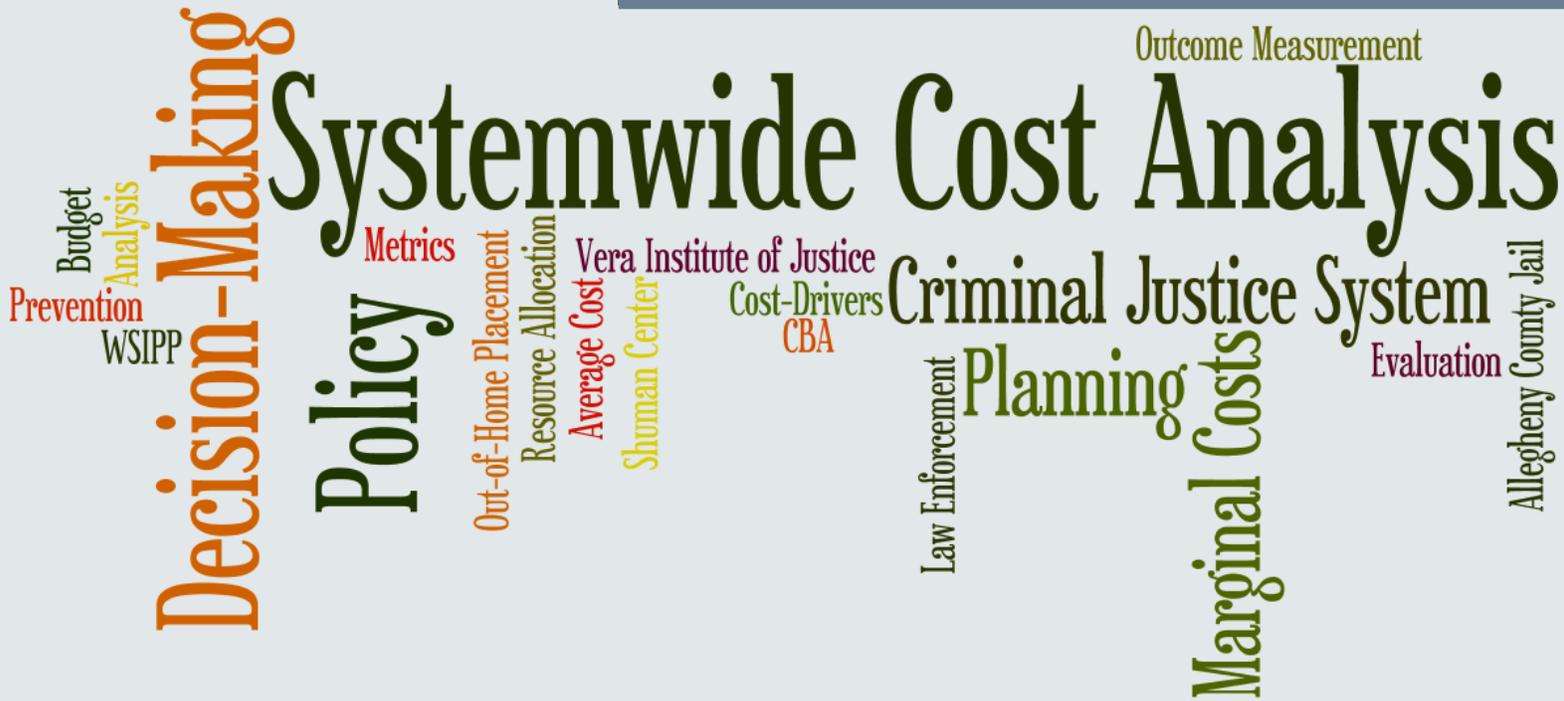


Calculating Unit Costs in Allegheny County: A Resource for Justice System Decision-Making and Policy Analysis

Juvenile Probation



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The Allegheny County Department of Human Services (DHS) is dedicated to meeting the human services needs of county residents, particularly the county's most vulnerable populations, through an extensive range of prevention, intervention, crisis management and after-care services.

This report was prepared by the Office of Data Analysis, Research and Evaluation (DARE), an office within DHS. DARE supports and publishes research related to the activities of DHS in a number of categories, including: Aging; Basic Needs; Behavioral Health and Disabilities; Child Development and Education; Children, Youth and Families; Crime and Justice; and Innovation, Reform and Policy.

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ACRONYMS AND DEFINITIONS

Acronyms

ACJ	Allegheny County Jail
CBA	Cost-Benefit Analysis
DHS	[Allegheny County] Department of Human Services
JPO	[Allegheny County] Juvenile Probation Office
UCR	Uniform Crime Report
WSIPP	Washington State Institute for Public Policy

Definitions

- **Short-Run Marginal Cost** — the cost that changes directly in proportion to changes in output; also called variable costs
- **Step-Fixed Costs** — the cost that remains constant for a certain range of output, and changes when output exceeds or falls below a certain threshold
- **Long-Run Marginal Cost** — short-run marginal costs, plus the step-fixed costs that change in the long run as adjustments are made to staffing levels in response to larger changes in output
- **Average Cost** — total cost divided by total output

EXECUTIVE SUMMARY

Crime generates substantial costs to society at the individual, community and national levels. In the United States, in any given year, more than 23 million criminal offenses are committed, resulting in approximately \$15 billion in economic losses to the victims and \$179 billion in government expenditures on police protection, judicial and legal activities, and corrections (U.S. Department of Justice, 2004, 2007, 2008). Programs that prevent crime can therefore generate substantial economic benefits by reducing crime-related costs incurred by victims, communities and the criminal justice system.

Programs that work to prevent and deter crime can be valued using the costs they save to the system. These costs include savings as a result of fewer jail-bed days, fewer days of probation, decreased number of court appearances, and/or fewer arrests. In addition, examining program benefits in this way provides useful information when making decisions about the allocation of scarce resources, i.e., programs that result in greater cost savings may be of greater value than those with a lesser impact. However, it should be noted that, although costs savings are an important component of program viability, it is only one of a number of criteria to be considered when evaluating a program's value.

Allegheny County is committed to allocating criminal justice resources in a systematic way, utilizing evaluation and evidence-based programming to better understand the costs and benefits of programs. To further this goal, Allegheny County applied for a technical assistance grant from the Vera Institute of Justice to implement a system of cost-benefit analysis throughout the justice system. Through a year-long period of technical assistance, the Vera Institute of Justice helped Allegheny County create a systemwide cost database that includes agreed-upon unit costs within the county's criminal justice system. Initially, analysis was conducted on the cost of a jail-bed day, a day of adult probation, an arrest and a day of juvenile detention; additional analysis is needed on other costs within the criminal justice system. Researchers, evaluators and program administrators can use this information to compare the benefits and costs of programs when making management, budget and program decisions.

Receiving the technical assistance grant from the Vera Institute of Justice allowed Allegheny County to work with its existing partnerships and data resources to create a systemwide cost database designed to support evaluation of existing programs and planning of new ones. In addition, the database can be utilized by outside researchers and experts to create more accurate estimates of the costs and benefits of various initiatives. This technical assistance also helped to create a common language around costs and benefits within DHS, the justice system and the budget office that will support future decision-making and evaluation activities.

The purpose of this report is to provide the average, short-run and long-run marginal costs for key criminal justice-related services to be used by both policy-makers and analysts. By examining these costs over time, policy-makers can better understand the drivers of costs within these systems (e.g., changes in population served, changes in operating costs, or both). In addition, analysts can use these costs to value the benefits of criminal justice prevention programs that are currently enacted and that are being proposed to better understand what programs are working and what programs need to be re-evaluated.

METHODOLOGY AND DATA

Methods of Analysis

Analysts at the Allegheny County Department of Human Services worked with the Allegheny County Budget Office and local justice organizations to compile information on the major justice system costs. With technical assistance from the Vera Institute of Justice, they worked to collect annual information on major cost centers and total people served. Much of this information has already been published and is publically available. The report seeks to re-structure the information to make it more useful in analysis and decision-making.

DHS analysts compiled cost tables for the Allegheny County Jail, Adult Probation, Juvenile Probation, Juvenile Detention, Pennsylvania Prisons, City of Pittsburgh Police and Child Welfare placements. Detailed information about each cost table is included in the main section of this report. This compilation of costs was different for each justice system entity.

Data Sources

A variety of data sources were used to create the cost estimate tables in the following report. In addition, as the data were collected, meetings were held between the budget office, Department of Human Services and the program offices to ensure agreement with the numbers used.

Fifth Judicial District of Pennsylvania, Adult Probation and Parole

Caseloads for Adult Probation were extracted from the 2011 and 2012 Allegheny County Adult Probation Annual Reports. The annual reports provide the average daily caseloads for each unit.

Allegheny County Budget Office

Budget data were provided for calendar-years 2011 and 2012 for Adult Probation and for Juvenile Probation and Shuman Detention Center. This information included total operating costs, costs for personnel, fringe benefits, supplies, materials, repair and maintenance, fixed assets and services. In addition, the budget office provided salary information and titles for child care workers at Shuman Detention Center and for adult and juvenile probation officers.

Allegheny County Department of Human Services (DHS)

DHS operates a child welfare case management system that merges case and client information with service utilization and costs; juvenile justice placements are also tracked through this system. All child welfare and juvenile placement days and rates for calendar-year 2011 and 2012 were used to calculate average daily placement rates.

Allegheny County Jail

The Allegheny County Jail contracts with Maximus (a company that also partners with state, federal and local governments to provide health and human service programs to a diverse array of communities) to calculate annual costs for detention services within the jail. For this report, information on total operating costs, personnel salaries and benefit costs (including salaries and benefits for all correction officers), costs for consultants and contracted services, and other detailed direct operating costs were considered.

Allegheny County Juvenile Probation Office (JPO)

This report relies on the 2011 and 2012 annual reports of Juvenile Probation. These reports detail the average daily population at Shuman Detention Center, the number of probation officers by program area (e.g., School-Based and Community-Based Probation), average number of youth supervised per day and average daily caseload.

City of Pittsburgh Bureau of Police¹

The City of Pittsburgh Bureau of Police issues annual reports detailing the number of arrests by neighborhood and crime type. This report uses the 2011 and 2012 annual reports and includes all Level One and Level Two crime arrests when calculating the costs per arrest.

City of Pittsburgh Budget Report

When calculating the cost of an arrest, this report utilized the City of Pittsburgh 2011 and 2012 budget report for the Bureau of Police. These reports include total operating costs as well as the

¹ Allegheny County has 130 borough and township police departments and seven additional police agencies. More than a third of all police officers in Allegheny County work for the City of Pittsburgh and about half of the violent crime committed in Allegheny County in 2012 occurred in Pittsburgh. Because of the number and variability of the police departments in Allegheny County, the City of Pittsburgh's rate was used as a proxy for the cost of an arrest.

total number, salaries and benefits of master and first- through fourth-year police officers. This information was used to calculate average salaries and benefits for a police officer and the long-term marginal costs of an arrest.

Pennsylvania Department of Corrections

This report utilizes the information created by the Pennsylvania Department of Corrections to calculate the short-run and long-run marginal costs of a prison-bed day (Council of State Governments Justice Center, 2012). This report does not calculate these costs, but merely re-structures the information so it can be better used by analysts and decision-makers in Allegheny County.

Pennsylvania State Police

The Pennsylvania State Police collect Uniform Crime Report (UCR) data from participating police departments; these data include information on all arrests in Allegheny County. Data were downloaded from the Pennsylvania State Police web site on September 4, 2013.

Washington State Institute for Public Policy (WSIPP)

The Washington State legislature created the Washington State Institute for Public Policy (WSIPP) in 1983 with the mission of carrying out non-partisan, practical research. For over 15 years, the Institute has produced information on the comparative costs and benefits of programs to reduce crime. This work helped inspire the creation of this database. In addition, the Institute has worked to calculate marginal costs throughout the criminal justice system, costs that are widely accepted as appropriate estimates for marginal costs. The database uses Washington State's estimate of the marginal cost of an arrest (as 16 percent of the average cost).

Overview of Cost-Benefit Analysis

There is growing interest in using data-driven strategies to maximize government investments and inform budget and policy choices. Not only do government agencies have to operate with tight budgets and limited resources, they also want to ensure that the programs and policies enacted are yielding benefits to society. Cost-benefit analysis (CBA), a tool that weighs the cost of a particular project against the financial benefit, has been increasingly utilized in the context of criminal justice systems in the last 10 years (Aos, 2001; Cohen, 2000; Farrell, Bowers & Johnson, 2005; McDougall et al., 2003). As a result of the substantial costs of crime to society and the limited resources available for crime prevention programs, a systematic approach to allocating scarce resources to programs that yield the largest benefit to society is important. CBA allows different policy options and programs to be compared when making investment decisions by putting dollar values on the benefits of a program. Nonetheless, it should be noted that CBA does not specifically determine if a project works, but rather provides a quantification of expected costs and benefits to assist decision-makers. The purpose of this resource is to provide justice decision-makers and analysts in Allegheny County with common metrics to quantify the benefits of the programs they are evaluating and/or proposing.

Three different types of costs are presented in this report to better understand the cost per arrest, the cost per day of incarceration or detention, and the cost per day of supervision in Allegheny County. These costs can be used to value the benefits of instituting new criminal justice prevention programs. The three costs presented here are the average cost and the short- and long-term marginal costs. The average cost is the total operating cost over the number of units that are produced or provided. Though this is an important metric to understand when making decisions, policy-makers are more interested in understanding how much a program will benefit taxpayers if it reduces, for example, the number of jail-bed days. Average costs include all costs, including the cost of maintaining a facility, the personnel costs and the costs of providing services. However, reducing the number of jail-bed days does not necessarily mean that personnel will be laid off or that the costs associated with maintaining the jail will be reduced.

As a result, when determining the benefits of programs, it is important to understand marginal costs. Marginal cost is the cost saved when reducing the amount of services or products produced. For example, in the short term, the marginal cost of a jail-bed day includes the cost of clothing, feeding and providing services to the inmate, but does not include the costs of maintaining the jail or of jail personnel costs. In the long term, if the inmate population grows a certain amount, a new correction officer will have to be hired. Therefore, short-term marginal cost is the cost of providing one additional unit of output whereas long-term marginal costs include the short-term marginal costs as well as the additional costs that change in the long run as adjustments are made to staffing levels in response to larger changes in output.

The purpose of this report is provide the average, short-run and long-run marginal costs for key criminal justice-related services to be used by both policy-makers and analysts. By examining these costs over time, policy-makers can better understand the drivers of costs within these systems (e.g., changes in population served, changes in operating costs or both). In addition, analysts can use these costs to value the benefits of criminal justice prevention programs that are currently enacted and that are being proposed to better understand what programs are working and what programs need to be re-evaluated.

Utility of Cost-Benefit Analysis in State and Local Jurisdictions

Cost-benefit analysis (CBA), in combination with outcome measurement strategies, is used in many criminal justice systems to make informed resource allocation decisions. Nonetheless, the creation of systemwide models of CBA is in its infancy. The WSIPP created a database of the “bottom-line” economics of crime-reduction programs to determine whether the monetary benefits to society, as measured by the value of reduced crime to taxpayers and victim, outweigh the costs of the program (Aos et al., 2001). The WSIPP database allows decision-makers to compare “apples to apples” when deciding where to allocate scarce resources. Modeling itself after the WSIPP work, the Oregon Criminal Justice Commission created a statewide cost-benefit model for the criminal justice system (Wilson 2011). The goal is to provide better information that allows policy-makers to compare the effectiveness and benefits of various methods of crime

reduction. To that end, the Vera Institute of Justice created the Cost Benefit Knowledge Bank as a clearinghouse for resources and ongoing research around CBA in criminal justice.

A recent study found that all 50 states and the District of Columbia conducted cost-benefit studies between 2008 and 2011, though the level of use varied. Ten states led the way in overall production, scope and use of CBA, with Pennsylvania receiving mixed ratings (Pew-MacArthur, 2013). Pennsylvania scored well in assessing multiple program and policy options through CBA and in using CBA in decision-making, but fell behind in actual production of CBA studies. This is, in part, a reflection of the difficulty of conducting CBA when agreement about systemwide measures does not exist. For example, efforts to accurately calculate the cost of processing cases in the court system fell short because of the inability to reach agreement on these measures.

The aim of the information contained in this report was to provide researchers, policy analysts and decision-makers with the tools (and common metrics) to assess the cost-benefit of both current and planned programs.

SYSTEMWIDE COST DATABASE SUMMARY

Table 1 lists the average, short-term and long-term costs by justice system section. The detailed tables (with source data) follow. The information is calculated for calendar-years 2011 and 2012. In addition, the unit of measurement is included. For example, the short-run marginal cost of an arrest in 2011 is \$705.69, while the short-run marginal cost of a day in jail in 2011 is \$15.73 (per person). The percent change between 2011 and 2012 is calculated. Finally, the percent of the cost incurred by Allegheny County is detailed in the final column of the table.

TABLE 1: Criminal Justice System Costs

	2011	2012	UNIT	% CHANGE FROM 2011 TO 2012
CITY OF PITTSBURGH POLICE				
Average Cost	\$4,410.59	\$4,567.53	Per Arrest	4%
Marginal Cost (Long Run)	\$705.69	\$730.81	Per Arrest	4%
ALLEGHENY COUNTY JAIL				
Average Cost	\$64.41	\$68.17	Per Day	6%
Short-Run Marginal Cost	\$15.73	\$16.31	Per Day	4%
Long-Run Marginal Cost	\$49.38	\$53.58	Per Day	9%
PENNSYLVANIA PRISONS (2010)				
Average Cost	\$116	—		—
Short-Run Marginal Cost	\$15.45	—	1-299 Beds	—
Long-Run Marginal Cost	\$30.90	—	300-599 Beds	—
Long-Run Marginal Cost	\$63.30	—	600-900 Beds	—
Long-Run Marginal Cost	\$94.20	—	900+ Beds	—
SHUMAN DETENTION CENTER				
Average Cost	\$399.24	\$449.58	Per Day	13%
Short-Run Marginal Cost	\$52.96	\$52.50	Per Day	-1%
Long-Run Marginal Cost	\$199.36	\$226.70	Per Day	14%
ADULT PROBATION				
Average Cost	\$2.70	\$3.00	Per Day	11%
Short-Run Marginal Cost	\$0.90	\$1.00	Per Day	11%
Long-Run Marginal Cost	\$2.30	\$2.40	Per Day	4%
JUVENILE PROBATION				
Average Cost	\$8.23	\$9.49	Per Day	15%
Short-Run Marginal Cost	\$1.56	\$2.23	Per Day	43%
Long-Run Marginal Cost	\$7.67	\$9.73	Per Day	27%

Table 2 details the marginal cost per day of an out-of-home placement. This includes both child welfare and Juvenile Probation Office (JPO) out-of-home placements (not including placement at Shuman). The marginal cost is the rate that providers are reimbursed by DHS (for child welfare placements) or Juvenile Probation (for juvenile justice out of home placements). Congregate care includes both group and residential facilities, and foster care includes both regular and kinship foster care. The total short-run marginal cost is the average rate per day of any CYF or JPO paid placement.

Other Costs

TABLE 2: Costs for Out-of-Home Placements, Child Welfare and Juvenile Justice

	2011	2012	UNIT	% CHANGE FROM 2011 TO 2012
CHILD WELFARE PLACEMENT				
Short-Run Marginal Cost — Total	\$88.38	\$95.14	Per Day	7%
Short-Run Marginal Cost — Congregate Care	\$203.33	\$206.64	Per Day	2%
Short-Run Marginal Cost — Foster Care (Regular and Kin)	\$48.39	\$48.29	Per Day	0%
JUVENILE JUSTICE PLACEMENT (PRIVATE PROVIDERS; DOES NOT INCLUDE SHUMAN DETENTION CENTER)				
Short-Run Marginal Cost — Placements minus Shuman	\$174.75	\$169.15	Per Day	-3%

SYSTEMWIDE COST DATABASE DETAILED TABLES

Law Enforcement

Allegheny County has more than 100 separate municipal police departments (including the City of Pittsburgh Police); as a result, there are challenges in estimating the costs of arrests in Allegheny County. City of Pittsburgh arrests account for about 40 percent of total Allegheny County arrests (39 percent in 2011 and 42 percent in 2012).²

The information below is for the City of Pittsburgh Police Department. This department is mandated to protect and enhance “diverse neighborhoods by working in partnership with citizens to creatively solve problems ... (and) to provide committed service through accountability, integrity and respect” (City of Pittsburgh, Annual Report). Costs were obtained and calculated from publically available information (cited in the table).

Estimating marginal costs can be completed through top-down or bottom-up approaches. These approaches should generate similar estimates when conducted properly. The top-down approach uses total costs divided by the change in output.³ Because that information is not readily available from the City of Pittsburgh Police, estimates from WISPP were utilized. This method is commonly used in CBA and has been adopted in other jurisdictions (e.g., costs of an arrest in North Carolina). According to this estimate, the marginal cost of an arrest is 16 percent

² Pennsylvania Uniform Crime Reporting (Accessed September 4, 2013). All Arrests for Allegheny County — 2011 and 2012, <http://www.paucrs.pa.gov/UCR/ComMenuUI.asp>

³ Henrichson, Chris and Sarah Galgano. (May 2013). “A Guide to Calculating Justice-System Marginal Costs.” Vera Institute of Justice, New York.

of the average cost.

TABLE 3: City of Pittsburgh Police — Cost of an Arrest 2011 and 2012

CATEGORY	YEAR		% CHANGE	SOURCE/CALCULATION
	2011	2012		
Total Annual Cost	\$67,843,678	\$70,020,295	3%	City of Pittsburgh Budget
Total Arrests	15,382	17,772	16%	City of Pittsburgh Annual Report
Average Daily Arrests	42	49	17%	Calculation — Total Arrests / 365
Total Police Officers	768	733	-5%	City of Pittsburgh Budget (Only Includes Master Police Officers, 1st-4th Year Police Officers)
Total Salary and Benefits for Police Officers	\$43,079,318	\$45,171,207	5%	City of Pittsburgh Budget (Only Includes Master Police Officers, 1st-4th Year Police Officers)
Average Salary and Benefits for Police Officers	\$56,093	\$61,625	10%	Calculation — Total Salaries and Benefits of Police Officers / Number of Police Officers
CALCULATED COSTS:				
Average Cost per Arrest	\$4,426	\$3,940	-11%	Calculation — Average Daily Cost (Annual Costs/365) / Average Daily Arrests
Marginal Cost of an Arrest (Long Term)	\$708	\$630	-11%	Calculation — Average Daily Cost x 16% (Based on Washington State Ratio of Average to Marginal Costs)

Allegheny County Jail

The Allegheny County Jail serves about 2,600 people per day, many of whom stay for short periods of time. The jail’s mission “... is to protect the citizens of Allegheny County from criminal offenders through a collaborative system of incarceration which securely segregates offenders from society, assures offenders of their constitutional rights, and maintains diagnostic rehabilitative treatment programs to enhance the success of offenders’ reintegration into society.”

The Allegheny County Jail contracts with Maximus (a company that also partners with state, federal and local governments to provide health and human services programs to a diverse array of communities) to calculate annual costs for detention services within the jail. This information includes total operating costs (by major category), average daily population, inmate capacity of the jail, detailed personnel costs (by job title), detailed professional service costs, other direct operating costs (e.g., supplies) and fixed costs. This information is produced annually, but because there is a one-year delay in compilation of data, the most recent information available is for calendar-year 2011.

TABLE 4: Allegheny County Jail — Cost per Jail-Bed Day 2010 and 2011

CATEGORY	YEAR		% CHANGE	SOURCE/CALCULATION
	2010	2011		
Total Annual Cost	\$64,233,005	\$64,404,339	0%	Allegheny County Jail (Operating Costs Minus Equipment and Building Depreciation Costs)
Average Daily Population	2,732	2,588	-5%	Allegheny County Jail
Total Corrections Officers	487	513	5%	Allegheny County Jail
Total Salaries and Benefits for Corrections Officers	\$35,440,171	\$37,185,192	5%	Allegheny County Jail
Total Costs of Supplies, Materials, Food Services and Medical Services	\$15,688,456	\$15,406,732	-2%	Allegheny County Jail
Average Annual Salaries and Benefits for Correctional Officers	\$68,906	\$68,634	0%	Calculation — (Total Personnel Benefits / Total Personnel) + (Total Salaries for Corrections Officers / Total Corrections Officers)
Average Daily Salaries and Benefits for Correctional Officers	\$189	\$188	-1%	Calculation — Average Annual Salaries and Benefits for Correctional Officers / 365
CALCULATED COSTS:				
Average Cost per Day (per inmate)	\$64.41	\$68.17	6%	Calculation — Total Annual Costs / (Average Daily Population x 365)
Short-Run Marginal Cost per Day (per inmate)	\$15.73	\$16.31	4%	Calculation — Total Costs of Supplies, Materials, Food Services and Medical Services / (Average Daily Population x 365)
Long-Run Marginal Cost per Day (per inmate)	\$49.38	\$53.58	9%	Calculation — (Average Daily Salaries and Benefits for Correctional Officers x Average Daily Officer-to-Inmate Ratio) + Average Daily Variable Cost per Inmate (SRMC)

Pennsylvania State Prisons

The Pennsylvania Department of Corrections oversees the operation of 26 state correctional institutions, 14 community corrections centers and nearly 40 contract facilities. They seek to “reduce criminal behavior by providing individualized treatment and education to offenders, resulting in successful community reintegration through accountability and positive change”

(PA Department of Corrections, 2013). The state, like its counties, is committed to maintaining public safety while creating practical, cost-effective reforms.

The Pennsylvania Department of Corrections calculated short- and long-run marginal costs based on the number of beds saved. For the first 299 beds saved, the savings was \$15.45 per bed. Saving 300–599 beds yields a savings of \$30.90 per bed. Staff at the Vera Institute of Justice developed a methodology to calculate the cost of prisons to taxpayers, including costs that are outside a state’s corrections budget. States’ costs outside their corrections departments ranged from less than one percent of total prison costs in Arizona to as much as 34 percent in Connecticut. Twenty-two percent of the costs of prisons in Pennsylvania were outside of the state’s corrections budget. These expenses included underfunded pensions, underfunded retiree health care, capital costs, statewide administrative costs, inmate health care, and inmate education and training. The largest cost incurred within Pennsylvania’s prisons outside of the corrections budget was for inmate health care, totaling \$231.7 million in Fiscal Year 2010.

TABLE 5: Pennsylvania Department of Corrections — Cost per Bed Day 2010

CATEGORY	FY 2010	UNIT	SOURCE/CALCULATION
Total Annual Cost	\$2,063,800,000	—	Vera Institute of Justice
Total Prison Expenditures	\$1,600,000,000	—	Vera Institute of Justice
Total Prison-Related Costs	\$463,800,000	—	Vera Institute of Justice
Average Daily Population	48,543	—	Vera Institute of Justice
Average Annual Cost per Inmate	\$42,339		Vera Institute of Justice
CALCULATED COSTS			
Average Cost per Bed	\$116		
Short-Run Marginal Cost per Bed	\$15.45	0–299 Beds Saved	Council of State Governments Justice Center
Long-Run Cost per Bed	\$30.90	300–599 Beds Saved	Council of State Governments Justice Center
Long-Run Cost per Bed	\$63.30	600–900 Beds Saved	Council of State Governments Justice Center
Long-Run Cost per Bed	\$94.20	900+ Beds Saved	Council of State Governments Justice Center

⁴ Eight cost centers are included: Adult Probation, Electronic Monitoring, AUID Intermediate Punishment, Intermediate Punishment, Alcohol Highway Safety, DRC1, DRC2 and SCA.

Fifth Judicial District of Pennsylvania, Adult Probation and Parole

The Fifth Judicial District of Pennsylvania, Adult Probation and Parole is charged by the Court of Common Pleas to provide “effective community-based alternatives to incarceration, improving public safety, partnering with community and law enforcement resources and promoting positive behavioral change from offenders” (Fifth Judicial District of Pennsylvania, 2012). The budget for Adult Probation covers eight cost centers.⁴ Although total annual cost remained at similar levels from 2011 to 2012, total daily caseload decreased by six percent. As a result, average daily cost increased by six percent.

The short-run marginal cost rose by 11 percent, as the result of a five percent increase in total costs of supplies, materials and services and the drop in total daily caseload.

Long-run marginal cost also increased — from \$2.40 to \$2.70 (a 12 percent increase). That is because, in addition to the increase in costs of supplies, materials and services, there was also an increase in the average daily salaries for probation officers (an increase of four percent from \$167 to \$173).

TABLE 6: Allegheny County Adult Probation — Cost per Offender per Day 2011 and 2012

CATEGORY	YEAR		% CHANGE	SOURCE/CALCULATION
	2011	2012		
Total Annual Cost	\$15,526,338	\$15,582,322	0%	Allegheny County Budget Office
Total Caseload	23,107	22,549	-2%	Allegheny County Adult Probation
Total Daily Caseload	14,347	13,528	-6%	Allegheny County Adult Probation
Total Probation Officers	122	125	3%	Allegheny County Budget Office
Total Salaries for Probation Officers	\$5,436,835	\$5,739,250	6%	Allegheny County Budget Office
Fringe Benefit Rate	36%	37%	3%	Allegheny County Budget Office
Average Annual Salaries and Benefits for Probation Officers	\$60,797	\$63,049	4%	(Total Salaries for Probation Officers x [1 + Fringe Benefit Rate]) / Total Probation Officers
Total Costs of Supplies, Materials, and Services	\$5,255,800	\$5,514,725	5%	Allegheny County Budget Office
Average Daily Salaries and Benefits for Probation Officers	\$167	\$173	4%	Average Annual Salaries and Benefits for Probation Officers / 365
Average Daily Caseload per Probation Officer	118	108	-8%	Total Daily Caseload / Total Probation Officers
CALCULATED COSTS				
Average Daily Cost per Offender	\$3.00	\$3.20	7%	Total Annual Cost / (Total Daily Caseload x 365)
Short-Run Marginal Cost per Offender	\$1.00	\$1.10	11%	Total Costs Of Supplies, Materials, and Services / (Total Daily Caseload x 365)
Long-Run Marginal Cost per Offender	\$2.40	\$2.70	12%	(Average Daily Salaries and Benefits for Probation Officers) / (Average Daily Caseload per Probation Officer) + Average Daily Variable Cost per Offender

Juvenile Probation Office (JPO)

The mission of the Allegheny County Juvenile Probation Office (JPO) is “to reduce and prevent juvenile crime; promote and maintain safe communities, and improve the welfare of youth and families who are served by the court” (Allegheny County JPO, 2012). To accomplish this, JPO emphasizes evidence-based practices, conducts risk and needs assessments, and creates case plans for each youth to reduce their likelihood of re-offending. Of the 1,826 cases that were closed during 2012, 89 percent of the youth completed their supervision without re-offending.

On December 31, 2012, JPO was supervising 2,973 youth, a 15 percent decrease from the same day in 2011. The average cost of serving a youth on probation rose 23 percent from 2011 to 2012, from \$8.20 per day to \$10.06 per day, while short-run marginal cost rose 49 percent, from \$1.33 per day to \$1.98 per day. These increases are a result of the decrease in youth served combined with a slight increase in operating costs.

TABLE 7: Allegheny County Juvenile Probation Office — Cost per Juvenile per Day 2011 and 2012

CATEGORY	2011	2012	PERCENT CHANGE	SOURCE/CALCULATION
Total Annual Cost*	\$10,410,534	\$10,916,542	5%	Allegheny County Budget Office
Average Daily Caseload	28	24	0%	Allegheny County Juvenile Probation
Total Probation Officers	108	91	-16%	Allegheny County Budget Office (Includes Probation Officers Who Are Coded as 603701 or 60010009 [school based])
Total Salary and Benefits for Probation Officers	\$6,255,331	\$6,329,146	1%	Allegheny County Budget Office (Includes Salaries and Benefits [and Overtime] of Probation Officers [73], Special Services Unit PO [4], and Drug/Alcohol PO [3] and School-Based Probation Officers [22]) — 2012
Average Salary and Benefits for Probation Officers	\$57,920	\$69,551	20%	Calculation — Total Salaries and Benefits of Probation Officers / Number of Probation Officers
Total Child Supervised	3,479	2,973	-15%	Allegheny County Juvenile Probation
Marginal Costs (Total)	\$1,723,668	\$1,773,818	3%	Calculation — Total Supplies, Materials and Services — Juvenile Probation Budget
CALCULATED COSTS				
Average Daily Cost per Probationer	\$8.23	\$9.49	15%	Calculation — (Annual Costs/365) / (Average Daily Caseload x Total POs)
Marginal Cost per Probationer	\$1.56	\$2.23	42%	Allegheny County Budget Office — JPO Daily Budget for Services, Supplies and Materials per Person
Average Daily Variable Cost per Probationer (SRMC)	\$7.67	\$9.73	27%	Cost per day of Average Salaries* Worker-to-Child Ratio (1.04) plus Daily Variable Cost

*Only includes operating costs and does not account for any special revenues or grants that juvenile justice received

Shuman Detention Center

Shuman Detention Center provides secure custody and temporary care in a physically restricted, humane environment for alleged or adjudicated delinquent⁵ youths awaiting court disposition or transfer to another jurisdiction or agency. Jurisdiction extends to Allegheny County youth between the ages of 10 and seventeen. If the delinquent act was committed before age 18, jurisdiction may be extended to age 21. Youth from outside the county who are accused of an offense in the county or who are under court order may also be detained.

Information on Shuman Detention Center costs were provided by the Allegheny County Budget Office and JPO. The Budget Office provided information on salaries and benefits by position type and JPO provided information on the number of youth served per day and the capacity of Shuman.

The total annual costs decreased by 6 percent from 2011 to 2012. However, the average daily population is declining at a faster rate (17 percent), resulting in an increase in average cost per youth, from \$399 in 2011 to \$450 in 2012. Nonetheless, the marginal cost per youth per day remained relatively constant, as a result of the costs of supplies and materials declining at similar rates to the population decline. The primary factor in the increase in average costs at Shuman is the decrease in daily population. This decrease is also reflected in the decrease in the costs of services, supplies and material (marginal costs), which results in the slight decline in short-run marginal costs.

⁵ In Pennsylvania, delinquency is defined as any crime under federal, state or local law except murder, summary offenses, and status offenses such as truancy and running away.

TABLE 8: Shuman Detention Center — Cost per Juvenile per Day 2011 and 2012

CATEGORY	YEAR		% CHANGE	SOURCE/CALCULATION
	2011	2012		
Total Annual Cost	\$11,220,521	\$10,502,166	-6%	Allegheny County Budget Office (Operating Costs of Shuman)
Average Daily Population	77	64	-17%	Allegheny County Juvenile Probation
Total Child Care Workers	84	76	-10%	Allegheny County Budget Office
Total Salary and Benefits for Child Care Workers	\$4,315,816	\$4,069,427	-6%	Allegheny County Budget Office
Average Salary and Benefits for Child Care Workers	\$51,379	\$53,545	4%	Calculation — Total Salaries of Child Care Workers / Number of Child Care Workers (Shuman)
Marginal Costs	\$1,488,475	\$1,226,295	-18%	Allegheny County Budget Office — Total Shuman Budget for Services, Supplies and Materials
Capacity of Shuman	130 beds	130 beds	0%	Allegheny County Juvenile Probation
CALCULATED COSTS				
Average Cost per Day (per Child)	\$399.24	\$449.58	13%	Calculation — Annual Costs per Day / Average Daily Population
Short-Run Marginal Cost per Day (per Child)	\$52.96	\$52.50	-1%	Calculation — Marginal Costs per Day / Average Daily Population
Long-Run Marginal Cost per Day (per Child)	\$199.36	\$226.70	14%	Daily Cost per Child Care Worker x Worker-to-Child Ratio plus Daily Variable Cost
Match Rate	50%	50%	0%	50% of costs paid by Allegheny County

Out-of-Home Placement

Children and youth are served in an out-of-home placement by a network of local provider organizations that are reimbursed through a daily rate depending on the services they offer. For youth in a JPO out-of-home placement (not including Shuman), the short-run marginal cost was \$175 in 2011 and \$169 in 2012, a three percent decline in costs. This cost is an average rate across all JPO placements during the calendar year. In 2012, the average daily number of youth in a JPO out-of-home placement was 342, with 255 of these youth in placement with a private provider, 64 in Shuman and 23 in state placements.

TABLE 9: JPO Out-of-Home Placements — Short-Run Marginal Cost 2011 and 2012

	2011	2012	UNIT	% CHANGE FROM 2011 TO 2012	SOURCE
JPO PLACEMENT — NOT SHUMAN					
Short-Run Marginal Cost — Placements minus Shuman	\$174.75	\$169.15	Per Day	-3%	DHS Data Warehouse

The average rates per day for a child welfare placement increased by about seven percent between 2011 and 2012, primarily as a result of an increase in the costs and utilization of congregate care. The marginal cost of a day of foster care did not change from 2011 to 2012. This cost includes both the rate for regular foster care families and the rate for kinship care families.

TABLE 10: Child Welfare Out-of-Home Placements — Short-Run Marginal Cost 2011 and 2012

	2011	2012	UNIT	% CHANGE FROM 2011 TO 2012	SOURCE
CYF PLACEMENT					
Short-Run Marginal Cost — Total	\$88.38	\$95.14	Per Day	7%	DHS Data Warehouse
Short-Run Marginal Cost — Congregate Care	\$203.33	\$206.64	Per Day	2%	DHS Data Warehouse
Short-Run Marginal Cost — Foster Care (Regular and Kin)	\$48.39	\$48.29	Per Day	0%	DHS Data Warehouse

CONCLUSION AND FUTURE DIRECTIONS

The Vera Institute of Justice provided technical assistance to create this database and to use it to conduct CBA on two demonstration projects (School-Based Probation, through JPO, and Day Reporting Centers, through Adult Probation). The full evaluations are included in separate reports. The information acquired through the use of the database was utilized to value the benefits incurred through these programs.

This database is not intended to be static, but to be annually updated and expanded. The presentation of two years of information helped stakeholders understand the value of examining changing annual costs in program planning and budgeting. In addition, the combination of costs with outputs helps illuminate the causes of rising costs. The database will continue to be updated annually.

The goal is to conduct CBA on an expanded number of sources, in particular, the court system and alternative housing programs, and to better understand the overall costs to Allegheny County by crime types. The Allegheny County Budget Office is also interested in expanding the use of cost-benefit analysis throughout other systems, including human services, and to pursue the analysis with the court system. Because accomplishing this goal will depend upon a cadre of analysts who are capable of conducting CBA, staff development must be a priority.

BIBLIOGRAPHY

Allegheny County Budget Office. (2011, 2012).

Allegheny County Juvenile Probation. Annual Report. Allegheny County, Pa. (2011,2012).

Aos, Steve; Polly Phipps; Robert Barnoski; and Roxanne Lieb. "The Comparative Costs and Benefits of Programs to Reduce Crime." Washington State Institute for Public Policy; Olympia, Wa. (2001).

City of Pittsburgh. Annual Report. Department of Public Safety, Bureau of Police. (2011, 2012).

City of Pittsburgh. Budget. City Council. (2011, 2012).

Cohen, M.A. 2000. "Measuring the costs and benefits of crime and justice." In LaFree, G., "Measurement and analysis of crime and justice." Washington, D.C.: National Institute of Justice, U.S. Department of Justice.

Council of State Governments Justice Center. Justice Reinvestment in Pennsylvania — Final Summary & Policy Options for Consideration. Presentation on May 23, 2012. (Updated April 2013).

Farrell, G.; Bowers, K.; and Johnson, S.D. 2005. "Cost-benefit analysis for crime science: Making cost-benefit analysis useful through a portfolio of outcomes." In Smith, M. and Tilley, N. (eds.), *Crime science: New approaches to preventing and detecting crime*. London: Willan Press.

Fifth Judicial District of Pennsylvania, Allegheny County Adult Probation. Annual Report. Allegheny County, Pa. (2011,2012).

Henrichson, Chris and Sarah Galgano. (May 2013). "A Guide to Calculating Justice-System Marginal Costs." Vera Institute of Justice, New York.

Maximus. Allegheny County, Pennsylvania: Proposed Per Diem Rate for Federal Prisoners. Harrisburg, Pa. (2010, 2011).

McDougall, C.; Cohen, M.; Swaray, R.; and Perry, A. 2003. "The costs and benefits of sentencing: A systematic review." *The Annals of the American Academy of Political and Social Science* 587: 160-177.

Nicole Dueffert. States' Use of Cost-Benefit Analysis: Improving Results for Taxpayers. Pew-MacArthur Results First Initiative. The Pew Charitable Trusts; Washington, D.C. (2013)

Pennsylvania Uniform Crime Reporting (accessed September 4, 2013). All Arrests for Allegheny County — 2011 and 2012. <http://www.paucrs.pa.gov/UCR/ComMenuUI.asp>

U.S. Department of Justice. Bureau of Justice Statistics. Profile of Jail Inmates 2002. Bureau of Justice Statistics; Washington, D.C. (2004).

U.S. Department of Justice. Bureau of Justice Statistics. Justice Expenditure and Employment in the United States. Bureau of Justice Statistics; Washington, D.C. (2007).

U.S. Department of Justice. Federal Bureau of Investigation. Crime in the United States: Uniform Crime Reports. FBI; Washington, D.C. (2008).

Vera Institute of Justice. The Price of Prisons: Pennsylvania. Fact Sheet. New York. (January 2012).

Wilson, Michael. Cost-Benefit Methodology. Criminal Justice Commission; State of Oregon. (2011).