 |
| Idaho | 0.497 | 0.013 | 0.177 | 0.191 | 0.122 |
| Illinois | 0.571 | 0.011 | 0.096 | 0.178 | 0.144 |
| Indiana | 0.476 | 0.013 | 0.194 | 0.196 | 0.122 |
| Iowa | 0.465 | 0.025 | 0.176 | 0.139 | 0.194 |
| Kansas | 0.567 | 0.037 | 0.116 | 0.128 | 0.152 |
| Kentucky | 0.479 | 0.037 | 0.168 | 0.158 | 0.158 |
| Louisiana | 0.334 | 0.051 | 0.110 | 0.163 | 0.342 |
| Maine | 0.549 | 0.023 | 0.154 | 0.168 | 0.107 |
| Maryland | 0.488 | 0.011 | 0.166 | 0.158 | 0.178 |
| Massachusetts | 0.546 | 0.055 | 0.134 | 0.160 | 0.105 |
| Michigan | 0.529 | 0.011 | 0.121 | 0.155 | 0.185 |
| Minnesota | 0.472 | 0.009 | 0.147 | 0.158 | 0.215 |
| Mississippi | 0.417 | 0.028 | 0.188 | 0.106 | 0.261 |
| Missouri | 0.500 | 0.031 | 0.112 | 0.171 | 0.186 |
| Montana | 0.702 | 0.034 | 0.135 | 0.090 | 0.039 |
| Nebraska | 0.435 | 0.083 | 0.206 | 0.129 | 0.147 |
| Nevada | 0.509 | 0.031 | 0.084 | 0.128 | 0.248 |
| New Hampshire | 0.580 | 0.008 | 0.162 | 0.198 | 0.053 |
| New Jersey | 0.434 | 0.009 | 0.094 | 0.184 | 0.279 |
| New Mexico | 0.584 | 0.024 | 0.138 | 0.157 | 0.096 |
| New York | 0.534 | 0.011 | 0.110 | 0.173 | 0.172 |
| North Carolina | 0.448 | 0.011 | 0.141 | 0.159 | 0.241 |
| North Dakota | 0.552 | 0.014 | 0.327 | 0.054 | 0.052 |
| Ohio | 0.452 | 0.031 | 0.096 | 0.146 | 0.275 |
| Oklahoma | 0.445 | 0.062 | 0.230 | 0.112 | 0.151 |
| Oregon | 0.438 | 0.010 | 0.161 | 0.140 | 0.251 |
| Pennsylvania | 0.600 | 0.055 | 0.112 | 0.147 | 0.086 |
| Rhode Island | 0.528 | 0.005 | 0.065 | 0.240 | 0.163 |
| South Carolina | 0.535 | 0.012 | 0.119 | 0.177 | 0.157 |
| South Dakota | 0.495 | 0.073 | 0.287 | 0.090 | 0.055 |
| Tennessee | 0.490 | 0.010 | 0.108 | 0.175 | 0.217 |
| Texas | 0.440 | 0.014 | 0.160 | 0.180 | 0.206 |
| Utah | 0.390 | 0.011 | 0.149 | 0.192 | 0.258 |
| Vermont | 0.479 | 0.014 | 0.114 | 0.182 | 0.212 |
| Virginia | 0.437 | 0.004 | 0.307 | 0.169 | 0.083 |
| Washington | 0.551 | 0.013 | 0.163 | 0.172 | 0.101 |
| West Virginia | 0.489 | 0.034 | 0.057 | 0.143 | 0.276 |
| Wisconsin | 0.634 | 0.012 | 0.256 | 0.073 | 0.026 |
| Wyoming | 0.810 | 0.031 | 0.095 | 0.000 | 0.064 |

Table A-4: Literature Estimates of Proportion of Time Spent on Crime­

|  | Location | Year | Proportion of Time Spent on Crime | Source |
| --- | --- | --- | --- | --- |
| Patrol/Generalist | | | | |
| *Rural / small town* | | | | |
|  | Amberley Village, OH | 1999/2000 | 12% | Liederbach (2005) |
|  | Terrace Park, OH | 1999/2000 | 8% | Liederbach (2005) |
|  | Colerain Twp., OH | 1999/2000 | 17% | Liederbach (2005) |
|  | Delhi, OH | 1999/2000 | 11% | Liederbach (2005) |
|  | Loveland, OH | 1999/2000 | 12% | Liederbach (2005) |
|  | Blue Ash, OH | 1999/2000 | 16% | Liederbach (2005) |
|  | Sharonville, OH | 1999/2000 | 20% | Liederbach (2005) |
|  | Forest Park, OH | 1999/2000 | 18% | Liederbach (2005) |
|  | Cheviot, OH | 1999/2000 | 12% | Liederbach (2005) |
|  | Deer Park, OH | 1999/2000 | 12% | Liederbach (2005) |
|  | Reading, OH | 1999/2000 | 13% | Liederbach (2005) |
|  | Arlington Hts, OH | 1999/2000 | 10% | Liederbach (2005) |
|  | Fairfax, OH | 1999/2000 | 11% | Liederbach (2005) |
|  | Lockland, OH | 1999/2000 | 12% | Liederbach (2005) |
|  | Amelia, OH | 1999/2000 | 10% | Liederbach & Frank (2003) |
|  | Felicity, OH | 1999/2000 | 14% | Liederbach & Frank (2003) |
|  | Goshen Twp., OH | 1999/2000 | 17% | Liederbach & Frank (2003) |
|  | Milford, OH | 1999/2000 | 12% | Liederbach & Frank (2003) |
|  | Williamsburg, OH | 1999/2000 | 9% | Liederbach & Frank (2003) |
|  | National, rural | 2014 | 23%  (18%-35%) | Korre et al. (2014) |
| *Urban* | |  |  |  |
|  | National, metropolitan | 2014 | 27%  (24%-31%) | Korre et al. (2014) |
|  | Milwaukee, WI | 2011 | 48% | ICMA Center for Public Safety Management (2012) |
|  | Indianapolis, IN | 1996 | 43% | Parks, et al. (1999) |
|  | St. Petersburg, FL | 1997 | 44% | Parks, et al. (1999) |
|  | Cincinnati, OH | 1995 | 45% | Frank, Brandl, & Watkins (1997) |
| Community officer | | | | |
|  | Cincinnati, OH | 1995 | 4% | Frank, Brandl, & Watkins (1997) |
|  | Indianapolis, IN | 1996 | 40% | NIJ (1998) |
|  | St. Petersburg, FL | 1997 | 41% | NIJ (1998) |
|  | Cincinnati, OH | 1997/1998 | 21% | Smith & Novak (2001) |
| Gang task force | | | | |
|  | Inglewood | 1999/2000 | 22% | Katz & Webb (2006) |
|  | Las Vegas, NV | 1999/2000 | 44% | Katz & Webb (2006) |
|  | Albuquerque, NM | 1999/2000 | 49% | Katz & Webb (2006) |
|  | Phoenix, AZ | 1999/2000 | 44% | Katz & Webb (2006) |
| Investigators/Detectives | | | | |
|  | Kansas City, MS | 1975 | 56% | Greenwood & Petersilia (1975) |

Table A-5: UCR-reported Violent and Property Crimes per Full-time Sworn Officer

|  | Number of violent crimes per officer | Number of property crimes per officer | Property crimes (as proportion of property & violent crimes per officer) | Percentage difference from Proxy |
| --- | --- | --- | --- | --- |
| Cities > 500K (N=35) |  |  |  |  |
| Minimum | 15.14 | 41.30 | 0.73 | -12.4% |
| Mean | 29.13 | 164.50 | 0.84 |  |
| Median | 27.36 | 158.94 | 0.85 |  |
| Maximum | 54.88 | 363.02 | 0.93 | 11.3% |
| Houston | 40.68 | 202.68 | 0.83 |  |
| State Mean for Nonmetro Counties\* (N=49) | | | | |
| Minimum | 0.45 | 5.83 | 0.75 | -20.2% |
| Mean | 1.31 | 11.49 | 0.89 |  |
| Median | 1.21 | 11.39 | 0.89 |  |
| Maximum | 4.07 | 30.98 | 0.95 | 1.1% |
| Vermont (state mean for all Vermont counties) | 1.07 | 21.61 | 0.94 |  |

\*Based on 1959 nonmetropolitan counties with Urban population of 20,000 or more and Urban population of 2,500 to 19,999 (adjacent & non adjacent to a metro area) and Completely rural or less than 2,500 urban population (adjacent & non adjacent to a metro area).

Table A-6: Investigator Time Spent on Crimes, Houston, 2010-2013

|  |  |  |  |
| --- | --- | --- | --- |
|  | Total hours spent | Proportion of time spent | Average hours spent per case |
| Murder | 118586 | 0.146 | 267.086 |
| Rape & sexual assault | 31701 | 0.039 | 23.835 |
| Robbery | 111259 | 0.137 | 10.915 |
| Aggravated assault | 77402 | 0.096 | 44.179 |
| Burglary | 49808 | 0.062 | 4.849 |
| Larceny/Theft | 124649 | 0.154 | 4.771 |
| Motor vehicle theft | 159558 | 0.197 | 27.778 |
| Other\* | 136665 | 0.169 | 0.232 |
| Total | 809628 | 1.000 |  |

Source: PERF & Justex Systems (2014). \* All Part 2 crimes and Arson.

Table A-7: Crime Type Realignment and Adjustment to Proportion of Time on Crime

| Vermont study | |  | Corresponding in this study | |
| --- | --- | --- | --- | --- |
|  | Time spent |  |  | Time spent |
| Murder/ manslaughter | 1,419 |  | Murder | 1,419 |
| Sex offense | 271 |  | Rape & sexual assault | 271 |
| Aggravated assault | 6 |  | Robbery | 6 |
| Felony arson | 68 |  | Aggravated assault | 6 |
| Felony burglary | 6 |  | Burglary | 6 |
| Felony larceny | 3 |  | Larceny/Theft | 3 |
| Felony auto | 5 |  | Motor vehicle theft | 5 |
| Drugs with task force | 186 |  | Other | 2 |
| DUI no accident | 2.5 |  |  |  |
| DUI drug recognition expert only | 2 |  |  |  |
| Public order\* | 2 |  |  |  |
| Major motor vehicle | 2 |  |  |  |

Source: Schlueter et al. (2014). \*Disorderly conduct, unlawful mischief, simple assault.

Table A-8: Proportion of Policing Time Spent on Crime Used in the Simulation, by Role and Urbanity

|  |  |  |
| --- | --- | --- |
|  | Minimum | Maximum |
| *Rural* |  |  |
| Community policing | 0.01 | 0.11 |
| General/patrol | 0.08 | 0.35 |
| Task force | 0.06 | 0.13 |
| Detective | 0.11 | 0.19 |
| *Urban* |  |  |
| Community policing | 0.04 | 0.40 |
| General/patrol | 0.24 | 0.48 |
| Task force | 0.22 | 0.49 |
| Detective | 0.42 | 0.70 |
| *Simulated U.S. Average\** |  |  |
| Community policing | 0.12 | 0.22 |
| General/patrol | 0.28 | 0.35 |
| Task force | 0.24 | 0.32 |
| Detective | 0.40 | 0.48 |

Source: BJS (2011); FBI (2013b); U.S. Census Bureau (2014). \*State population weighted average.

Table A-9: Law Enforcement Time Spent on Crime Used in the Simulation, by Crime Type and Urbanity

|  | Urban areas a | Rural / Small areasb |
| --- | --- | --- |
| Murder | 234, 297 | 1132, 1435 |
| Rape & sexual assault | 21, 26 | 216, 274 |
| Robbery | 9, 12 | 4.8, 6.1 |
| Aggravated assault | 39, 49 | 4.8, 6.1 |
| Burglary | 4.2, 5.3 | 4.8, 6.1 |
| Larceny/Theft | 4.2, 5.3 | 2.4, 3.1 |
| Motor Vehicle Crime | 2.4, 3.1 | 4.0, 5.1 |
| Other | 0.17, 0.22 | 1.6, 2.1 |

Source: a PERF & Justex Systems (2014), b Schlueter et al. (2014). Min and Max are generated by multiplying minimum and maximum percentage respectively from data (in Table A-6, column four).

Table A-10: Number of UCR-reported Crimes by Part 1 Crime Type, 2010

|  | Murder | Rape | Robbery | Aggravated Assault | Burglary | Theft | MVT | Other |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Alabama | 275 | 1,355 | 4,864 | 11,869 | 42,484 | 115,564 | 10,780 | 135,962 |
| Alaska | 31 | 533 | 594 | 3,379 | 3,105 | 15,535 | 1,619 | 35,715 |
| Arizona | 408 | 2,191 | 6,953 | 16,976 | 50,932 | 154,137 | 21,733 | 240,389 |
| Arkansas | 134 | 1,321 | 2,369 | 10,887 | 32,463 | 65,796 | 5,561 | 99,265 |
| California | 1,809 | 8,331 | 58,116 | 95,877 | 228,857 | 600,558 | 152,524 | 1,096,576 |
| Colorado | 129 | 2,230 | 3,164 | 10,816 | 26,196 | 97,534 | 11,271 | 181,350 |
| Connecticut | 133 | 595 | 3,553 | 5,802 | 15,145 | 56,413 | 6,701 | 106,310 |
| Delaware | 51 | 326 | 1,839 | 3,392 | 7,550 | 21,593 | 1,935 | 28,415 |
| Florida | 987 | 5,373 | 26,086 | 69,523 | 169,119 | 458,454 | 41,462 | 862,642 |
| Georgia | 555 | 2,107 | 12,372 | 24,034 | 96,947 | 226,161 | 30,341 | 276,609 |
| Hawaii | 25 | 377 | 1,065 | 2,136 | 8,706 | 31,681 | 5,280 | 40,330 |
| Idaho | 22 | 533 | 213 | 2,696 | 6,513 | 23,594 | 1,329 | 57,637 |
| Illinois | 704 | 3,066 | 20,386 | 32,976 | 77,472 | 242,681 | 28,911 | 119,068 |
| Indiana | 268 | 1,760 | 6,559 | 12,396 | 48,570 | 137,204 | 13,500 | 113,747 |
| Iowa | 38 | 883 | 1,012 | 6,258 | 16,746 | 48,194 | 3,800 | 88,869 |
| Kansas | 97 | 1,146 | 1,538 | 7,821 | 19,315 | 63,774 | 6,020 | 69,846 |
| Kentucky | 188 | 1,438 | 3,748 | 5,230 | 30,443 | 74,488 | 6,239 | 128,091 |
| Louisiana | 500 | 1,230 | 5,297 | 18,214 | 45,437 | 110,260 | 9,970 | 111,060 |
| Maine | 24 | 389 | 412 | 796 | 7,364 | 24,547 | 989 | 45,939 |
| Maryland | 426 | 1,228 | 11,054 | 18,899 | 36,704 | 118,578 | 18,027 | 211,423 |
| Massachusetts | 214 | 1,784 | 6,897 | 21,842 | 37,903 | 105,124 | 11,469 | 115,394 |
| Michigan | 580 | 4,733 | 11,522 | 31,858 | 74,345 | 169,748 | 27,408 | 227,636 |
| Minnesota | 96 | 1,798 | 3,388 | 7,233 | 24,415 | 103,429 | 8,587 | 174,091 |
| Mississippi | 204 | 931 | 2,777 | 4,087 | 30,453 | 52,784 | 5,359 | 95,982 |
| Missouri | 420 | 1,445 | 6,185 | 19,390 | 44,197 | 140,526 | 16,135 | 238,925 |
| Montana | 25 | 332 | 154 | 2,222 | 3,692 | 20,166 | 1,551 | 20,608 |
| Nebraska | 54 | 674 | 1,020 | 3,345 | 8,318 | 36,896 | 3,613 | 71,090 |
| Nevada | 158 | 965 | 5,298 | 11,508 | 22,286 | 42,533 | 10,185 | 130,201 |
| New Hampshire | 13 | 411 | 450 | 1,330 | 5,444 | 22,789 | 997 | 41,510 |
| New Jersey | 371 | 981 | 11,818 | 13,885 | 38,732 | 128,754 | 15,556 | 305,856 |
| New Mexico | 140 | 959 | 1,616 | 9,432 | 21,023 | 44,503 | 5,250 | 94,195 |
| New York | 868 | 2,797 | 28,630 | 44,197 | 65,839 | 293,232 | 20,639 | 268,872 |
| North Carolina | 474 | 2,002 | 9,620 | 22,583 | 102,826 | 208,057 | 18,319 | 346,925 |
| North Dakota | 10 | 245 | 90 | 1,203 | 2,000 | 9,137 | 873 | 21,662 |
| Ohio | 479 | 3,730 | 16,486 | 15,611 | 107,125 | 248,581 | 21,130 | 226,861 |
| Oklahoma | 195 | 1,469 | 3,345 | 13,091 | 37,848 | 81,303 | 10,313 | 129,947 |
| Oregon | 96 | 1,239 | 2,421 | 5,892 | 20,035 | 87,494 | 9,128 | 95,976 |
| Pennsylvania | 653 | 3,472 | 16,375 | 26,112 | 55,206 | 204,440 | 16,720 | 370,440 |
| Rhode Island | 29 | 298 | 782 | 1,600 | 6,124 | 18,432 | 2,403 | 31,214 |
| South Carolina | 265 | 1,551 | 5,017 | 21,090 | 46,261 | 121,544 | 13,293 | 160,550 |
| South Dakota | 23 | 385 | 154 | 1,634 | 3,192 | 11,196 | 800 | 22,762 |
| Tennessee | 359 | 2,173 | 8,361 | 28,016 | 64,293 | 153,729 | 14,833 | 272,496 |
| Texas | 1,249 | 7,622 | 32,843 | 71,517 | 228,597 | 654,626 | 68,023 | 947,808 |
| Utah | 53 | 983 | 1,269 | 3,620 | 15,095 | 67,242 | 5,979 | 102,451 |
| Vermont | 7 | 141 | 76 | 596 | 3,348 | 10,373 | 439 | 9,395 |
| Virginia | 376 | 1,580 | 5,678 | 9,550 | 30,804 | 145,990 | 10,609 | 309,777 |
| Washington | 154 | 2,579 | 5,929 | 12,476 | 55,192 | 168,490 | 25,744 | 177,943 |
| West Virginia | 58 | 362 | 776 | 4,390 | 10,778 | 28,104 | 2,419 | 38,574 |
| Wisconsin | 155 | 1,191 | 4,516 | 8,305 | 26,636 | 107,993 | 8,152 | 268,305 |
| Wyoming | 8 | 162 | 77 | 870 | 2,151 | 11,126 | 592 | 31,829 |

Source: FBI (2011). \*Other refers to Part 1 arrests.

Table A-11: Cost per Unit Estimates by State

|  | Murder | Rape | Robbery | Aggravated Assault | Burglary | Larceny | Motor Vehicle Theft |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Alabama | 164326 | 28635 | 1652 | 5050 | 1067 | 777 | 767 |
|  | (135553-193348) | (23586-33897) | (1359-1954) | (4170-5959) | (882-1257) | (645-912) | (632-905) |
| Alaska | 200991 | 35467 | 1865 | 5465 | 1244 | 881 | 908 |
|  | (162544-240318) | (28753-42292) | (1503-2236) | (4432-6495) | (1006-1484) | (716-1047) | (735-1081) |
| Arizona | 157156 | 22684 | 3186 | 12157 | 1640 | 1459 | 1044 |
|  | (132121-182267) | (19076-26355) | (2647-3754) | (10234-14108) | (1378-1906) | (1233-1686) | (877-1219) |
| Arkansas | 136649 | 24415 | 1157 | 3209 | 802 | 549 | 595 |
|  | (110266-164031) | (19719-29290) | (935-1384) | (2597-3826) | (650-956) | (446-654) | (480-713) |
| California | 131824 | 16463 | 3556 | 14243 | 1717 | 1618 | 1045 |
|  | (109565-154477) | (13709-19257) | (2902-4241) | (11882-16602) | (1422-2016) | (1349-1890) | (862-1233) |
| Colorado | 175230 | 26150 | 3264 | 12272 | 1717 | 1498 | 1108 |
|  | (145098-206321) | (21679-30693) | (2668-3882) | (10198-14400) | (1423-2019) | (1250-1749) | (914-1307) |
| Connecticut | 144975 | 19702 | 3362 | 13146 | 1674 | 1533 | 1043 |
|  | (119885-170626) | (16250-23263) | (2736-4033) | (10884-15439) | (1378-1982) | (1271-1803) | (854-1238) |
| Delaware | 176810 | 28117 | 2699 | 9659 | 1504 | 1246 | 1003 |
|  | (147534-206342) | (23447-32882) | (2233-3185) | (8091-11260) | (1260-1755) | (1045-1451) | (837-1174) |
| Florida | 165976 | 21660 | 4159 | 16507 | 2043 | 1899 | 1255 |
|  | (137491-195186) | (17962-25491) | (3391-4956) | (13749-19317) | (1689-2412) | (1580-2229) | (1033-1486) |
| Georgia | 143095 | 23239 | 2028 | 7103 | 1158 | 941 | 782 |
|  | (119167-167620) | (19212-27363) | (1671-2390) | (5927-8309) | (968-1351) | (788-1096) | (650-917) |
| Hawaii | 159787 | 24922 | 2607 | 9476 | 1422 | 1198 | 938 |
|  | (131487-188759) | (20445-29470) | (2127-3115) | (7797-11150) | (1172-1678) | (995-1405) | (771-1106) |
| Idaho | 268064 | 46438 | 2789 | 8691 | 1778 | 1312 | 1270 |
|  | (221699-315727) | (38457-54549) | (2295-3292) | (7216-10199) | (1477-2084) | (1093-1531) | (1052-1493) |
| Illinois | 147330 | 21311 | 2981 | 11390 | 1534 | 1364 | 977 |
|  | (122429-172781) | (17627-25062) | (2440-3543) | (9479-13347) | (1269-1804) | (1134-1598) | (806-1151) |
| Indiana | 176869 | 29573 | 2191 | 7336 | 1308 | 1020 | 905 |
|  | (147449-207022) | (24600-34606) | (1814-2580) | (6121-8552) | (1093-1521) | (858-1185) | (753-1057) |
| Iowa | 157501 | 27946 | 1382 | 3937 | 944 | 656 | 696 |
|  | (126991-188636) | (22702-33386) | (1120-1653) | (3198-4679) | (770-1121) | (535-780) | (564-829) |
| Kansas | 210014 | 36416 | 2172 | 6743 | 1388 | 1020 | 993 |
|  | (170810-250105) | (29536-43384) | (1760-2595) | (5489-8017) | (1130-1650) | (834-1208) | (805-1183) |
| Kentucky | 154762 | 27596 | 1344 | 3797 | 923 | 638 | 682 |
|  | (126258-184237) | (22592-32747) | (1095-1597) | (3100-4512) | (757-1091) | (524-753) | (555-810) |
| Louisiana | 114856 | 19032 | 1491 | 5066 | 876 | 693 | 601 |
|  | (97792-132507) | (16085-21992) | (1252-1736) | (4313-5829) | (743-1009) | (590-797) | (509-694) |
| Maine | 227043 | 41653 | 1512 | 3469 | 1175 | 730 | 911 |
|  | (173215-282156) | (31981-51568) | (1157-1876) | (2662-4288) | (901-1458) | (562-899) | (695-1132) |
| Maryland | 146695 | 20298 | 3272 | 12718 | 1647 | 1495 | 1032 |
|  | (121349-172187) | (16703-23929) | (2665-3902) | (10526-14903) | (1357-1945) | (1235-1755) | (849-1219) |
| Massachusetts | 108439 | 13385 | 2980 | 11975 | 1433 | 1354 | 870 |
|  | (89385-127945) | (11043-15750) | (2419-3577) | (9963-14039) | (1179-1697) | (1116-1599) | (712-1034) |
| Michigan | 103668 | 16709 | 1500 | 5287 | 850 | 695 | 573 |
|  | (86070-121696) | (13811-19574) | (1235-1776) | (4395-6183) | (704-996) | (578-813) | (476-672) |
| Minnesota | 212989 | 35780 | 2573 | 8540 | 1549 | 1200 | 1077 |
|  | (176701-250271) | (29640-41938) | (2123-3041) | (7046-10055) | (1288-1814) | (1003-1398) | (895-1261) |
| Mississippi | 152037 | 27898 | 1040 | 2445 | 798 | 501 | 615 |
|  | (117231-187299) | (21616-34447) | (802-1279) | (1891-3004) | (619-978) | (387-615) | (473-758) |
| Missouri | 200292 | 33832 | 2351 | 7713 | 1430 | 1098 | 999 |
|  | (166761-233895) | (28099-39710) | (1940-2770) | (6435-9006) | (1194-1669) | (919-1279) | (833-1169) |
| Montana | 276435 | 50814 | 1852 | 4275 | 1438 | 895 | 1113 |
|  | (202504-352384) | (37445-64300) | (1359-2353) | (3146-5415) | (1056-1825) | (661-1133) | (817-1420) |
| Nebraska | 176299 | 30195 | 1957 | 6270 | 1216 | 916 | 859 |
|  | (146461-206939) | (25117-35392) | (1618-2300) | (5225-7341) | (1015-1424) | (764-1067) | (714-1006) |
| Nevada | 135062 | 17879 | 3294 | 12985 | 1622 | 1501 | 1004 |
|  | (111063-160133) | (14640-21193) | (2658-3971) | (10717-15297) | (1329-1929) | (1230-1783) | (819-1194) |
| New Hampshire | 313062 | 54782 | 3066 | 9251 | 2001 | 1443 | 1446 |
|  | (254552-372813) | (44857-64882) | (2491-3649) | (7532-11000) | (1637-2369) | (1184-1702) | (1178-1717) |
| New Jersey | 134233 | 15866 | 3933 | 15968 | 1870 | 1790 | 1125 |
|  | (111203-157519) | (13192-18623) | (3212-4700) | (13264-18703) | (1549-2202) | (1490-2095) | (925-1331) |
| New Mexico | 158897 | 27216 | 1768 | 5648 | 1097 | 826 | 774 |
|  | (130161-187392) | (22332-32182) | (1439-2102) | (4668-6638) | (904-1291) | (680-971) | (635-916) |
| New York | 226338 | 31732 | 4928 | 19075 | 2496 | 2254 | 1570 |
|  | (186989-265789) | (26139-37292) | (4017-5881) | (15882-22336) | (2056-2939) | (1868-2642) | (1290-1858) |
| North Carolina | 158640 | 27028 | 1800 | 5824 | 1108 | 843 | 780 |
|  | (131963-186007) | (22428-31769) | (1486-2123) | (4842-6815) | (926-1295) | (703-981) | (648-917) |
| North Dakota | 201514 | 35897 | 1717 | 4792 | 1189 | 816 | 880 |
|  | (156685-247165) | (28022-43872) | (1339-2109) | (3752-5862) | (929-1454) | (641-997) | (688-1079) |
| Ohio | 143944 | 23341 | 2036 | 7123 | 1161 | 943 | 786 |
|  | (120006-168140) | (19372-27346) | (1683-2394) | (5944-8342) | (973-1353) | (793-1094) | (657-919) |
| Oklahoma | 145630 | 25551 | 1382 | 4113 | 913 | 653 | 664 |
|  | (119004-172937) | (20881-30318) | (1130-1643) | (3377-4870) | (750-1079) | (536-770) | (543-788) |
| Oregon | 172086 | 28348 | 2289 | 7852 | 1332 | 1062 | 911 |
|  | (142806-202056) | (23573-33339) | (1884-2707) | (6521-9231) | (1107-1560) | (890-1236) | (759-1072) |
| Pennsylvania | 164918 | 25885 | 2639 | 9563 | 1449 | 1218 | 959 |
|  | (136968-193619) | (21384-30464) | (2157-3126) | (7928-11216) | (1203-1700) | (1014-1428) | (793-1129) |
| Rhode Island | 147344 | 18154 | 4069 | 16398 | 1959 | 1850 | 1188 |
|  | (122230-172743) | (15000-21279) | (3315-4871) | (13595-19239) | (1621-2306) | (1543-2159) | (976-1411) |
| South Carolina | 140112 | 23769 | 1616 | 5260 | 989 | 756 | 693 |
|  | (115850-165257) | (19593-28092) | (1330-1908) | (4383-6143) | (821-1158) | (628-885) | (574-814) |
| South Dakota | 194414 | 35541 | 1384 | 3373 | 1041 | 666 | 798 |
|  | (151590-238443) | (27787-43339) | (1076-1698) | (2631-4131) | (810-1274) | (521-812) | (621-980) |
| Tennessee | 140424 | 23956 | 1576 | 5077 | 976 | 738 | 688 |
|  | (115819-165114) | (19763-28197) | (1299-1855) | (4212-5929) | (812-1143) | (614-865) | (570-810) |
| Texas | 124353 | 18796 | 2229 | 8292 | 1185 | 1024 | 769 |
|  | (104237-145268) | (15696-21980) | (1840-2629) | (6941-9683) | (992-1379) | (861-1189) | (641-899) |
| Utah | 137712 | 19634 | 2876 | 11048 | 1470 | 1316 | 930 |
|  | (115318-160619) | (16464-22867) | (2371-3404) | (9251-12900) | (1230-1719) | (1112-1524) | (776-1088) |
| Vermont | 259236 | 48338 | 1484 | 2847 | 1247 | 726 | 993 |
|  | (189966-331368) | (35570-61399) | (1088-1890) | (2087-3612) | (918-1587) | (534-922) | (728-1266) |
| Virginia | 208993 | 33023 | 3277 | 11824 | 1812 | 1512 | 1204 |
|  | (171284-247743) | (26984-39191) | (2663-3914) | (9656-14039) | (1488-2143) | (1251-1781) | (984-1425) |
| Washington | 123795 | 18767 | 2198 | 8160 | 1171 | 1010 | 761 |
|  | (102686-145741) | (15565-22111) | (1801-2620) | (6768-9617) | (970-1378) | (843-1182) | (629-896) |
| West Virginia | 200767 | 36396 | 1514 | 3873 | 1108 | 725 | 841 |
|  | (157281-245047) | (28550-44430) | (1185-1849) | (3037-4719) | (875-1346) | (571-882) | (659-1027) |
| Wisconsin | 244558 | 41454 | 2825 | 9202 | 1729 | 1320 | 1210 |
|  | (194779-294178) | (33073-50047) | (2249-3410) | (7346-11087) | (1385-2076) | (1063-1581) | (969-1456) |
| Wyoming | 336216 | 61935 | 2174 | 4843 | 1715 | 1052 | 1336 |
|  | (230465-445651) | (42400-81637) | (1484-2866) | (3322-6368) | (1176-2263) | (726-1383) | (914-1771) |

Note. 10th and 90th percentile estimates in parentheses.

1. “Expenditure data for each police jurisdiction (BARS code 521) was obtained from the Washington State Auditor. Sub-categories excluded were Gambling enforcement (BARS 521.25) and DARE expenses (BARS 521.28)” (Aos et al. 2004). The general fund of BARS code 521 (Auditor’s Budgeting, Accounting, and Reporting System) salaries & wages, supplies and services includes law enforcement administration, police operations, crime prevention, training, facilities, traffic policing, and property evidence room. It does not appear, for example, that jail or detention services are included. For more on Washington state audit practices and coding, see http://www.sao.wa.gov/Pages/default.aspx. [↑](#footnote-ref-1)
2. Operating costs of the criminal justice system was defined as “those costs that change over the period of several years as a result of changes in workload measures” (Aos, Miller, and Drake 2006). [↑](#footnote-ref-2)
3. http://www.pewtrusts.org/en/projects/pew-macarthur-results-first-initiative [↑](#footnote-ref-3)
4. An example provided of roles for rape & sexual assault cases were dispatch, first-responder law enforcement officers, investigators, supervisors, forensic interviewers, admin/case prep support, sex assault nurse examiners, crime scene processing law enforcement officers, advocates, enhanced patrols, media handling/FOIA, attorneys, deposition/hearing/trial/prep, and public order (court order enforcement). [↑](#footnote-ref-4)