Everyone Pays:
A Social Cost Analysis of Incarcerating Parents for Drug Offenses in Hawai'i

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Executive Summary

This study takes as its primary goal the construction of an economic foundation for corrections policy in the State of Hawai'i. Up to this point, Hawai'i's citizens, elected representatives, and state administrators have not had access to a serious accounting of the costs of putting their fellow citizens in prison. These costs and benefits of prison time are much more diverse and affect far more people than has been portrayed in the local media, whose reports often focus narrowly on the cost of the prison bed. As the title of this work implies, costs and benefits spread across society, and the costs for the state, for the prisoner, and for the prisoner's family far outweigh the benefits. We explore this subject using as a case study the cohort of drug offenders released from Hawai'i's prisons in fiscal year 2006.

The main impediment to appreciating the ramifications of imprisonment is the way we think about cost. We are most comfortable applying the logic of household and government line-item budgeting, which treats concrete, time-specific expenditures as the real measure of cost. But every action that changes the welfare of a person or of a community has costs that are not immediately concrete but may come due at an unknown time in the future, not unlike an inveterate smoker who will suffer the health consequences and health costs at a later stage in life. If those costs were figured into the price of a pack of cigarettes the price per pack would be astronomical. So it is with public policy. Policy actions that alter personal or communal welfare, such as sentencing policy, have a few concrete costs that are immediate, but most of the costs are debits against future accounts and social welfare that are not budgeted. This study makes those debits explicit and concrete by applying the concept of social cost, which includes all costs and benefits traceable to the initial action (a prison sentence) that change the social welfare of the Hawai'i community, no matter how far removed in time and place.

Removing the veil of uncertainty about social costs and benefits requires understanding the offending patterns of those we put behind bars. This too has been unavailable to the public, which explains in part the preference of the local media for characterizing the costs of imprisonment in cost terms that are well documented and easily available. We fill that gap by extrapolating offenses committed from the arrest records of our case study subjects, applying a well codified and accepted methodology from the literature on offending. The results agree with many other studies that have shown, on the basis of more limited evidence, that drug offenders commit primarily non-violent crimes. In fact, 97.6% of the estimated misdemeanor and felony offenses of these released prisoners were not violent or personal crimes. Instead, this cohort of offenders committed mostly drug offenses (62.1%, primarily possession), followed by non-violent property crime (19.0%), traffic offenses (6.3%), weapons possession (6.1%), and offenses against public order (3.6%).[1] Thus, though their actions diminish public health and

[1] A small category of "other" offenses amounts to 0.6%.

welfare through drug use, drug sales, and acquisitive crime, this class of offenders is generally not a threat to the personal safety of citizens of the state.

The literature on the costs of crime finds that personal and violent crimes such as murder, aggravated assault, sexual assault, child abuse, and robbery impose far higher costs on victims and on society than the drug and property crimes characteristic of the cohort examined here. This study offers a concrete calculation of the costs of crimes that the cohort would have committed during their time in prison by applying cost-of-crime estimates to the number and type of offenses we derive from arrest records. The calculation of the costs of averted crime amounts to a statement of the benefits derived from the incarceration of this class of offenders. Most experts agree that this element of the social benefits of prison exceeds all of the other benefits enumerated in the literature.

The bottom line on the crimes that would have been perpetrated by cohort members were they "on the street" instead of in prison is that the average drug offender would commit about 30 misdemeanors and felonies per year distributed among types of crime according to the profile given above. Over the average 39-month length of stay in prison for this group the net cost savings for Hawai'i citizens from averted crime is about $85,000 per drug offender, and approximately $16.8 million for the full cohort.

This apparent windfall from the incapacitation of drug offenders must be balanced against the costs caused by their removal from society and confinement to prison. The $85,000 per prisoner savings from incapacitation is exceeded simply by Hawai'i's costs for providing a prison bed, which amount to $123,000 per prisoner over the 39 month average length of stay. That is the tip of the iceberg for the social costs of incarceration, which include significant losses to the prisoner and the prisoner's family in terms of reduced quality of life, lost earnings while in prison, lost future earnings of the releasee, lost taxes to the state on lost earnings, up-front criminal justice system costs, the cost of parole, foster care for the children of some prisoners, and a host of other costs, some of which are yet to be estimated. Pursuing this cold reality to its logical conclusion shows that the per-prisoner costs of incarceration for the average length of stay exceed the social benefits by $600,000. The net cost to the *state* for incarcerating the entire cohort comes to $15.6 million, and adding costs to the prisoner and the prisoner's extended family brings the total cost charged against the welfare of the Hawai'i community to $102 million.

Social costs are spread among a wide variety of players in the drama of crime and incarceration. For parent-prisoners the state, as protagonist, bears about 24% of the net costs, the losses borne by the parent amount to 32% of net costs, and the major share of social costs (44%) is carried by the parent's family and relatives. This distribution of the costs of prison demonstrates that the prisoner is not the primary party that is punished. Rather, the costs fall disproportionately on the extended family of the prisoner, with ramifications that spread out from there.

The question that immediately follows is whether the state could reapply some of these costs in a manner that more efficiently and effectively reduces the adverse consequences of drug abuse, both for law abiding citizens and for the drug abusers themselves. Substance abuse treatment is an effective response for a significant portion of drug offenders, and such programs are available

in Hawai'i. They are, however, substantially underfunded by the state, and currently cannot serve about one-third of those who are taking illicit drugs, and need treatment. For this reason the State Task Force on Ice and Drug Abatement in 2004 recommended $10.8 million in additional state funding for substance abuse treatment.

The most expensive, and probably the most effective form of treatment for drug offenders is community-based residential treatment. Such programs reduce subsequent criminal activity, health costs, and drug use itself. At a well-known provider in Hawai'i, a two-month period of residential programming for drug offenders is followed by 10 weeks of outpatient treatment. This two-phase approach costs $12,200. Assuming that Integrated Case Management services follow the program completer for the balance of the year, the total treatment and case management costs sum to about $19,000. This investment amounts to about half the cost of a prison bed for the same one-year period.

Assuming that 50% of the 2006 cohort of released drug offenders would be appropriate candidates for this course of substance abuse treatment, we compare first year costs and benefits of incarceration against the first year costs of treatment for half of the cohort. The comparison demonstrates that the state's net first year cost (costs less benefits) for incarcerating a drug offender, regardless of parental status, is about double the cost of a full year of intensive substance abuse treatment, or about $34,000. If the costs to family are included the differential between incarceration and treatment cost for each parent-prisoner is just over $111,000 in lost social welfare. This large figure does not count the losses to the prisoner, which would widen the gap between treatment and net incarceration cost to about $175,000 for the first year of the offender's sentence.

The state's first year savings from diverting 50% of the cohort to intensive substance abuse treatment amount to a little more than $4.1 million. Savings over the average length of stay are much larger, summing to $14.4 million for the state alone, and growing to $57.5 million when all social costs are recognized. First year treatment costs for half the cohort amount to $1.8 million. Dividing the state's first year net incarceration costs for half the cohort—$3.3 million—by that figure indicates that every dollar spent on treatment for these drug offenders would return about $1.80 in avoided incarceration costs for the state alone, during year one.

The magnitude of these social welfare losses is a simple product of incarceration costs that substantially exceed the benefits from averted crime, multiplied by the relatively large number of citizens imprisoned in Hawai'i for drug offenses. The losses to general social welfare are further compounded by the long sentences meted out to convicted drug offenders in Hawai'i, which are almost as long (86%) as the average sentence for all Hawai'i felons released in 2006, and are 10 months longer than the average sentence for a comparable cohort of drug offenders in New York State. In fact, reducing drug offender sentences to the New York average of 29 months would generate enough savings for the state to fully fund substance abuse services for drug abusers, as recommended by the 2004 Task Force.

The study of offending patterns suffers from an emphasis on "high profile crimes." This is commonly manifested by basing analysis on Part I Index crimes or the crimes commonly covered in national surveillance and reporting systems. Exactly the same bias characterizes the

cost-of-crime literature. A focus on high profile crimes grossly distorts the profile and impact of Hawai'i drug offenders and leads the public and policy makers in the wrong direction. It sows the impression that criminals commit high profile felonies with catastrophic consequences for victims, reinforcing the public's fear of crime. For drug offenders this anxiety could not be further from the truth.

Incarceration is an immensely costly form of social control. The full inventory of both costs and benefits is probably more robust than what we inventory here. The incarceration of a parent, and to a somewhat lesser extent a non-parent, constitutes a very substantial public investment in a drama that obligatorily engages a wide variety of actors, from the offender and his family, to law enforcement, court personnel, lawyers, prison staff, day care providers, foster parents, social workers, and a host of others. It is a large cast, and, in ultimate economic and social terms, everyone must be paid. The currency used to meet these obligations is the public welfare.

These findings lead to a set of recommendations for corrections policy and judicial practice in Hawai'i, several of which have been advanced in prior studies (Lengyel and Harris 2003; Lengyel 2006).

- Finding: The cost of incarcerating drug offenders greatly exceeds the corresponding social benefit.

  Recommendations:
  - Practice selective non-incarceration. Shift from incarceration to community supervision and support for certain classes of inmates who are now facing sentencing or serving time.
  - Savings from prisoner diversion should be invested in programs that delay or forestall incarceration, such as drug abuse treatment and education, job training, and economic opportunity.

- Finding: Families, grandparents, and relatives bear the greatest share of costs imposed by the incarceration of a parent. They seldom have adequate resources to fulfill the role they play in the lives of the parent and the parent's children.

  Recommendations:
  - Initiate supports for partners, grandparents, and relative caregivers of children with parents in prison, including respite care, housing assistance, parenting support, and material support.

- Finding: Substance abuse treatment services are an appropriate alternative for the majority of drug offenders, but these services are grossly inadequate in prison and fall far short of the need in the community.

  Recommendations:
  - Provide appropriate substance abuse treatment on demand both in the community and in prison.

- Finding: Hawai'i lacks accurate knowledge of its parent-prisoners and their children.

  Recommendations:

- Keep demographic information on all children, on custody (legal and informal), on care giving arrangements, and on services needed or anticipated.
- Integrate family information into the Department of Public Safety central databank on prisoners on a regular basis.

- Finding: Placement on the mainland, based on administrative considerations, forecloses the possibility of visits and imposes stiff costs on families attempting to stay connected.
  Recommendations:
  - The Department of Public Safety should factor in the ability to maintain parent-child contact when making prison placements.
  - Parent inmates should be placed on the basis of the "best interest of the family."

- Finding: The social costs of incarceration are largely hidden from public view, and remain unacknowledged by the courts when they dispense justice.
  Recommendations:
  - All presentence investigations that recommend incarceration should include an estimate of the social costs of the recommended term based on the parameters documented in this study, as well as the cost of the best reasonable alternative. Judges should explicitly incorporate these estimates in their sentencing decisions, and should acknowledge in court the weight given to them.

Introduction

This paper proposes an empirical economic foundation for corrections policy in Hawai'i. To date the State, the public, and the research community have not had access to a comprehensive analysis of the full costs or benefits of incarceration, and particularly the incarceration of parents with minor children. We offer here the first step in that process using real data on a recent cohort of Hawai'i prisoners to exemplify the analysis and to operationalize the impact of incarceration on the Hawai'i community generally, the family of the prisoner, and the prisoner himself.

We also intend this study to contribute to the theory of offending and its associated methodologies. To this end we develop the inventory of social costs and benefits well beyond prior attempts. We apply known methodologies to a much broader and more representative array of data about offending and use the results to assemble a more realistic profile of offenders and drug offenders in particular. Finally, we introduce new methods and sources for assigning value to a significant portion of the social costs of imprisonment.

Section I lays out the context of crime and corrections policy in Hawai'i. Section II defines the concept of social cost, its internal components, and brings to the surface issues regarding the validity of cost-benefit analysis. Section III provides an original analysis of the patterns and incidence of offending by Hawai'i drug felons and attaches costs to these crimes. Section IV offers a comprehensive itemization of the elements of social cost coupled with cost estimates of most elements. Section V gives a parallel analysis of the social benefits of incarceration. Section VI pulls together the estimates for all costs and benefits and offers cost-benefit ratios for the state share and for total social cost. Costs and benefits are estimated separately for the state, the families of prisoners, and prisoners themselves. Section VII provides a comparison with the cost of community-based treatment for drug offenders. Section VIII offers our reading of the implications of the present work both for the methodology of offending and for civil society in Hawai'i. Finally, Section IX draws brief policy recommendations from the evidence and conclusions set forth here.

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Section I: Crime and Corrections Policy in Hawai'i

The Aloha State retains a number of the correctional innovations of the Progressive era: indeterminate sentencing; parole supervision by a professional corps with a social work orientation; and a putative reliance on rehabilitation of offenders. As with other jurisdictions, recent sentencing changes have taken the State in a more punitive direction. Since the 1990s, an array of mandatory and determinate sentencing schema has been established including mandatory minimum terms for firearms-related charges, repeat offenders, charges related to methamphetamine, and even a three-strikes law. The State has one of the lowest homicide rates in the nation and Honolulu, the major population center of the State, was ranked at the bottom of 20 American cities in 2006 for violent and property crimes, making it one of the safest places to live in the nation (Boylan 2007). Rates of serious crime have been characterized by decline or stability since the mid-1990s.

The harsher penalties now in place despite Hawai'i's low violent crime rate have pushed up the rate of incarceration in Hawai'i. And, as with other jurisdictions, Hawai'i's correctional population has grown steadily over recent decades. Between 1996 and 2006 alone, the State's correctional population grew 68 percent (Gilliard and Beck 1997; Sabol, Minton, and Harrison 2007), far surpassing Hawai'i's modest population growth. During 2007 the State Department of Public Safety forecasts were for continued growth of up to 21 percent by 2011 (Charlton 2007).

Hawai'i now leads the nation in the proportion of its correctional population doing time in other states. In 2007, these for-profit prisons held 61 percent of Hawai'i's sentenced felons. Transferring sentenced felons to private prisons on the mainland has meant housing inmates at less cost compared with State prison facilities, but reduction of overcrowding has been the primary rationale.

Indeed, a comprehensive discussion of the costs of Hawai'i's correctional policies, a process involving both government and community stakeholders, has yet to take place. The current research is aimed at stimulating such a discussion. The State might productively begin with a focus on those individuals incarcerated for drug offenses. In FY 2006 drug offenders amounted to 28.1% of those released from Hawai'i prisons. There is compelling evidence (documented in this study) that Hawai'i's drug offender sentencing practices may be more punitive than those of other jurisdictions. In New York State individuals who had been incarcerated for drug offenses, released in 2005 after serving those sentences, had served an average of 29 months (Lengyel 2006). The average sentence for comparable Hawai'i drug offenders was 39 months. The question that motivates this research, however, goes much further than examining what return Hawai'i receives for those additional 10 months of incarceration.

One in 100: Behind Bars in America 2008 (The Pew Charitable Trusts 2008), notes that Hawai'i spends $0.31 for corrections for every $1.00 spent on higher education. But in terms of return on investment, what can Hawai'i expect to achieve from its correctional dollars compared with those spent on higher education? Given recidivism rates in Hawai'i (with associated costs for arrest and re-incarceration), the criminogenic effects of incarceration, post-incarceration supervision (e.g., parole), reduced post-incarceration wages, costs of post-incarceration treatment (e.g., for substance abuse), post-incarceration job training and placement, costs borne by families

of the offender as well as the taxpayer, we demonstrate that the return on investment (ROI) is negative and large. This is because the incarceration of drug offenders (particularly those who are parents) entrains a cascade of further costs rather than "returns" for society. Nor, as we will show, do the offsets of this policy (such as those savings derived from averted crime through incapacitation) change the net direction of returns for this investment. And, perhaps most importantly, by tracing and monetizing the social costs that ripple out far beyond the offender and his family, we demonstrate that these costs are borne by Hawai'i as a whole. While a sentence to prison is generally viewed as forcing an offender to pay for his crime, in fact, we argue that this cost is paid by everyone.

Section II: The Concept of Social Cost

In this section we examine the definition of social cost, the history of its application to the analysis of crime, and explore some of the strengths and weaknesses of cost-benefit analysis. We explore the definitions of "external" versus "internal" cost, as well as direct versus indirect cost and the norms that underlie the usage of these terms in the literature.

Social Cost Defined

Gray (1979, 21) defined social cost as "Any resource-using activity which reduces aggregate well-being or welfare in a society … The magnitude of such costs, is, then, the valuation of the aggregate welfare foregone." (See also M. Cohen 2000.) Such costs are therefore considered "opportunity costs" (i.e., opportunity foregone) and specifically include destroyed resources, additional needs generated by an action, and foregone benefits to society that would have been experienced had the action not taken place (Piehl, Useem, and DiIulio 1999). Put another way, the concept of social cost means cost considered from a society-wide perspective. Social costs are incurred when activity is displaced from a normal or expected state of affairs into an alternative, usually less-desired state of affairs. Social cost is in this sense a normative concept.[2]

Taking drug abuse as an example, this pattern of behavior diverts the drug abuser from productive work and activities into a life style that involves less productivity at work and at home, expenditures for illegal drugs, criminal acts, victimization of others, criminal justice system responses, exposure to disease (e.g., hepatitis), additional health costs, possible costs of drug treatment, and a lower quality of life. All of these elements (and more) must be included in a full account of the social cost of drug abuse (see Harwood, Fountain, and Livermore 1998 for a comprehensive inventory).

Similarly, when a person is arrested and ultimately incarcerated many resources are redirected and overall welfare is reduced in a variety of ways. Such decrements to overall welfare include criminal justice system costs (arrest to sentencing), private and public costs of legal defense, presentence assessment and investigation, the costs of building and operating a prison bed, the lost productivity of the prisoner, lost quality of life (QoL) of the prisoner and members of the prisoner's family, lost value of parental child care from the incarcerated parent, administrative costs due to increased use of social services by the prisoner's family, post-incarceration loss in earning power by the returning offender, and reduced economic strength of the neighborhood in which the prisoner lived and to which the prisoner returns (discussed below).

History of Cost-Benefit Analysis of Crime

Economic analysis of crime and incarceration has its origins in cost-of-illness studies which have evolved over the course of the past 40 years (see Harwood, Fountain, and Livermore 1998 for a review). Considerable standardization of the approach was achieved by the promulgation of standards for cost-of-illness studies by the Public Health Service (Hodgson and Meiners 1979, 1982). Methods initially developed to estimate the costs of major illnesses and community problems (e.g., road crashes) were subsequently applied to gauge the costs of drug and alcohol

[2] Social cost is also normative in a second, distinct sense, as Mark Cohen argues (2000). Namely, what gets counted as a social cost by some analysts is determined by the moral status of the actor (i.e., whether the activity is condemned by society). Social costs that accrue to the immoral actor are discounted in this perspective. See the discussion of external and internal costs, below.

abuse and from there were extended to estimate the costs of crime (Gray 1979; Harwood et al. 1984; M. Cohen 1988). Applying cost-benefit analysis to crime-related social policies, such as "three strikes" laws, is relatively recent (Greenwood et al. 1994). Such work lays the foundation for analysis of the social costs of incarceration.

The Utility of Economic (Cost-Benefit) Analysis: Advantages and Disadvantages

Economic analysis framed in terms of cost-benefit methodology enables direct comparison of very different effects. The enormous energy and creativity invested by economists and sociologists in monetizing effects ranging from reduced future earnings to fear of crime permits all these outcomes to be stated in a common language, namely, in terms of dollars spent or invested. Cost-benefit analysis, carried to completion, provides dollars to dollars comparisons for a very wide range of social outcomes of vastly different quality and magnitude.

However, the simplicity of the final output of cost-benefit analysis is deceptive and may also be appreciated as a weakness of the approach. The final dollars-to-dollars comparison conceals the elaborate conceptual machinery that conspires to produce this outcome. Specifically, economic analysis is highly sensitive to underlying assumptions. The more indirect the social costs estimated, the greater the number of assumptions involved. The uncertainties of the sequence of assumptions compound each other with the result that estimates of costs and benefits often express very wide ranges of dollar values. This effect limits the value of cost-benefit analysis to such a degree that, in some cases, it is useful primarily to compare results that differ in orders of magnitude, rather than in more familiar ratios.

It is worthwhile asking, as some critics do, whether it is appropriate to monetize every valued or devalued social act or principle (Kelman 1981). If we are able by clever calculation to attach a cost to a principle as elusive and ineluctable as free speech, are we merely fooling ourselves with the power of the approach (i.e., given enough assumptions anything can be monetized)? The ability to monetize effects is directly a function of the analyst's willingness to make assumptions about what available data can be understood to represent. The plausibility of a proposal for monetizing an indirect or intangible effect turns more on the meaning assigned to the underlying data than it does on whether the analyst chooses a high or low figure as representative of that data. The simplicity and apparent directness of dollars-to-dollars comparisons, coupled with sometimes arcane calculations relegated to complex appendices, lead many audiences to accept cost-benefit comparisons as direct statements of fact, rather than as the complex product of interpretation that they truly are.

That being said, cost-benefit analysis can also be a powerful tool if the underlying assumptions are fully expressed and carefully defended. Furthermore, over time, as more analysis of particular subject areas has appeared (e.g., the costs of crime), consensus has emerged about methods, and, in some cases, estimates based on different data sources and approaches have converged. More confidence attaches to such findings. Thus, our confidence in the outputs of CBA has grown over time in proportion to the analytical effort invested. In the long run, efforts to monetize costs, even when based on tenuous assumptions, probably contribute to the increasing accuracy and reliability of CBA estimates.

The scope of CBA varies among analysts. Some adepts, such as the Washington State Institute for Public Policy (WSIPP), limit CBA to tangible costs (e.g., to taxpayers and victims) in the interest of establishing a cost floor (Aos, Barnoski, and Lieb 1998; Aos et al. 2001; WSIPP 2003).[3] Others tally a variety of direct and indirect costs to taxpayers, victims, offenders, and the families of offenders but omit estimating pain and suffering or quality of life changes (Harwood, Fountain, and Livermore 1998). Some attempt to be exhaustive in their repertoire of costs including costs of all imaginable intangibles (M. Cohen 2000). These differences in scope make the final cost-benefit findings of different analysts incommensurable, even when they attempt to address the same fundamental issue, such as the cost of crime. Nevertheless, to the degree that the analyst is specific about which costs are included and which are excluded, parts of the analysis (e.g., tangible costs to the victim, pain and suffering of the victim) may still be comparable.

Issues Within the Concept of Social Cost

A variety of issues related to social cost and cost-benefit analysis are debated in the growing literature on these subjects. These issues include the nature of the distinction between direct and indirect costs, the power of cost-benefit analysis, the sensitivity of the analysis to assumptions, and internal and external social costs.

Direct and Indirect costs

As the earlier examples imply some of the opportunity costs of drug offenses are immediately entrained with the course of action. Crimes committed to acquire drugs impose costs on victims and on the criminal justice system as police, prosecutors, and the courts attempt to respond. Similarly, incarceration of a parent requires expenditures for detention after arrest and costs to create and operate a prison bed. Such "direct" costs and are almost invariably the foundation of analysis in early attempts to compare the costs and benefits of incarceration (Zedlewski 1985, 1987; DiIulio 1990).

Other consequences occur downstream from the activity in question with various time lags and intervening mechanisms. Dependence on drugs has been shown to reduce employment and productivity while on the job (e.g., hours worked), particularly for men (Bray et al. 2000). Incarceration eliminates the productivity of the inmate both at home and at work. The enumeration and magnitude of such indirect costs is much debated. Some elements are the subject of general agreement whereas other elements are commonly ignored (see below).

External versus internal costs

We also find a range of opinion regarding whose costs and benefits should be included. Though related to the scope issue this refers primarily to the moral dimension of social cost. Most analysts distinguish external costs *imposed* on a person or society from internal costs that accrue to the actor or initiator as a natural consequence (M. Cohen 1998, 2000; French, Rachal, and Hubbard 1991; Swaray, Bowles, and Pradiptyo 2005). Mark Cohen (2000) argues forcefully that we should limit our calculation of costs to external costs and simultaneously ignore those that fall on the offender himself. The distinction is material to our effort to estimate the social cost of incarceration.

[3] WSIPP sometimes includes an added calculation of victim pain and suffering for comparison with the work of other analysts.

The concept of individual, personal responsibility is the foundation of the distinction between external and internal (or private) cost. To the degree that two or more parties share responsibility for an outcome, the distinction evaporates. If an offender's family enables or supports his criminality then the family impacts of the offender's arrest and ultimate incarceration are not wholly imposed on the family from without. Rather the costs are the partial consequence of risks the family members assumed. If the victims of a confidence scheme seek extraordinary material advantage (e.g., a rate of return far in excess of the market) they take a risk and to some degree share responsibility for their own losses with the perpetrator of the scheme. Moreover, if neighborhood and social conditions, such as the local lack of legal employment opportunities, contribute to the commission of a crime (see Freeman 1992; Hagan 1993) then in principle internal costs impacting the offender cannot be cleanly separated from external costs imposed on victims and on society by the offender's criminal act. In such circumstances the offender identified and held responsible by the criminal justice system is, in effect, both a perpetrator and a victim. Indeed, Mills (2006) and Cohen, Miller, and Rossman (1994) cite evidence that victimization and offending overlap, i.e., that offenders are frequently victims and vice versa.

Imposed or external costs are not necessarily the result of illegal acts. Legal behavior such as drinking and smoking may also reduce the overall welfare of society and entail sometimes significant social costs (e.g., the costs of public health campaigns against smoking and drinking, the public share of medical costs from the health consequences of drinking and smoking). Furthermore even the crime prevention activities of citizens may impose external costs on society, as when the installation of home alarm systems results in increased police expenditures for responding to false alarms (Swaray, Bowles, and Pradiptyo 2005). Therefore, actors who are behaving in accordance with legal and moral standards may inflict "externalities" on other individuals and institutions in the same manner that offenders impose costs on victims, the criminal justice system, and neighborhoods. A principled basis for distinguishing social costs based on the moral status of the actor cannot be maintained in the face of these realities.

The concept of social cost is intended to capture all changes in societal well-being. As Mark Cohen concedes, the offender is also part of society, and therefore changes in the offender's welfare must be included in total social cost, just as changes in the offender's productivity are typically counted. The approach we adopt to assessing the social cost of incarceration is to tally separately the costs that apparently accrue to the state (external), those that accrue to the offender's family (external), and those that accrue to the offender (internal). Added together they constitute the core of social cost.[4] Presented in this fashion, we can compare external, internal, and total social cost to the benefits of incarceration.[5]

[4] We discuss below the fact that costs spread to relatives of the prisoner and to the neighborhood from which the prisoner was removed, well beyond the boundaries of the prisoner's nuclear family.

[5] Like costs, social *benefits* of incarceration are similarly manifold, with the same complexity of scope and ambiguity of moral implications.

Section III: Incidence and Costs of Offenses Committed by Drug Offenders In Hawai'i

Estimating Offense Patterns of Drug Offenders

The natural history of a criminal career begins with the commission of an offense. We address first the critical issue of what types of crimes drug offenders commit and with what frequency because an offense launches the cascade of social costs and because this variable determines the calculation of several ensuing elements of social cost. In particular the frequency and nature of offending determines the estimates of criminal justice system (CJS) processing costs, the value of averted crime, the length and cost of parole, the cost of in-prison specialty services for inmates, post-release decline in wages (in part), the benefits from the suppression of negative behavior, and the benefits from removal of a harmful role model in the neighborhood. The analysis also answers fundamental questions about the nature of drug offenders in Hawai'i and demonstrates how a more comprehensive application of the methodology for estimating rates of offending generates a more realistic portrait of drug offenders and offenders generally.

A variety of scholars have debated whether drug offenders are generalists or specialists. A wide set of studies of drug offenders (Goldstein 1985; Anglin and Hser 1987; Anglin and Speckart 1988; Nurco et al. 1988; Harwood, Fountain, and Livermore 1998; J. Cohen 1999) finds that drug offenders primarily commit acquisitive property crime and "victimless" crime (e.g., drug use, sale of drugs, prostitution) in their criminal careers. However, this is contested by other scholars who find that drug offenders commit a very wide variety of crimes, both property and personal, that makes them indistinguishable from other criminals (Delisi 2003; Farabee et al. 2001). Some scholars present a more nuanced view that distinguishes the criminal behavior of different kinds of drug offenders (J. Cohen 1992; J. Cohen, Nagin, and Wasserman 1994; J. Cohen et al. 1998). The data that would speak most directly to this issue would be valid self-reports of crimes by drug offenders or estimation of rates of offending derived from administrative data (e.g., arrest records). The last large-scale self-report surveys of prisoners were conducted by the Rand Corporation in the late 1970's (Peterson and Braiker 1980; Marquis 1981; Chaiken and Chaiken 1982; Peterson et al. 1982). We pursue the estimation of the profile of crimes committed by drug offenders via the analysis of arrest records, a method first described by Blumstein and Cohen (1979) and one which has now become accepted in the literature on offending.

Estimation of patterns of offending from administrative records depends on establishing determinate relationships between actual crimes committed and subsequent arrests for those crimes. Starting with actual crimes committed we know that a crime may be committed by one offender or by multiple offenders (co-offending). If a crime is perpetrated by more than one offender this will affect the ultimate ratio between crimes and arrests since more than one individual becomes subject to arrest for that one crime. Essentially, the number of arrests must be divided by the average number of perpetrators per crime to correctly scale the probability of arrest. Without this correction extrapolation from arrest records would inflate the number of crimes committed.

The last large-scale studies of co-offending were conducted by Albert J. Reiss, Jr. in the late 1970s and early 1980s. Reiss found rates of co-offending ranging between 1.5 and 2.5 perpetrators per crime, based on the study of a primarily juvenile population (Reiss 1980).

McCord and Conway found an average co-offending rate of 2.18 offenders per crime in a Philadelphia sample from 1987, in close agreement with Reiss (McCord and Conway 2001). We use Reiss' median value of two perpetrators per crime in our calculations, meaning that total arrests must first be divided by two before arrests are extrapolated into offenses committed.

Crimes and arrests are separated in space and time by two additional processes that function as filters, screening out significant numbers of crimes from being officially "noticed" by arrest. First, not all crimes are reported to the police. In fact, the National Crime Victimization Survey (NCVS) documents different reporting rates for different crimes. Nationally auto theft, for example, is reported to law enforcement at a considerably higher rate (83.2% in 2005) than household burglary (56.3% in 2005) (Catalano 2006). Therefore reporting rates must be established separately for each crime type to relate the number of offenses to reports of crime made to the police.

Second, not all crimes reported to law enforcement result in an arrest. Again this varies by crime type. Nationally, the rate of arrest for sexual assault (40.5 % in 2005) far exceeds the rate of arrest for robbery (25.2% in 2005) (Catalano 2006). Like the reporting rate, this pattern acts as a selective process that increases the ratio between offenses and arrests. The arrest rate given a report of crime must therefore be established separately for each crime type.

These considerations lead to the following set of relationships between offenses and arrests:

Offenses committed $>$ offenses reported $>$ (corrected) arrests

(Read: Offenses committed are more than offenses reported which are more than arrests made for the cases reported to law enforcement.)

These relationships are more precisely specified by the now classic equation

$\lambda = \mu/q$

λ = incidence of crime
q = probability of arrest
μ = individual arrest rate

which transforms into:

$$\lambda = \frac{\text{(arrests/co-offending rate)}}{\text{(reporting rate) x (arrest rate)}}$$

We refer to arrests divided by the co-offending rate as the "corrected arrest rate."

Calculation of Offense Rates for Hawai'i

Beginning in the early 1990s the Hawai'i Attorney General's Office began conducting its own crime victimization surveys, modeled after the NCVS. The first survey, covering citizen experiences with crime during calendar year 1993, did not include questions on rates of reporting

(Department of the Attorney General 1994). Fortunately, victimization survey data for 1995, 1996, and 1997 with reporting rates are available (Green et al. 1996; Kunitake et al. 1998; Allen et al. 1998). The survey was allowed to lapse in 1998 and was not revived until 2005. Radical changes to the questions included in the survey render the 2005 survey data largely incomparable to the earlier surveys.

We use the weighted average of the 1995, 1996, and 1997 Hawai'i crime victimization surveys to identify Hawai'i reporting rates for the crimes of rape or attempted rape, robbery, aggravated assault, burglary, larceny/theft, and auto theft. In addition, the 1997 survey results offer a reporting rate for "total violent crime" and "total property crime", rates that will prove useful in estimating reporting rates for several non-index crimes (see below).

Since widespread adoption in the 1960s almost all police departments in the United States have participated in the FBI's Uniform Crime Reporting (UCR) apparatus. UCR data cover the most serious offenses (Part I Index Crimes) as well as less serious offenses (Part II offenses). Hawai'i's UCR reports are available back to 1975. We compare the number of reports against the number of arrests for each Index crime for the 13 year period 1993 – 2005 to derive the mean Hawai'i arrest rate for each of the crimes enumerated above, including total violent crime and total property crime.

The reporting rate multiplied by the arrest rate establishes a scaling factor for each crime type that is part of that crime's "signature" in Hawai'i.[6] Some crimes, such as residential burglary, are reported to the police in about two-thirds of cases (.669), but result in an arrest for only one tenth of the cases reported (.093), resulting in a scaling factor of .669 x .093 = .062 for Hawai'i. Other crimes, such as motor vehicle theft, are reported at very high rates (.92) and result in arrests twice as often as burglary (.185), yielding a scaling factor of .92 x .185 = .170. Taking into account the co-offending rate this means that 10 arrests in Hawai'i for residential burglary imply the commission of about (10/2)/.062 = 81 burglaries whereas 10 arrests for motor vehicle theft translate into (10/2)/.170 = 29 inferred motor vehicle thefts. We offer our collation of Hawai'i reporting rates and arrest rates and resulting scaling factors in table 1.

Patterns emerge in the pairings of reporting rates and arrest rates. Crimes that are stigmatizing to victims, such as rape, are reported at relatively low rates (.207) matched by a low rate of arrest (.333).[7] Crimes that are equally violent but less stigmatizing, such as aggravated assault, are reported at much higher rates (.620) and are matched with a relatively high (.451) rate of arrest. Motor vehicle theft represents a polar type in which a very high reporting rate (.920) pairs with a very low rate of arrest (.185). These different balance points generate the result that robbery enjoys virtually the same scaling relationship between offenses and arrests as motor vehicle theft and burglary is almost identical to rape in this regard.

[6] Hawai'i victim reporting rates and arrest rates are sufficiently different from national rates that substitution of national rates for missing local rates would distort the Hawai'i relationship between offense incidence and arrests.
[7] The Hawai'i weighted average reporting rate for rape is significantly influenced by the 1995 victim survey results which record a zero probability of report for this crime. (Four survey respondents documented a total of eight rapes and stated that none were reported to law enforcement.) The comparable rates from 1996 and 1997 were .333 and .200, respectively, yielding a weighted average of .207 for the three years of survey data. The comparable reporting rate for rape from the NCVS for 2005 was .383.

Table 1: Scaling Factors for Hawai'i

Crime	Probability of Report: 1995-1997	Probability of Arrest: 1993-2005	Net Scaling Factor
Total Violent Crime (1997 only)	0.3540	0.4647	0.1645
Total Property Crime (1997 only)	0.4990	0.1623	0.0810
Rape or attempt	0.2066	0.3335	0.0689
Robbery	0.4426	0.4016	0.1777
Assault (aggravated)	0.6198	0.4510	0.2795
Arson	n.d.	0.0882	--
Burglary	0.6694	0.0929	0.0622
Attempted burglary	0.7083	n.d.	--
Larceny-theft	0.3000	0.1344	0.0403
Auto theft	0.9196	0.1846	0.1697
Theft from vehicle (completed)	0.5180	n.d.	--
Attempted theft from vehicle (not completed)	0.3416	n.d.	--

n.d. - no data

We acquired from the Hawai'i Department of Public Safety and the Attorney General's Office the complete individual charging records ("arrest" records) for all of the 197 offenders in the cohort of drug offenders who were released from Hawai'i prisons in FY 2006.[8] The records documented a total of 7,867 specific crimes that cohort members had been charged with dating back to 1960, irrespective of disposition. These charges were spread across 283 crimes ranging in severity from violations (e.g., failure to pay a bike or moped tax), to petty misdemeanors (e.g., disorderly conduct), to misdemeanors (e.g., theft 3), to felony murder. We also obtained the individual incarceration records for the cohort that document all periods in custody dating back to 1990.

Many crimes in Hawai'i can be charged at different severity levels. Being an accomplice to a crime can be charged at any severity level: violation (VL), petty misdemeanor (PM), misdemeanor (M), and Felony classes A, B, and C (F, FA, FB, and FC). Assault in the third degree can be charged as a petty misdemeanor or as a misdemeanor. We limited our analysis to 162 crimes whose maximum severity level was misdemeanor or felony. Being an accomplice and third degree assault were therefore included. This narrowed the universe to 3,776 misdemeanors and felonies charged and our analysis of arrest data was based on this data set. In this data set felony charges constitute 64.6% (n = 2,440), misdemeanor charges make up 22.0% (n = 832), and the balance may have been charged either as a felony or misdemeanor (9.6%, n = 362), or as a misdemeanor or lesser crime (3.8%, n = 142). Thus, about two-thirds of the charges analyzed were unambiguously felony charges.

[8] They are identified as drug offenders because a drug felony was the crime of greatest severity among the crimes for which they were incarcerated leading to their release in FY 2006. These felonies included promoting a dangerous drug 1, 2, and 3, prohibited acts relating to drug paraphernalia, commercial promotion of marijuana, and fraudulently obtaining controlled substances. Charging records and incarceration records were obtained through the offices of Ken Hashi, former Director of Research for the Hawai'i Department of Public Safety.

To understand the recent offending patterns of the cohort we isolated charges that were filed in the five-year period immediately prior to the reference incarceration.[9] This five-year arrest database documented 2,268 misdemeanor and felony charges. Because prison admission dates varied by individual this window was calculated on an individual basis counting back from the reference incarceration admission date. We subtracted from this 1825 day period for each individual the sum of time in custody to arrive at "street time", or the total time at risk for offending in the five years preceding the reference incarceration.[10] Offenders in this cohort spent an average of 349 days in custody in the five years immediately preceding their reference incarceration, which translates into an average of 4.04 man-years at risk (MYR) during that five-year window. For the cohort total man-years at risk amounted to 796.507. MYR served as the denominator for the calculation of rates of offending for each of the 162 crimes in the Misdemeanor-Felony database.

As an example, the calculation of offenses for third degree assault unfolds as in table 1:

Table 2: Total Cohort Incidence of Assault 3 for Average Length of Stay (ALOS)

	A	B	C	D	E	F	G
	Total Arrests	5 yr Annual Arrest Rate	5 yr Corrected Annual Arrest Rate	Scaling factor	Estimated incidence	Estimated incidence for ALOS	Estimated incidence for cohort
Assault 3	27	0.03390	0.01695	0.2795	0.0606	0.1972	38.8525

A: Total arrests for cohort for assault 3 during 5 years preceding reference incarceration
B: 5 year average annual arrest rate per MYR (=A/796.507)
C: 5 year annual arrests per MYR corrected for co-offending (= B/2)
D: Scaling factor for crime type (= HI reporting rate for assault x HI arrest rate for assault)
E: Estimated incidence per inmate per year (= C/D)
F: Estimated incidence per inmate for ALOS of drug offender cohort (= E x 3.2525 years)
G: Estimated incidence for cohort for ALOS (= F x 197)

So, the full cohort would commit about 39 third degree assaults during its average length of stay, based on the recent individual arrest history of all cohort members.

Applying this methodology to all 162 crimes in the Misdemeanor-Felony database provides a detailed portrait of the crimes that this cohort likely committed during the five-year period immediately preceding their incarceration. This in turn serves as the foundation for our estimate

[9] The reference incarceration is the period of custody from which these offenders were released during FY 2006 that served to define them as members of the cohort. Only one member of the cohort of 197 offenders had a reference incarceration admission date (3/1/94) that permitted the five-year window for calculating street time to extend prior to the limits of our historical record for time in custody (1990). That individual had no periods in custody prior to 1991. Therefore the historical limits on our time in custody records (1990 – present) did not bias the calculation of street time for the cohort.

[10] For individuals that had "bridging" periods of custody that fell across the five-year threshold, only the days in custody within the five-year window were counted.

of the crimes the cohort would have committed during their period of incarceration. Our specific calculations of the incidence of offenses are set forth in appendix 1.[11]

Grouping crimes primarily by the statute chapters in the Hawai'i Revised Statutes (HSR) gives the following breakdown (table 3). Overall, we estimate this cohort would have committed 19,471 misdemeanors and felonies during their 39.03 month average length of stay. The average cohort member would commit about 30 misdemeanors and felonies per year were he not incarcerated.

In terms of the debate about the kinds of crimes that drug offenders commit inspection of table 3 shows that in Hawai'i five out of eight crimes (62.1%) committed by this cohort involve the possession, sale, or manufacture of drugs. Next most common are non-violent property offenses, including auto theft, burglary, fraud, property damage, and theft. These sum to 19.0% of the total of estimated offenses. Driving violations add 6.3%, weapons possession amounts to 6.1%, and offenses against public order contribute 3.6% of the total. Violent offenses, including assault, domestic violence, driving offense with injury, endangerment, indecent exposure, murder, robbery, sexual assault, and threats amount to 2.4% of estimated offenses. A characterization of Hawai'i drug offenders as "generalists", insofar as they are represented by this cohort, cannot be defended. This profile of crimes has profound implications for the balance of cost and benefit in incarcerating this cohort because the vast majority of crimes estimated for the group has very low victim costs and therefore the benefits derived from the offenders' incapacitation are minimal. We provide that analysis below.

Cost estimate of crimes averted

Almost all modern analysis of the cost of crime has its foundation in Cohen's 1988 study of jury awards to victims of crime (M. Cohen 1988). Cohen pursued refinement of this method in a series of papers leading ultimately a larger study funded by the National Institute of Justice in 1996 (Miller, Cohen, and Wiersema 1996). The cost of crime literature that has appeared since that publication for the most part represents updates of that study (e.g., Rajkumar and French 1997; Bhati, Roman, and Chalfin 2008). Little original empirical research on the cost of crime has appeared in the interim, though Kathryn McCollister and colleagues at the University of Miami have conducted cost of crime research that remains unpublished (McCollister, personal communication, 4/1/09).

[11] A small number of charges in the database are for violation of laws that have since been repealed and replaced by new statutes. A small number of crime types are listed twice in the database with nearly identical names due to minor variations in spelling or abbreviation when the arrest was recorded. These entries are adjacent and transparent in the appendix. A moderate number of crimes appear with zero arrests within the five-year period immediately preceding the reference incarceration because there were arrests for these crimes among cohort members *prior* to the five-year window. The appendix therefore indicates the full range of misdemeanors and felonies charged against members of the cohort back to 1960.

Table 3: Estimated Profile of Crimes Committed by Cohort for Average Length of Stay

Crime Groupings	Estimated Crimes	Total % for Grouping	Included crimes from Hawai'i Revised Statutes or Prior Hawai'i Statutes
Assault	83.46	0.43%	Assault 1, 2, & 3; Assaulting police 1; Assaulting police; Kidnapping; Unlawful imprisonment 1 & 2
Auto theft	331.77	1.70%	Detaining stolen property; unauthorized control of propelled vehicle
Bribery	4.97	0.03%	Bribery
Burglary	258.62	1.33%	Burglary 1 & 2; possession of burglarious tools
Child Neglect	17.51	0.09%	Endangering the welfare of a minor 2nd degree
Conspiracy	9.98	0.05%	Criminal conspiracy; liability for another (accomplice)
Custody Interference	4.74	0.02%	Custody interference 1 & 2
Domestic Violence	161.38	0.83%	Abuse of family; spouse abuse
Driving w. Injury	0.00	0.00%	Accidents involving death or serious bodily injury
Driving Offenses	1217.57	6.25%	25 specific offenses from altering motor vehicle serial number, driving with suspended license, to having two license plates
Drug offenses (possession, sale, manufacture)	12095.88	62.12%	24 specific offenses including possession of controlled drug; meth trafficking 1, manufacturing drugs with child present, promotion of drugs near schools or parks, prohibited acts relating to drugs, possession of drug paraphernalia, promotion of dangerous drugs 1, 2 & 3, promotion of detrimental drug 1 & 2, promotion of marijuana
Endangerment	12.23	0.06%	Reckless endangerment 1 & 2
Fleeing	200.43	1.03%	Bail jumping 1 & 2; escape 2; resisting an order to stop
Fraud	179.64	0.92%	Computer fraud 1; credit card fraud; fraudulent use of credit card
Gambling	39.92	0.21%	Gambling; possession of gambling records 2nd degree; promoting gambling 2nd degree
Harassment	88.02	0.45%	Violation of TRO; restraint of harassment; violation of privacy 2nd degree; violation of protective order
Indecent exposure	11.67	0.06%	Sexual assault 4
Murder	0.89	0.00%	Murder 1 & 2; manslaughter; negligent homicide
Permit Violations	9.98	0.05%	Illegal night hunting; possession of permits; possession/distribution of prescriptions; regulation of peddlers
Property Damage	169.66	0.87%	Criminal damage to property 1, 2, & 3
Public Disorder	219.56	1.13%	13 specific offenses from promoting prostitution, federal arrest, forfeitures, hindering prosecution 1 & 2, impersonating law enforcement officer 2nd degree, to resisting arrest
Sexual Assault	46.70	0.24%	Rape 1 & 2; sexual abuse 1; sexual assault 1, 2 & 3; sodomy 1
Robbery	27.16	0.14%	Robbery 1 & 2
Theft	2754.51	14.15%	18 specific offenses including extortion 1 & 2, forgery 1, 2 & 3, worthless checks, theft 1, 2 & 3, shoplifting, unlawful entry to motor vehicle, unlawful possession of goods with ID marks removed
Threats	117.37	0.60%	Intimidating a correctional worker; terroristic threatening 1 & 2
Trespass	229.54	1.18%	Criminal trespass 1
Weapons Possession	1177.65	6.05%	15 specific offenses including carrying a deadly weapon, possession or use of weapons without permit or license, felon in possession of a weapon, possession of electric guns, prohibited weapons, possession of switchblades
Total estimated crimes	**19470.81**	**100.00%**	

More recently Cohen and colleagues have supplemented the jury-award approach with a contingent valuation study of the willingness of citizens to pay for reducing crime (M. Cohen et al. 2004). The "willingness to pay" (WTP) method measures the willingness of individuals to pay in order to avoid a risk, condition, or undesirable outcome. This is sometimes explored through contingent valuation, a type of survey in which respondents are asked to rank a series of alternatives in terms of their desirability. Cohen compares updated estimates from the 1996 jury-award study with new results from the contingent valuation method and finds that crime costs implied by willingness to pay are 1.5 to 10 times greater. Whereas the earlier studies were victim-centric, focusing on costs to the individual victim, Cohen asserts that the WTP results include external social costs including reduced quality of life for the neighborhood, for non-victims, and for society in general.

We rely here on the earlier and more well documented bottom-up approach that builds costs from actual victim experience rather than from non-victims' willingness to pay for future reduction in crime.[12] Nevertheless, Cohen's 2004 paper raises an important issue: namely, are broad effects such as community fear of crime and loss in quality of life more appropriately measured by contingent valuation, whereas localized effects are better measured by the examination of the component elements of victim experience? This remains to be debated in the professional literature.

We analyze victim costs here and CJS costs separately, below. We rely primarily on victim costs quoted in Cohen and Piquero (2009), which represent updates of the estimates in Miller, Cohen, and Wiersema (1996). These victim costs, in 2007 dollars, range between $4.6 million for homicide and $0 for "other offenses", the latter generally minor in nature.[13]

Victim cost estimates are available only for a limited repertoire of crimes, typically the Part I Index crimes which include murder, rape, robbery, assault, burglary, larceny-theft, auto theft, and arson. Cohen and Piquero add estimates for fraud, vandalism, and "other offenses". Others have offered estimates of crimes such as drug offenses, though the empirical foundation for some of these estimates is unclear (e.g., the cost for drug offenses in Bhati, Roman, and Chalfin 2008).

Most analysis of offending patterns based on administrative records has also limited itself to Part I offenses, which constitute a fraction of the crimes committed by a real world cohort of criminals. Only 18.0% of estimated crimes for the 2006 Hawai'i cohort of released drug felons were Part I offenses. The limitations imposed by the cost of crime literature and prior studies of offending require that costs for quoted crimes be extended in some systematic way to the full body of 162 misdemeanors and felonies examined here.

[12] Cohen's contingent valuation subjects were asked to "bid" on achieving a 10% reduction in several major crimes. The average bid of $110 for preventing 10% of armed robberies ultimately converts into an implied value of $232,000 per armed robbery. We wonder whether subjects would alter their bids if they were made aware of this degree of magnification, a ratio of 2,100 between their bid and the value researchers ultimately assigned to the crime. Others have questioned whether this also represents the effect that "people may be far more willing to spend hypothetical dollars than real ones" (Braithwaite et al. 2008, 349; see also Hirth et al. 2000, 334).

[13] These quoted victim costs are stated in 2007 dollars to preserve the conventions of the sources. All calculations in the paper are converted to 2006 dollars, unless otherwise stated.

Crimes with quoted costs from the cost of crime literature, including drug crimes, cover 81.9% of the estimated offenses for this cohort.[14] Our means of assigning victim costs for *non-quoted* crimes is to assemble named crimes into 27 crime groups based primarily on chapters of the Hawai'i Revised Statutes, as in table 3. We assign Hawai'i scaling factors to crime groups and to subgroups within these groups based on the similarity between non-quoted and quoted crimes.

Assignment of a scaling factor takes into account the two components of each factor—probability of report and probability of arrest. Both probabilities are relative to the range of Hawai'i scaling factors (table 1). In these terms, 30% represents a low probability of *report*, but 40 – 50% represents a high probability of *arrest*. A challenging example is child neglect, which is reported (probability of report) at very low levels compared to incidence and results in formal charges (probability of arrest) in a small fraction of cases that are reported (Sedlak and Broadhurst 1996; Straus and Kantor 2005). We represent this profile by applying the Hawai'i scaling factor for rape/attempted rape, which combines low probability of report with low probability of arrest. Our assignment of scaling factors and victim cost types for all crimes is offered in appendix 2.

Our estimates of the number of crimes averted by the incarceration of this cohort are inflected by the cost per crime to generate estimates of the value of averted crime during the average length of stay for the cohort (appendix 3).[15] The net present value (NPV) for crimes averted for the average cohort member, as well as all subsequent calculations of NPV, are offered in appendix 4. On a first year, per prisoner basis the saving from averted crime is $27,116, yielding a net present value of $85,406 for averted crime for the average prisoner over the course of the average sentence. Dividing the total net present value of estimated crimes by the number of crimes averted yields an average victim cost per crime for this cohort of about $864. Over the 39 month average length of stay, the effect of incapacitation of the cohort is to reduce total victim costs by about $16.8 million in 2006 dollars.

Value of crimes averted per prisoner for the average length of stay (2006 dollars):
$27,116 first year cost
$85,406 NPV for average length of stay

[14] Crimes types with direct quotes include aggravated assault, simple assault, auto theft, burglary, drug offenses, fraud, murder, property damage (vandalism), sexual assault (but not indecent exposure), robbery, and theft. "Other crimes" is too general to be counted as a quoted victim cost.
[15] Appendix 3 replicates some columns from the calculation of the incidence of crimes in appendix 2 to render explicit the calculation of costs. The steps in the calculation are laid out in notes to appendix 3.

Section IV: Social Costs of Incarceration

The following discussion itemizes and estimates the social costs incurred by the incarceration of parents who have minor children. We do so by assembling and integrating a diverse set of studies addressing the cost-benefit analysis (CBA) of social service programs, cost-of-illness studies of drug and alcohol abuse, cost of crime studies, and a very small set of studies of the costs of incarceration itself. We apply the lessons from our literature reviews and fresh data analysis to estimating the costs and benefits that flow from the incarceration of the FY 2006 cohort of released drug offenders in the State of Hawai'i.

Inventory of the elements of social cost

Our inventory of the elements to include in the social cost of incarceration owes much to the work of French, M. Cohen, Zarkin, Harwood, Hubbard, Western, Greenwood and their collaborators (French, Rachal, and Hubbard 1991; Rajkumar and French 1997; M. Cohen 1988, 1998, 2000; Zarkin, Cates, and Bala 2000; Harwood et al. 1988; Hubbard et al. 1982; Western 2002; Western, Kling, and Weiman 2001; Greenwood 2002; Greenwood et al. 1994).

We will lay out and motivate the elements of social cost in their approximate developmental sequence, more or less in the order they are incurred in the natural history of a crime, from commission of an offense, to arrest, conviction, incarceration, and reentry to the community. The calculation of each estimate is joined with the exposition of each element of social cost in the text. Detailed calculations, with costs cast in terms of net present value (NPV), appear in appendix 4.

Our inventory of the elements of social cost includes the following:

a. Criminal Justice Processing: Arrest to Sentencing
b. Private (and Public) Legal Costs of the Defendant
c. Efforts to Avoid Incarceration
d. Presentence Investigation and Assessment
e. Cost of the Prison Bed
f. Productivity
g. Specialty Services for Drug Felons in Prison
h. Value of Child Care
i. Foster Care for Children of the Prisoner
j. Post-Release Supervision (Probation/Parole)
k. Training of Probation and Parole Agents
l. Training of Other Professionals Who Provide Services to Ex-Offenders
m. Cost of Administration of Welfare Payments to Families of Prisoners
n. Costs to Family of Communication and Support of Prisoner
o. Costs to Family of Providing Housing to Inmate's Children and to Parent Upon Release
p. Post-Release Decline in Earnings
q. Disutility (Pain and Suffering) of the Prisoner
r. Disutility (Pain and Suffering) of the Prisoner's Family, Including Children
s. Depleted Neighborhood Economic Strength and Quality of Life
t. Additional Social, Health, Educational Services Required by the Family of the Prisoner
u. Decreased Future Productivity of Children of the Prisoner

v. Increased Delinquency and Criminality of Children of the Prisoner
w. Decreased Health of Children
x. Decreased Mental Health of Children

Summary Profile of Parent-Prisoners

Adults with minor children are currently the majority of inmates held in state prison in the United States. The most recent national profile of incarcerated parents was based on the 2004 National Survey of Inmates. That study found that 52% of all state prisoners were parents of minor children, and state prisoners constitute the vast majority of incarcerated adults (Glaze and Maruschak 2008: 1). The study also found that parenthood is more common among drug offenders and those incarcerated for public order offenses compared to violent or property offenders. Among drug offenders 59.6% were parents of minor children whereas the corresponding rates were 49.9% for property offenders and 47.5% for violent offenders (Glaze and Maruschak 2008, table 6). On average, parent-prisoners each had two minor children. 2.9% of these children were in foster care at the time the parents were interviewed in prison. Most parent-prisoners (79%) receive contact from their children while in prison. Incarceration of parents therefore implicates a large number of children and family members on the outside.

Criminal Justice Processing: Arrest to Sentencing

The path leading to incarceration almost invariably begins with a crime which often, but not always, entails costs to victims. For crimes cleared by arrest the non-victim costs of incarceration begin with the costs of the criminal justice system (CJS) expended once the responsible offender has been identified. These costs include arrest, pretrial detention, and the expenses of police, prosecutors, and the courts in prosecuting the offender to the point of sentencing. Vencill and Sadjadi (2001) note that payments to informants are also part of the cost of incarcerating drug offenders, though they provide no information on their value.

We lack data on CJS processing costs specific to Hawai'i. However, Aos et al. (2001) explore costs for CJS response in considerable detail for defendants in Washington State for a variety of crimes. Their findings for two violent and two non-violent crimes appear in table 4.

From the Washington data we can appreciate that non-violent crime costs the CJS considerably less than violent crime in the arrest to sentencing process. Also, the net per offender cost to the public is significantly determined by the amount of time the offender spends in detention.

Detention costs are low for property and drug arrestees. In fact, Aos and colleagues report 0.19 years (69 days) as the average length of stay in jail, prior to prison, for drug and property offenders (2001: table IV-G). Applied to the adult jail cost given in table 4 this indicates an average pre-incarceration jail cost of $3,223 for drug and property offenders in Washington State in 1995.[16] Finnigan found very similar jail costs per conviction--$4,230 (1998 dollars)—for participants in the S.T.O.P drug diversion program in the Portland area (1998, table 3).

[16] It is worth noting that some portion of these arrest-to-sentencing costs will also be incurred by offenders who are ultimately diverted to treatment and community supervision, for example, by drug courts, and should therefore be included in the social costs of alternatives to incarceration, such as drug treatment.

Table 4: Washington State Criminal Justice System Operating Costs

	Costs Per Unit By Type of Crime				
	Units Used	Rape	Aggravated Assault	Property	Drug
Police and Sheriff's Office	$ per arrest	$12,551	$12,551	$1,890	$1,890
Superior Courts & County Prosecutors	$ per conviction	$18,399	$18,399	$1,675	$1,675
Adult jail, with local sentence	Annual $ per ADP	$17,047	$17,047	$17,047	$17,047
Adult Community Supervision, Local Sentence	Annual $ per ADP	$2,688	$2,688	$2,688	$2,688

Source: Aos et al. 2001: table IV-D. 1995 data, except Adult Community Supervision (1994). Jail and supervision costs in table are average costs, police and court are marginal costs. ADP=Average Daily Population

Since the most severe crimes for which the Hawai'i cohort were incarcerated were drug crimes the criminal justice system costs for that type of crime are the most appropriate to apply. Collating the Washington State figures, adjusted to 2006 dollars, generates the following estimate of CJS costs from arrest to sentencing:

$2,500 Police and sheriff
$2,216 Superior courts and county prosecutors
$4,716 Total for police and courts

Detention costs in Hawai'i are identical to prison costs on a per day basis. Parole violators and parolees with new charges pending are held in the state's prisons (Max Otani, personal communication, 5/1/09). The Department of Public Safety uses per day prison costs in its budgeting for detention costs (Cheryl Rodrigues, personal communication, 5/1/09). Those costs, including programming and administration, amount to $118 per day. Applying the Washington State estimates for days in detention, the Hawai'i detention costs for drug felons who are ultimately convicted are:

69 days x $118/day = $8,142 Detention Cost

As a point of comparison, Zarkin et al. (2005) estimated CJS processing costs for participants and controls in the Drug Treatment Alternative to Prison (DTAP) program operating in Kings County (Brooklyn), and provided the following breakdown (table 5):

Table 5: Unit Cost Estimates for Justice System Processes in Kings County (Brooklyn)

Activity	Cost Per Person
Arraignment appearance	$594
Felony hearing	$1,492
Other hearings (motion, misdemeanor)	$509
Sentencing hearing	$826
Total Court Processing Costs	$3,421

Source: Zarkin et al. 2005, table 3. Stated in 2001 dollars.

In 2006 dollars New York processing costs *without detention* amount to $3,894, in reasonably good alignment with the estimate of $4,716 derived from Washington State data. We use the updated estimate from Washington State in our calculations.

Average arrest to sentencing costs per drug offender: Calculation
Police and sheriff (2006 dollars): $2,500
Courts (2006 dollars): $2,216
Detention (2006 dollars): $8,142

Private (and Public) Legal Costs of the Defendant

Arrested offenders who end up convicted of drug offenses incur legal costs in their own defense. Some of these costs are redistributed to taxpayers because some defendants acquire public defenders. Bouchery and Harwood provide data that indicate private legal defense spending in 1997 of $232 per drug-related arrest (2001, tables IV-25, B-9), or $291.41 in 2006 dollars.[17] But many arrests do not lead to convictions or even court appearances. Only 38.5% of the felony and misdemeanor arrests for the cohort show a disposition of guilty, with an almost equal proportion listed as "discharged pending investigation." Therefore, spreading legal defense costs across the universe of arrests grossly understates the legal costs of a defense that ultimately results in a conviction and incarceration. These latter are much fewer and more costly.

Bouchery and Harwood also provide an estimate for the number of jail and prison incarcerations due to drug abuse (2001, table B-6). Dividing total legal costs by the number of incarcerations predicts legal costs of defense averaging $920 per incarceration (1997 dollars). This thumbnail calculation overstates defense spending per conviction, since some defenses succeed in avoiding prosecution, deferred prosecution, or in actual acquittal. We therefore adopt the median between cost per arrest and cost per incarceration. That figure is $717.21 per defense (2006 dollars).

Spangenberg et al. (1986) found that 48% of all felony cases engaged a public defender and thereby public costs. We split these costs in accordance with Spangenberg's finding, allotting $373 as the private cost of the offender and $344 as borne by the public (2006 dollars).

Average legal costs of the defendant calculation:
Private legal cost of defense (2006 dollars): $373
Public legal cost of defense (2006 dollars): $344

[17] This calculation represents estimated drug abuse related private legal defense spending in 1997 ($522.3 million) divided by the total number of arrests attributed to drug abuse (2,308,000).

Efforts to Avoid Incarceration

French, Rachal, and Hubbard (1991, 16) point out that "Defensive or averting expenditures to mitigate the adverse consequences of illness is one important category of tangible costs that is not typically addressed in cost-of-illness studies. … The social cost model should identify and characterize the types of averting behaviors undertaken by different populations …" In line with this advice, Mark Cohen (2000) counts as a cost of crime "detection avoidance by offenders." The efforts of offenders facing incarceration, apart from their legitimate legal defense, may include actions to mitigate the apparent seriousness or impact of their offense, establish a false social pedigree (i.e., to feed pre-sentence investigation reports), bribe or influence those who may testify for or against them at sentencing, assemble sympathetic testimonials, enter treatment for their presumed disorder or characterological defect, "get religion," demonstrate remorse or social consciousness (e.g., through volunteering), and even acquire training in skills and manner inconsistent with those of a criminal. These actions burn resources in efforts to avoid or limit the duration of incarceration and are properly counted as a social cost. However, we have no estimates of the magnitude of such costs so they are omitted. This is clearly an area of future research.

Presentence Investigation and Assessment

Presentence investigation and assessment is customarily performed by probation agents who make recommendations to the court. Aos and colleagues (2001) are the best source on CJS costs through conviction, but they do not discuss this as a separate element. Since we have not found studies that separate this cost from the other adjudication costs we assume it is included in the above cited costs for arrest to sentencing.

Cost of the Prison Bed

The capital and operating costs of the prison bed are the most obvious, direct costs of incarcerating a person. Some authorities (e.g., Aos et al. 2001) argue that the marginal operating cost (the cost for adding one prisoner to the system without building additional beds) is the most appropriate measure, while others advocate using the average cost, which includes the depreciated capital costs of construction in addition to operating costs.

We use average costs in our calculation. Hawai'i's prisons are over capacity and therefore the State sends the majority of its inmates to private prisons on the mainland. These private prisons also have considerably lower per day costs. According to the Hawai'i Department of Public Safety this cohort of drug offenders split into two groups. Fifty offenders in the cohort split their time between prisons in the Islands and prisons on the mainland. The other 147 spent their entire sentences in prisons in the Islands. We acquired from the Department of Public Safety the breakdown of days spent in either venue, enabling the calculation of the blended average per day cost of prison. During FY 2006 that cost was $106.92/day or $39,026/year.[18]

Average cost of the prison bed calculation (2006 dollars):
$39,026 per year first year cost
$122,919 NPV

[18] Islands prison housing costs alone are $82/day. Including program and administrative costs raises the cost per bed per day to $118. Mainland housing costs in private prisons in Arizona were $62.05 per inmate per day for FY 2006.

Productivity

Productive work is scarce for state prisoners and what does exist is rewarded at infinitesimal wage levels. For all practical purposes the productivity of an offender ceases upon incarceration. The most obvious indirect social cost of incarceration is therefore the lost value of the inmate's productivity. The value of this productivity encompasses the market value of the inmate's labor, the work contributed by the prisoner in the home (household productivity), as well as the value of taxes and fringe benefits (Harwood, Fountain, and Livermore 1998, chapters 3 and 7; Cohen 2000).[19]

The market value of a worker's productivity is typically measured by the person's earnings, usually equated with mean or median wage. Cohen and colleagues (Cohen, Miller, and Rossman 1994; Cohen 2000) argue that the average productivity of an inmate should be adjusted downward, compared to workers who never experience incarceration, because the typical incarcerated offender is not as productive as the average person and also due to dated evidence that about 16% of received income came from sources other than legitimate earnings. Many other analysts apply mean wage as the standard measure, even for alcohol and drug abusers (e.g., Harwood, Fountain, and Livermore 1998).

Analyzing data from iterations of the Current Population Survey and iterations of the national Survey of Inmates throughout the 1980's and 1990's Western (2006) estimated the hypothetical wage that inmates would receive if offered jobs on the open market. "Underscoring their low levels of ability and poor employment records, prison and jail inmates earn significantly less at the time of their incarceration than other young men aged twenty-two to thirty with the same level of education" (Western 2006, 101).

We predict the expected annual earnings of incarcerated parents by combining Western's detailed analysis (2006, figure 4.6) with data on incarcerated parents provided by Glaze and Maruschak (2008, appendix tables 2, 4, and 16). The different racial groups among inmates are sharply stratified by educational attainment in terms of their wage deficits relative to non-incarcerated workers. Cross-walking the Glaze and Maruschak results on educational attainment levels of state prisoners with the proportions that were parents with minor children showed that 67.2% of parent-prisoners were high school drop outs, 21.7% attained high school diplomas, and 11.0% had some college experience. Our calculations combine the deficits suffered by these different strata of incarcerated parents into one overall estimate of the wage deficit the average incarcerated parent would likely experience working in the marketplace (appendix 5). Taking into account that about 75% of incarcerated parents were working in the month before arrest (Glaze and Maruschak 2008, 5), we find that the average incarcerated parent would earn about 52% of the wage of an average non-incarcerated worker with similar education.[20]

[19] Harwood , Fountain, and Livermore (1998, 3-9) explain the logic behind this. "Fringe benefits and taxes should be included because they are part of the contribution of labor's productivity. To stay in business, employers have to recover these expenses from the productivity of workers."

[20] This calculation overstates the earnings deficit experienced by prisoners because it assumes that 100% of the non-incarcerated counterparts are employed. Thus, our estimate of the lost earnings of Hawai'i drug felons is conservative.

Cohen, Miller, and Rossman (1994, 106-07) offer estimates of household productivity based on work by Miller, Brinkman, and Luchter (1989) that indicates household productivity amounts to about 20% to 30% of total productivity. We adopt Harwood and colleagues' more conservative estimate of household productivity as 15% of total productivity (Harwood, Fountain, and Livemore 1998, 3-9, 7-4). Fringe benefit costs, including legally required benefits (Social Security, Medicare, etc.), employer costs for life, health, and disability insurance, paid leave, and retirement and savings benefits are derived from the Bureau of Labor Statistics National Compensation Survey. For the U.S. during 2006 fringe benefits averaged 29.7% of employee wages and salaries.

The Bureau of Labor Statistics reports the average annual pay for Hawai'i residents for 2006 (all industries, all establishment sizes) was $38,630. Adjusted for the predicted wage deficits for inmates (.522) this yields an estimate of $20,102 for the lost market productivity of the average offender during the first year of incarceration. This figure predicts for the first year of incarceration associated lost household productivity of $3,015, and lost fringe benefits of $5,970. Net present values for these losses over the course of the average 39.03 month sentence served are: $63,316 in wages, $9,497 in household productivity, and $18,805 in fringe benefits, or $91,618 in productivity loses per prisoner. Lost wages and fringes are classified as external costs to the family and the prisoner; household productivity represents an external loss to the family.[21]

Lost taxes are calculated at 5.42% for the state combined with a 15% federal rate, for a net tax rate of 20.4%. First year lost taxes amount to $4,105 with a net present value of $12,929 for the average length of stay. These are external costs to the state and thus to taxpayers.

Calculation of lost prisoner wages, household productivity, fringe benefits, and taxes (2006 dollars):
Lost wages
$20,102 first year cost
$63,316 NPV

Household productivity
$3,015 first year cost
$9,497 NPV

Fringe benefits
$5,970 first year cost
$18,805 NPV

Taxes
$4,105 first year cost
$12,929 NPV

[21] Overwhelming evidence shows that the family's economic fortunes decline sharply following the incarceration of one of the parents (see below). We therefore split the cost of lost wages between the prisoner and the family.

Specialty Services for Drug Felons in Prison

In principle, support for specialty treatment of drug felons in prison (e.g., research and development of in-prison therapeutic communities) is a social cost of incarcerating drug offenders. As Harwood and colleagues point out for the entirely parallel case of community-based drug treatment (Harwood, Fountain, and Livermore 1998, 4-5, table 3.1), support costs include training, research, and insurance administration. This is true to the degree that these costs are specific to in-prison specialty treatment for drug abuse, rather than to corrections and rehabilitation generally. Paraphrasing Harwood, without the incarceration of drug felons, these costs would not occur. Unfortunately, we lack any estimate of these costs.

Value of Child Care

The incarceration of a parent with one or more minor children means that the parent is no longer available to provide necessary adult supervision to the child or, at the very least they cannot provide the degree of supervision they contributed prior to prison. And, their participation in the lives of their children is well documented in Glaze and Maruschak's analysis of the latest Survey of Inmates (2008, table 7, appendix tables 8 and 9). That survey found that just under half of parent-prisoners (47.9%) lived with their minor children in the month before arrest or just prior to incarceration.[22] Of those who lived with their children just prior to incarceration—43.8% of parent-prisoners—90.1% provided daily care of their children or shared care with someone else.

Fifty-four percent of parents in state prison provided primary financial support for their minor children prior to their incarceration. Since the parent's incarceration entails a loss of earnings for the family the economic status of the prisoner's family typically declines (Hagan and Dinovitzer 1999; Braman 2002, chapter 3). Phillips (2006) demonstrates that families experience economic strain as a direct result of the incarceration of a parent. This circumstance requires the partner to either seek public assistance, help from family and friends, to take up employment, or seek additional employment. Braman (2002) deploys the voices of spouses and children to lay out these consequences in vivid detail. In a set of interviews Carla, the mother of David's son Charles, describes how she managed during David's incarceration while pregnant with Charles:

> I stopped going down to the jail, 'cause I was having morning sickness, and he got mad. Things changed right there when I stopped going down [to] the jail to see him. But my child and my health was more important to me then, you know, but I still stuck by him, you know. I still took care of me, my two children, and him. You know, I worked from … Okay, I got both of my jobs the same day, at the National Zoo and Sears, August 1st, 1985 I started both jobs. I was at the Zoo from 8:00 to 4:00, and I was at Sears from 5:00 to 9:00. Then Sears wanted me full-time, so I did that for a year at the Zoo and Sears, then I went to Sears from

[22] This summary statistic reflects the fact that 91.5% of parents in state prison are men. The proportions living with their children were 46.5% and 64.2% for men and women, respectively.

> 8:00 to 4:45, and then I went to Wendy's from 5:05 until 2:00 o'clock in the morning. (Braman 2002, 147-48)

Parental absence and loss of earnings conspire to require that additional supervision be provided to at least one child. Bearing in mind that incarcerated parents have, on average, just over two minor children, we assume that the yearly market cost of day care for one child (or two children in part-day care) is part of the social cost of incarcerating a parent with minor children.[23] This is a real cost even if it is borne by other family members or relatives because their time, and therefore their productivity, is expended.

We base our estimate of Hawai'i child care costs on a 50 state survey of child care costs for a 4-year-old child conducted in early 2005 by the National Association of Child Care Resource and Referral Agencies (2005, 2006). That survey found that Hawai'i ranked 36th in child care costs as a percent of income and pegged Hawai'i's average as $5,620 in 2005 dollars, equivalent to $5,801 in 2006 dollars.

> *Cost of child care calculation (2006 dollars):*
> $5,801 first year
> $17,701 NPV per parent-prisoner for average length of stay

Foster Care for Children of the Prisoner

Glaze and Maruschak also found that 10.9% of the children of incarcerated mothers and 2.2% of the children of incarcerated fathers were in foster care (2008, table 8). The average for all parents is 2.9%. Hungerford (1996) reports a similar percentage—10% of children—for women in her study. Ehrensaft et al. (2003) found that 10% of incarcerated mothers in their New York City study had children in foster care and most of these placements occurred in the year following incarceration. Marilyn Brown (2003), in her cross-sectional study of 240 female parolees in Hawai'i, reports that 7.3% of their 576 children were in foster care at the time of the mothers' sentencing. Others have reported rates as high as 26% (Johnston 1995).

Some of these placements were the result of family conditions and parental behavior that predated incarceration. For example, George and LaLonde (2002) conclude that Illinois women in their study experienced a downward spiral in the year prior to their imprisonment and that a portion of their children would have been placed regardless of their conviction and incarceration. Brazzell compared jail and prison histories for mothers in Providence, Chicago, and Pittsburgh against foster care records for their children and concluded that the exact relationship between a mother's arrest or jail history and her children's placement in foster case remains unclear (2008).

We learn from the 2004 national survey of prisoners that 59.6% of drug offenders are parents to minor children (=117.41 parents in the cohort), and that the average prisoner-parent has 2.08 minor children (Glaze and Maruschak 2008, tables 1 and 8). 2.9 percent of these children are in foster care. Recognizing that some of these children are placed in foster care prior to

[23] The increased costs of child care as a reflex of incarceration are the analog of the neonatal effects of alcohol use by a mother during pregnancy (i.e., FAS/FAE) estimated by Harwood (2005).

incarceration or for reasons other than the incarceration of this parent, we estimate that half of these foster care placements are due to the incarceration itself.[24]

This gives us the following calculation (table 6):

Table 6: Number of Cohort Children in Foster Care Due to Incarceration of Parent

A	B	C	D	E	A x B x C x D x E
Offenders in cohort	Percent parents	Children/parent	Percent in foster care	Percent due to incarceration	# in FC due to incarceration
197	0.596	2.08	0.029	0.5	3.541

The average parent-prisoner therefore has 3.541/117.41 = .0302 children in foster care due directly or indirectly to the parent's incarceration.

The costs of foster care in Hawai'i compound depending on the difficulty of care. In 2008 the basic monthly allowance for one foster child was $529, with up to $570 per month additional depending on difficulty of care (Lee Dean, personal communication, 1/4/2008). Clothing allowances vary with the age of the child, with the mean and median being $400 per year. We assume that children of incarcerated parents who are placed in foster care due to the parent's incarceration represent a middle value in terms of difficulty of care, drawing half of the potential supplemental payment ($285/month). This generates the following estimate for the yearly cost of foster care for these children:

(12 x $529) + (12 x $285) + $400 = $10,168 (2008 dollars)

Corrected to 2006 dollars this gives an average cost of $9,465 for foster care per cohort child for the first year, equating to a net present value for the average parent's sentence of $29,812.[25] Since each prisoner-parent has .0302 children in foster care this yields:

Cost of foster care calculation (2006 dollars):
$9,465 first year cost
.0302 children/parent x $29,812 NPV for foster care = $900.32/parent NPV

Glaze and Maruschak (2008, table 8) found that 21.3% of the children of incarcerated parents resided with grandparents or other relatives (not other parent). We need to determine if these

[24] This is a "split the difference" estimate as we have no direct evidence regarding the proportion of foster care placements attributable to the parent's incarceration. Ehrensaft's findings (2003) suggest that at least some placements are driven by a parent's incarceration. Braman (2002, 156-60) provides a specific example. Regardless, the numbers of children involved in calculations for this cohort are not large. About 117 members of the cohort are parents to about 244 minor children. Based on national averages this implies that about seven of these children are in foster care.

[25] The Director of Hawai'i's Department of Human Services quoted 2004 annual costs for children placed in foster care due to safety concerns over parental substance abuse of $14,740 per child in her testimony before the Task Force on Ice and Drug Abatement. These costs included child welfare services and court involvement, treatment/counseling services to the family, and board payments for foster care ($529/month). Children requiring more intensive foster care services, including the maximum difficulty of care payment, cost $21,740 per year (Hamakawa et al. 2004, 123). Our estimate of direct foster care costs is very conservative by comparison.

children are eligible for kinship care payments that are parallel to foster care payments. These costs to society are not included in our above estimate so the above estimate should be regarded as a lower bound for foster care costs.

Post-Release Supervision (Probation/Parole)

Releasees typically undergo a period of supervision by probation or parole agents. We acquired from the Hawai'i Paroling Authority (HPA) the FY 2006 budget for the Authority and the month-by-month caseload of individuals under active supervision. The HPA supervised an average of 1,924 parolees per month during FY 2006, expending $3,424,103 in the course of that year. This yields an average annual cost per active case of $1,779.68 for FY 2006.

With the cooperation of the HPA we also conducted a 20% random sample of the case files of the FY 2006 cohort of released drug offenders to determine the average length of parole supervision (Max Otani, personal communication, 7/31/08). Parole time ranged from 0 to 15 years, with a mean of 2.05 years. This compares with a mandatory period of two years of parole for those convicted of sale of materials for drug manufacture in Colorado (Lowden et al. 2005), and an average length of community supervision for released drug and property offenders in Washington State of one year (Aos et al. 2001, table IV-G). The net present value of the annual Hawai'i parole cost over 2.05 years beginning at the time of release (months 40-64 after admission) comes to $3,186.

Cost of parole calculation (2006 dollars):
$1,617 first year cost (months 40 - 51)
$3,186 NPV (months 40 – 64)

Training of Probation and Parole Agents

The probation and parole system is supported by a training and research apparatus that prepares new agents for their duties and provides continuing education for current professionals in the field. These costs are over and above the daily costs of probation and parole supervision reported by Colorado and Washington, above. Such costs are the analog of training and continuing education costs for new and continuing alcohol and drug abuse counselors. These costs were included as social costs of drug abuse by Harwood, Fountain, and Livermore (1998) in their documentation of the economic impact of drug abuse in the United States for 1992 and reiterated by Bouchery and Harwood (2001) in their update of the 1998 study. In the 1998 study Harwood and colleagues estimated training and continuing education costs of $500 per person per year for existing drug and alcohol abuse counselors. Though the parallelism is clear we have found no estimates of the training and continuing education costs for probation and parole agents and so cannot include an amount in our calculation. It remains a real but unestimated social cost of incarceration.

Training of Other Professionals Who Provide Services to Ex-Offenders

Similarly, Harwood, Fountain, and Livermore (1998) sought to estimate the cost and quantity of training provided to other professionals who work with drug abusers, including other mental health professionals not working in AODA programs and clinics, similarly situated health professionals, and law enforcement professionals. These workers also absorb training in drug abuse and drug abuse treatment though to a smaller extent than the specialists described above.

The analogous social costs for incarceration are those entailed by the training and continuing education of professionals who work with offenders and re-entering offenders, such as social workers, trainers, and job placement specialists. We currently have no estimates for these costs.

Costs of Administration of Welfare Payments to Families of Prisoners

Economists treat the payment of welfare benefits and public assistance such as food stamps and unemployment insurance as transfer payments between one group of taxpayers and another group of taxpayers. In an intuitive sense these payments compensate one party for a loss of some kind (e.g., loss of earnings from employment) by transferring wealth from another party. There is therefore no net loss to society in this transaction, and no social cost.[26] However, the cost of *administering* these transfer payments is a legitimate social cost of incarceration. To the degree that the families of incarcerated parents avail themselves of a greater amount of public social benefits after the parent's incarceration—and there is circumstantial evidence that they do (see Cadora et al. 2003)—we should include the costs of administration of these benefits as a social cost of incarceration.[27] As quoted by Harwood, Fountain, and Livermore (1998) the U.S. Public Health Service estimated that about 4.8% of total health expenditures in the U.S. in 1992 went to the administration of private and public insurance programs. Cohen, Miller, and Rossman (1994, 110) estimate the administrative cost for disability payments to compensate crime victims at 5%. Nevertheless, we have no estimate either of the increased amount of public assistance accessed by the families of incarcerated parents due to the incarceration, nor of the proportion of such transfers devoted to administration. This note serves as a "place holder" for this category of cost.

Costs to Family of Communication and Support of Prisoner

Virtually no research exists on the expenses borne by the families of prisoners as a result of incarceration. Families are the shadow partners in this economic subsystem. Ignoring their role and their burdens seems to follow from the managerial approach to corrections decried by the New School of Convict Criminology (Richards and Ross 2001; Richards 2005). Yet the role of families in supporting family members in prison and in bearing the consequences of incarceration is beyond doubt.

Families separated by incarceration bear considerable costs in their efforts to stay connected. Mumola (2000) informs us that the majority of state parent-prisoners remain incarcerated more than 100 miles from the residence of their families. Some prisoners are transferred out of state in response to prison overcrowding, as is especially true for Hawai'i. We also learn from Glaze and Maruschak (2008, table 10) and from others that the vast majority (78.6%) of parent-prisoners receive contact from their families and a sizable proportion (41.5%) receive visits. The visits and phone calls, the latter often collect and at elevated rates, require families to expend substantial resources and time that they would otherwise devote to more preferred activities.

Braman documents a family network in which the family of the prisoner's partner paid thousand dollar phone bills run up in the course of collect calls from prison (2002, 147-48). Later in Braman's ethnography the daughter of this prisoner recounts prostituting herself for $300 to pay the phone bill for calls with her father (2002, 160). In addition, families typically provide money

[26] Harwood, Fountain, and Livermore (1998) point out that double counting would result if we counted in total costs both the cost of the welfare program *and* the lost productivity that welfare is designed to replace (see below).
[27] Some on-going but unpublished work by Robert LaLonde questions whether increased use of public welfare actually occurs.

for in-prison amenities for their family member (commissary food, television sets, personal hygiene products, cigarettes). For the family of Arthur, a prisoner serving a long sentence in Washington, D.C. for assault with intent to kill, we learn from a table of expenses that Arthur's family paid about $3,800 in the course of one year (1998) for telephone, travel, money, and gifts related to his incarceration (Braman 2002, figure 7). Apart from Braman's pointed, ethnographic vignettes we have no per-prisoner estimate of these very real social costs.

The following out-of-pocket expenses should be included in a study of family support provided to a parent-prisoner (table 7):

Table 7: Expenses Borne by Families of Parent-Prisoners

Visitation	Letter writing	Phone Contact	Other
Gasoline for private vehicle	Stationery	Land line that can receive collect calls	Money for commissary account
Bus or train fare	Envelopes	Cost of collect calls, with surcharges and taxes	Gifts
Food during travel for family	Stamps	Debit calling cards	Out-of-pocket child care
Motel costs			
Miscellaneous (e.g., proper clothing to meet visitation rules)			
Games, travel play things for children			
Vehicle insurance			
Vehicle maintenance			
Payment to friend/neighbor for transport			

Research is needed and would be straightforward. Clearly, these external costs fall on the family of the prisoner.

<u>Costs to Family of Providing Housing to Inmate's Children and to Parent Upon Release</u>
Brown documents in her study of female parolees in Hawai'i the critical role played by family in caring for the incarcerated parent's children during incarceration and in housing the woman and her children upon release.

> Most women (73.3%) are paroled to households rather than program or institutional settings, whether or not they have children. They live in their own apartments, with spouses or partners, with adult relatives, or with friends. However, very few of these women (2%) have the wherewithal to set up in their

> own places; most live with partners or other intimates. Although family bonds are often sufficiently flexible to absorb women after their incarceration (having cared for their children during this separation), material deprivation and lack of resources make a necessity of these family virtues. The economic costs of punishment are thus shifted to the families of former inmates in ways that often go unnoticed in calculations of the cost of prison expansion. The economic responsibilities associated with punishment are, in this way, shifted to non-state parties and the individuals themselves, just as theories of responsibilization predict. (Brown 2003, 205)

Clear and Rose (Clear, Rose, and Ryder 2001; Rose and Clear 1998) show how incarceration poses obstacles to finding housing for reentering offenders, and throws them back on their weakened social networks or on the streets. Simply put, the inmate's family (e.g., the inmate's parents) typically bears the cost of caring for his child and then of absorbing the inmate upon release. Roman and Travis, building on focus groups with ex-convicts in Washington, D.C., describe the difficulties and costs of returning to live with family (2004, 10-12). Consequences can include being evicted from public housing for having a household member with a drug conviction. As Clear and Rose note, for some portion of families these costs also include moving to a new neighborhood for a new start, to escape stigma, or to escape a criminal social network. We have no estimates for these costs of "responsibilization"—the costs associated with crime control shifted by government to non-government entities (see O'Malley 1992). They are nevertheless direct, external costs for the family.

Post-Release Decline in Earnings

A significant group of scholars over the years has addressed the effect of conviction or incarceration on future employment and earnings and a fair body of literature has emerged. A few studies find minimal negative effects of incarceration on post-incarceration *employment* (e.g., in number of weeks employed) or *wages* (Kling 1999; Needels 1996; Grogger 1995). Surprisingly, Cho and LaLonde (2005) find that prison has a small *positive* effect on the *employment* (but not earnings) of female prisoners in Illinois after their release. The clear majority of studies agree that incarceration seriously depresses earnings after release from prison (e.g., Lott 1992; Waldfogel 1994a, 1994b; Nagin and Waldfogel 1998; Western, Kling, and Weiman 2001; Western 2002; Pager 2003; Western and Pettit 2005). Western, Kling, and Weiman conclude their review of the literature as follows:

> Based on our review of the recent literature, we find evidence from a variety of sources that serving time in prison can diminish an individual's earnings but not necessarily employment prospects … What is more, these negative impacts appear to be greater for older individuals, especially those with white-collar occupations. Estimates from the survey and administrative data suggest that the earnings penalty of imprisonment ranges from 10% to 30%. (2001, 424)

Western more recently has shown that the post-incarceration reduction in annual earnings represents the compound effect of reductions in employment (i.e., number of weeks employed) and in hourly wages (2006, figure 5.1). Releasees suffer reductions in both compared to never-incarcerated workers. Together these effects generate reductions in annual earnings on the order

of 35%, depending on race. Integrating Western's analysis with the relative proportions of incarcerated parents by racial group (Glaze and Maruschak 2008, appendix table 2), we project a reduction of 35.4% in post-incarceration earnings for the average prisoner (appendix 6). This reduction in earnings affects the reentering offender and his or her family and may be considered an internal cost for the reentering offender and an external cost for the family.

There are also internal reflexes for the parent in terms of fringe benefits, which, as noted previously, are part of the worker's productivity. As before, fringe benefits are valued at 29.7% of wages. In the 60 months following release, beginning at month 40 and continuing through month 99, the re-entering offender loses earnings with a net present value of $58,465. The lost fringe benefits have a net present value of $17,540. Lost taxes on lost future earnings sum to $11,939. If lost earning power continues beyond five years post-release—and the literature suggests that it does—then these estimates are a lower bound.

> *60 month post-release decline in earnings calculation (2006 dollars):*
> *Earnings*
> $12,394 first year cost (discounted)
> $58,465 NPV
>
> *Fringe benefits*
> $3,718 first year cost (discounted)
> $17,540 NPV
>
> *Taxes*
> $2,531 first year cost (discounted)
> $11,939 NPV

Disutility (Pain and Suffering) of the Prisoner

The incarcerated parent experiences a significant reduction in quality of life. Indeed, for many policy makers and theorists punishment, along with deterrence and incapacitation, is one of the cardinal purposes of incarceration. Prison is *intended* to reduce quality of life. The effect is compounded for parents, since this absolute loss of freedom entails enforced separation from one's partner and children, not just from one's relatives and friends.

Beginning with Sykes' work in the 1950's a solid body of literature documents the "pains of imprisonment" (Sykes 1958; Johnson and Toch 1982). Ethnography authored by convicts and former convicts provides an authentic grounding and complement for this earlier work of academic researchers and non-convict observers (e.g., Irwin 1970, 2005; Hassine 1996; Peltier 2000; Ross and Richards 2002). Most recently publications emanating from the New School of Convict Criminology have described in graphic and metaphoric terms the personal costs of being a prisoner.

Some prison routines erase personal boundaries.

> Each time a prisoner enters and exits certain areas within the prison, such as the visiting room, or leaves and returns to a prison, he or she is strip searched in front

> of at least one officer (in addition, new prisoners are often deloused). The convict's genitals and anus are inspected—a procedure that at times may include physical touching. Handcuffs, leg shackles, and handcuffs attached to a chain-waistband are either placed on or removed from the prisoner's body at various times, such as when a prisoner is moved from one area of the prison to another—although these procedures depend on the security level of the institution, as well as the classification of the prisoner. (Carceral et al. 2009, 236)

Other prison practices deny contact and weaken or destroy family relationships.

> Doing prison time means living day to day in the company of strangers. A prison may be populated by several thousand men (big house penitentiaries) or a few hundred (minimum-security camps). This artificial environment is a social construction, where there are no families of women and children and life is dramatically different from that lived in the free world. This is a place where the men have little family responsibility, and the wisdom and compassion of women, if ever known, is a distant memory. Most prisoners receive few if any outside visits and rely on occasional phone calls or letters to keep up with family news. As the years pass in prison, they may be served with divorce papers, their children may grow up without them, and their parents may pass away. (Richards, Terry, and Murphy 2002, 210)

This literature documents a list of decrements to quality of life that are common to the prison experience. They include inadequate living space, harsh physical conditions (heat, cold, noise), poor food, clothing, and medical care, loss of freedom, choice, and generally personal autonomy, loss of personal privacy and personal boundaries, suppression of personal identity, threats to personal safety, threats to health from exposure to disease, denial of heterosexual relations, loss of control over one's children, restriction of communication and personal contact with family and one's social network, high stress, stigmatization, "prisonization", loss of possessions, and loss of job (Carceral et al. 2009; Hammett, Harmon, and Rhodes 2002; Haney 2001; Irwin 2005; Massoglia 2005; McCorkle 1992; Morris 1998; Richards 2005; Richards and Jones 1997; Richards and Ross 2001; Richards, Terry, and Murphy 2002).

In addition to these immediate losses to quality of life are the mid- and long-term consequences of prison that manifest themselves years later. Craig Haney (2001) brought attention to the psychological costs of prison, showing how they impede post-prison freeworld adjustment. Massoglia (2005) exploits data from the National Longitudinal Survey of Youth to demonstrate that incarceration depresses the physical and mental health of prisoners years after their release and permanently alters the body's ability to cope with and manage stress.

On the positive side prison provides for some convicts a respite from drug and alcohol abuse, offering at least the potential for treatment, some degree of health care for health problems, and, in better resourced prisons, opportunities to acquire education, job skills, or even just time to read (e.g., Richards 2004, 2005). A former convict acknowledges this: "We in corrections know

that when many people go to prison they dry out, sober and straighten up, mature, and leave prison a better person than when they arrived" (Richards, Rose, and Reed 2005, 172).

Cho and LaLonde (2005) offer evidence that women released from Illinois prisons enjoy better employment prospects in the first years following release than they did prior to incarceration. They estimate that the subsequent employment gains are worth about $600 per female inmate to society over the first five post-prison years. They nevertheless conclude: "This amount is trivial compared to the direct costs of incarcerating women" (2005, 29).

Other observers have noted that limitations in resources and retrenchment from the earlier correctional philosophy of rehabilitation have made it virtually impossible for a significant number of prisoners to participate in drug and alcohol treatment or vocational programs (Austin et al. 2001, 31; Roman and Travis 2004, 6). A 1998 internal report for the Hawai'i Department of Public Safety took the Department's treatment programs to task for inappropriate placement and insufficient slots (1998, 8). In 2004, the Director of Hawai'i's Department of Public Safety testified before a legislative task force that in-prison substance abuse treatment programs have a waiting list and a serious lack of bed space (Hamakawa et al. 2004, 110). In-prison educational programs are disparaged by the very convicts they purportedly benefit. Medical care in prison is characterized as inadequate at best (Irwin 2005; Murphy 2001). A qualitative study of parolees in Kentucky, led by a convict-criminologist, captured several of these themes:

> Many of the interviewees came to prison with low levels of educational achievement, few job skills and poor work histories, and problems associated with drug and alcohol use. Prison could be a place where these deficiencies are addressed; however, the expansion of the prison population and prison over-crowding has resulted in funds being shifted to control of convicts rather than rehabilitation. Prison expansion has produced cutbacks in many services and programs for prisoners. Those programs that remain have long waiting lists. Nearly every interviewee remarked on the lack of meaningful programs (education, vocations, drug treatment) available in prison. (Richards, Austin, and Jones 2004, 251)

We acknowledge that individual variations in resilience coupled with the context of the penal facility produce an array of adaptations and responses among prisoners. Yet the overriding structure of the prison experience, conditioned by the length of time spent in prison, overrides and channels individual variation in a way that diminishes lives. Liebling and Maruna report no effects from studies of rehabilitative interventions, noting that the interventions may be "systematically undermined" by the experience of incarceration (2006, 4).

On balance, the evidence for quality of life losses clearly outweighs the potential for personal betterment that, according to these reports, often goes unrealized.

Counting the prisoner's lost quality of life in cost-benefit analysis is not new. Gary Becker recognized the prisoner's lost quality of life as a cost of incarceration 40 years ago: "… the cost of an imprisonment is the discounted sum of the earnings foregone and the value placed on the

restrictions in consumption and freedom" (1968, 169). David Greenberg discussed the normative issues implicated in assigning value to the prisoner's freedom as early as 1990:

> Taking these costs into consideration would substantially alter the balance of costs and benefits of imprisonment. Of course, it could be asked whether the costs to prisoners of being imprisoned *should* be counted here. Insofar as one is doing a cost-benefit analysis *pure and simple*, there is no controversy: all costs should be included. Cook (1983) recognizes this point in noting that the value prisoners place on their freedom must be added to taxpayer costs in estimating the total cost of imprisonment. (1990, 54; emphasis in the original)

Counting the lost quality of life of prisoners in the cost-benefit analysis of incarceration is also consistent with counting the victim's pain and suffering in cost-of-crime studies. Both are irreducible elements of social cost.

Calculation of pain and suffering or lost quality of life presents challenges to cost-benefit analysis. Mark Cohen (1988) pioneered estimation of the value of pain and suffering with his study of jury awards, and this method has been the foundation for much subsequent work. Willingness to pay methodology has also been exploited to explore the disutility (utility weights) of disease, injury, and disability states. More recently other methods have emerged, especially the concept of the Quality Adjusted Life Year (QALY), widely applied in health economics and environmental impact studies. Application of this concept to the health consequences of drug abuse was proposed by Michael French and colleagues (French et al. 1996). The flexibility of this approach renders it particularly apt for estimating the disutility of the incarcerated parent and the parent's family members.

The value of a Quality Adjusted Life Year rests on the calculation of the value of a "statistical life year." Essentially, this amounts to assembling an economic estimate of the value of a whole human life from the value of fractions of a human life. The result is divided by a person's future life expectancy adjusted for quality. Lost value is calculated by applying percentages taken from tables stating the percentage that quality of life is reduced by various disabilities or adverse conditions, such as a disability that renders the person unable to work or go to school, blindness, or various learning disabilities. If a serious disability, disease, or treatment regimen (e.g., chemotherapy) reduces a person's quality of life by 25% over four years, other things equal, the person loses one Quality Adjusted Life Year (4 x .25 = 1.00).[28]

Though the formal steps in monetizing QALYs are conventionalized and well understood, certain of its foundational assumptions have been challenged. For example, the underlying assumption of linearity (e.g., that each year is of equal value), exemplified above, has not been well motivated. The use of monetized QALYs has been critiqued in two professional conferences on the subject and in resulting reviews (Krupnick 2004; Grosse, Teutsch, and Haddix 2007). The critique advanced suggests that quality of life may only be defensibly valued by means of willingness to pay studies. Valuing QALYs by means of willingness to pay also has its problems and critics.[29] Unfortunately, no willingness to pay studies have yet been conducted to assign cost to quality of life losses. This leaves us in the position of relying on a theoretical

[28] This simple calculation represents *undiscounted* QALYs.

construct (the monetized QALY) that remains controversial. We therefore offer the following analysis as the best estimate of quality of life changes in the absence of other codified approaches. Whatever the theoretical foundation and method, reduction in quality of life for affected individuals is a real social cost and its effects must be counted in a serious analysis of the social cost of incarceration.

Prisoner lost quality of life cost calculation

Confronting essentially the same valuation dilemma, Harwood compares the pain and suffering caused by drug abuse to that borne by patients with heart disease or cancer (1991, 47-48). Lacking valuation studies of policy-induced changes in functional states, such as incarceration or foster care, we propose some analogies between the quality of life decrements resulting from incarceration and limitations captured by various health status indexes and disease preference (utility) weights. The Rosser/Kind Index of Health Status provides one perspective (table 8). Tufts University Medical Center has established the Cost Effectiveness Analysis Registry (CEA Registry) that summarizes and collates cost-utility analyses of a very wide variety of clinical and disability conditions. The preference weights found in the Registry provide a second point of comparison to decrements in quality of life experienced by prisoners (table 9).

Table 8: Rosser/Kind Index of Health Status

	Distress			
Disability	A None	B Mild	C Moderate	D Severe
I. No Disability	1.000	0.995	0.990	0.967
II Slight social disability	0.990	0.986	0.973	0.932
III. Severe social/work; no heavy tasks	0.980	0.972	0.956	0.912
IV. Work severely limited; light housework only; able to do shopping	0.964	0.956	0.942	0.870
V. Unable to work or go to school; elderly must be escorted; cannot do shopping; few simple household tasks.	0.946	0.935	0.900	0.700
VI. Confined to chair or wheelchair or able to move only with support from assistant.	0.875	0.845	0.680	0.000
VII. Confined to bed	0.677	0.564	0.000	-1.486
VII. Unconscious	-1.028	NA	NA	NA

Scores represent utility weights (fractions of normal health).
Source: Rosser and Kind (1978)

Our review of the literature determined that prisoners typically experience significant levels of stress and severe constraints on choice, autonomy, and movement in addition to other decrements in quality of life. On its face this state is comparable to Rosser/Kind disability level V or VI in which a person's voluntary movements and functioning (e.g., activities of daily living) are greatly limited. Prisoners, for example, must be released from their cells and

[29] Grosse points out that willingness to pay studies have failed to produce consistent QALY estimates. He concludes: "… well-known theoretical differences between WTP and QALY estimates … make the two types of metric difficult to compare" (2008, 13).

accompanied by guards in transferring from one part of the prison to another, and are often shackled in the course of doing so. The level of stress—from noise, heat, cold, poor food, threats to personal safety, and risks to health among others—is severe compared to normal life. This suggests a utility weight for imprisonment similar to Rosser and Kind's disability level V-severe, or about .70 of normal health. This translates into a 30% loss in quality of life.

Table 9: Selected Health Preference Scores (Utility Weights) From Cost Effectiveness Studies

Health State	**Preference Score**	**Range**	**Determined By**	**Source**
Substance abuse, in maintenance treatment	.90		Author, author/ clinician judgment	Catalog 1998-2001
Average for disabling collision	.827		Community, rating scale	Catalog 1998-2001
Injection drug user	.80		Author, author/ clinician judgment	Catalog 1998-2001
Child, mild developmental disability	.80	.70 - .90	Authors, author/ clinical judgment	Catalog 1976-1997
Reading disability	.77	.5 – 1.0	Clinicians, Rating Scale	Catalog 1976-1997
Full remission of depression symptoms, pharmacotherapy	.75		Unknown	Catalog 2005 (Aziz 2005)
Year with depression	.70		SF-26/12, patient rating scale	Catalog 1998-2001
Blindness	.69		Author, author/ clinical judgment	Catalog 1998-2001
Child, moderate developmental disability	.60	.40 - .80	Authors, author/ clinical judgment	Catalog 1976-1997
Adult with profound deafness	.59		Community, patients	Catalog 1976-1997
Major depression	.59		Author, author/ clinical judgment	Catalog 1998-2001

Source: Center on the Evaluation of Value and Risk in Health, CEA Registry 2009.

Utility weights extracted from the CEA Registry represent conditions ranging from .59 to .90 QALYs. These are disabilities and disabling conditions that reduce functioning and impose suffering. Incarceration can be likened to a disability state in which one's functioning is reduced not by a physiological or neurological condition, by mental illness, or by behavioral choice, but rather imposed by social policy—imprisonment for crime. A further parallel is that, as noted

above, some functional limitations persist well beyond the prison stay. We suggest that incarceration imposes quality of life losses of 25 to 40%, corresponding to utility weights of .60 to .75. The utility weight corresponding to living a year with depression, .70—representing a 30% loss in quality of life—serves as a potential anchor for our analysis. We therefore base our cost estimate on the assumption that prisoners lose 30% of their quality of life as a direct result of incarceration.

Given a 30% estimate for the loss in quality of life and the mean time served by Hawai'i drug felons who were released during FY 2006, a simple *undiscounted* calculation suggests the magnitude of the effect:[30]

39.03 months/12 months (3.2525 years) x .30 reduction per QALY = .976 QALYs

In other words, the average sentence served by drug felons in Hawai'i involves the net loss of about one Quality Adjusted Life Year.

French et al. (1996) defend an estimate of the value of a QALY of $311,532 ($400,286 in 2006 dollars).[31] A review at the turn of the millennium deduced a median QALY value of $265,345 from all WTP studies and a median value of $161,305 (both in 1997 dollars) from contingent valuation approaches (Hirth et al. 2000). More recent assessments place the value of a QALY considerably lower, in the neighborhood of $100,000 to $200,000 (Braithwaite et al. 2008; Weinstein 2008). Grosse found that the value of a QALY implied by federal funding for hemodialysis for end stage renal disease patients in recently published analyses is associated with a value of $100,000 to $150,000 per QALY (2008, 9). His review of the literature finds a broad range of values in use with a mid-point around $100,000. This figure is used by some experts in the field (e.g., Cutler and McClellan 2001) and serves as conservative foundation for our calculation of the prisoner's lost quality of life.[32]

The actual calculation of the net present value of this loss, which includes discounting the losses suffered in the second and third years of the offender's sentence by a percentage that is a proxy for inflation, yields a total for lost quality of life for the incarcerated parent of .9436 QALYs (appendix 7). That generates the following calculation of the value of lost quality of life for the parent while incarcerated:

Lost quality of life calculation (2006 dollars):
.2996 QALYs x $100,000/QALY = $29,958 first year cost
.9436 QALYs x $100,000/QALY = $94,360 NPV

<u>Disutility (Pain and Suffering) of the Prisoner's Family, Including Children</u>

[30] Since future costs and benefits are valued less than present costs and benefits—for example, because money held today will earn interest and grow in succeeding years—benefits and costs that occur in the future must be discounted by a percentage that is generally equated with the prevailing interest rate. We use a 3% discount rate in our calculations.
[31] French et al. (1996) argue that this value is age-invariant and thus applies to all cohorts.
[32] Cutler and McClellan (2001) use $100,000 as the value of a life-year (LY), not adjusted for quality (i.e., perfect health). Like many others they implicitly equate LYs and QALYs, despite the fact that QALY values are virtually always lower, since they must be corrected for less-than-perfect health (Grosse 2008).

Few will contest the claim that the children and partner of an incarcerated parent typically suffer from the parent's absence from their lives, though there may be exceptions for those parents who are abusive or completely disconnected. Braman's dissertation about the families of prisoners in Washington, D.C. paints a fine-grained landscape of the profound contributions of incarcerated parents to the lives of their children, even for the most criminal, addicted, and repeatedly incarcerated fathers (2002, chapter 4). In this work 13-year-old Charles talks about his relationship with his frequently incarcerated, drug-dealing father in the following terms:

> He can be fun when he want to. I ready don't hate him, but I just don't like the fact that he's not around. I can't really say that I hate him 'cause he never did nothing but not be around for me to hate him. He never, like, hurt me or nothing, and he is protective of me. He don't let nobody hurt me.
>
> And really, if I ask he give me everything I want … if I ask. It's just that I don't have the guts to ask for stuff. He's funny at times … silly. And he let me drive his car. I think I used to use up his whole gas tank. 'cause I never wanted to get out. And the car he used to have it used to take thirty dollars to fill up the gas tank, but he never had no problem with it. (Braman 2002, 164)

Even the children of drug-dealing parents who are mostly absent and who sap the resources of the family they left behind remain loyal and seek the parent's approval and company. But the child's pain, as in Charles' narrative, is always palpable.

Mumola (2000) and more recently Glaze and Maruschak (2008) have quantified from the national Survey of Inmates the types of reciprocal support and connections that tie together incarcerated parents and their families on the outside. As we noted in our discussion of child care, about half of prisoner-parents lived with their minor children prior to incarceration, and almost all of these adults participated in daily care for their children. More than half provided primary financial support for their children. Seventy-nine percent had some contact with their children after admission to prison. This level of commitment prior to prison and continued interaction after being locked up probably contributes to the demonstrated willingness of families to reciprocate and support the prisoner with their meager financial resources, by assuming the parent's family, financial, and legal burdens, and by rearranging their lives in a myriad of ways. Braman summarizes the lessons these families provide:

> Incarceration places immediate and significant material burdens on families of prisoners, none of which are anticipated by standard legal theory or mitigated by standard correctional practice. The most obvious cost is lost income: Kenny's mother is forced to put off her retirement, take out a second mortgage on her home, and travel to Alabama to care for her own mother instead of moving there [to remain close to Kenny's prison]. Lilly is left assuming many of the childcare duties for her son's children and drawing on familial funds to support their relationship with their father through telephone calls and visits to the out-of-state prison. (Braman 2002, 85)

The research literature shows that what happens to a child during the parent's incarceration is sufficiently bad to have long term negative effects. John Hagan and Ronit Dinovitzer warned a decade ago that the impact of parental incarceration on children "may be the least understood and most consequential implication of the high reliance on incarceration in America" (1999, 122). Joseph Murray and David Farrington have explored the effects of parental incarceration on children in a series of recent studies. Exploiting longitudinal data from the Cambridge Study in Delinquent Development they compared boys separated by parental imprisonment during their first 10 years of life with four control groups to disentangle confounding factors. They found that parental imprisonment predicted all antisocial-delinquent outcomes tested and was also strongly associated with many other childhood risk factors for delinquency (Murray and Farrington 2005). Adopting a clinical orientation, they then used the same dataset and design applied to boys aged 8 to 11 to examine internalizing and antisocial problems from ages 14 to 48. Again they found that separation due to parental imprisonment predicted the co-occurrence of internalizing and antisocial problems, suggesting that the effects of the parent's imprisonment are negative and long-lasting (Murray and Farrington 2006). In a concerted attempt to rule out other potential causes of these negative outcomes for children, such as the trauma of parent-child separation, stigma, or social and economic strain, they reviewed the empirical (quantitative) evidence in large-scale and small-scale studies on the effects of parental imprisonment on children (Murray and Farrington 2007).

> The present review shows that parental imprisonment roughly trebles the risk for child antisocial behavior. In the Cambridge Study, parental imprisonment predicted antisocial-delinquent behavior through the life-course with an average odds ratio of 5.7, and predicted violence with an odds ratio of 3.4. Odds ratios for poor mental health, drug use, school failure, and unemployment were all 2.0 or larger in the Cambridge Study. Thus, parental imprisonment is a relatively strong predictor of multiple adverse outcomes for children. Parental imprisonment might cause adverse outcomes for children via mechanisms of traumatic separation, economic and social strain, and stigma, but stronger tests of causation and mediation are required to draw firm conclusions. (2007, 57-58)

This body of work identifies the risks and odds for future negative outcomes for children that ride on the fact of their parents' incarceration. Murray and Farrington are not able to identify cause since some potentially contributing factors and mechanisms cannot be excluded. However, the potential mechanisms identified by this extensive investigation in fact offer testimony about the quality of life of children *during their parents' imprisonment*—a matrix of traumatic separation, economic and social strain, and stigma. Coupled with the qualitative literature and ethnography about the families and children of incarcerated parents this is sufficient for concluding that the children of an incarcerated parent experience significant losses in quality of life.

Paralleling our reasoning for estimating the reduction in quality of life for the parent-prisoner, we suggest a reasonable estimate for children is a loss of about 30%, in other words about the same as that suffered by the parent. We might compare these children with those who suffer from a moderate to mild developmental disability, i.e., with conditions having utility weights between .60 and .80 (see table 9). The dynamics, though, are different from the parent's

situation. The children's losses arrive in the form of absence of guidance, role modeling, comfort, protection, emotional support, and economic security, while simultaneously intensified by overt assaults such as stigma. They are not the consequence of the child's acts and therefore appear as imposed, external misfortune that is beyond the child's control and, in many cases, beyond the child's comprehension.

The mean age of children of incarcerated parents is eight years (Mumola 2000) and we use life probabilities for a child of this age in our calculations. That assumption generates a loss for one child of about .9447 QALYs over the course of the parent's imprisonment, and a net present value for these losses of $94,477 (appendix 7).

Since parents in state prisons have, on average, just over two minor children we must assess whether all children suffer equally from the parent's absence. Seventy-nine percent of parents in state prison have some form of contact with their children. Therefore, a significant fraction of these children (i.e., about 20%) might be weakly connected to their parents. A portion of these children fail to have contact with their parents due to animosity between their caregivers and the parent in prison (Brown 2003). Some men discourage their families from visiting due to the degrading treatment the family receives from prison staff (Richards and Jones 1997, 13). Taking these impediments into account the proportion of children that truly has no interest in or connection with a parent in prison may be rather small.

However, even children who do not contact their parents during their period of incarceration may suffer quality of life losses. They will be subject to the stigma of having a parent in prison, they are subject to the same kinds of self-doubt as more connected children, and they will not be able to enjoy the parent's company, supervision, or protection even if they wished to reestablish the relationship. It is not even clear that lack of contact equates with lack of connection due to the circumstances cited above. There is insufficient foundation for adjusting quality of life losses for the incarcerated parent's children due to apparent lack of contact or interest. Thus, the external quality of life cost for one child must be multiplied, since incarcerated parents have 2.08 minor children on average. The interaction of age and life expectancy for children aged eight years, refracted by a utility weight of .70 (i.e., a 30% loss in quality of life) generates a loss of .9448 QALYs for one child over this cohort's average length of stay. This yields the following calculation:

> *Lost quality of life calculation for children (2006 dollars):*
> .3000 QALYs x 2.08 children/parent x $100,000/QALY = $62,400 lost child QoL first year
> .9448 QALYs x 2.08 children/parent x $100,000/QALY = $196,518 lost child QoL NPV

Partner pain and suffering have received considerable attention in the research literature, supplemented recently by the work of Donald Braman and David Murray. Murray summarizes much of this literature in the following terms:

> Loss of income is compounded by additional expenses of prison visits, mail, telephone calls (especially if prisoners call collect, as in the US) and sending money to imprisoned relatives. As one family member put it, "it becomes so

> expensive, and the cost becomes so enormous that it takes away other things that you could be doing with your money … I have to look out for my well-being and my children's well-being, because I'm the only source of income they have" (Braman and Wood 200, 165).
>
> Imprisonment of a partner can also cause home moves (Noble 1995), divorce and relationship problems (Anderson 1966; Ferraro et al. 1983; McEvoy et al. 1999) and medical and health problems (Ferraro et al. 1983; McEvoy et al. 1999; Noble 1995). Partners with children face single parenthood at a particularly vulnerable time (Peart and Asquith 1992). As well as having to deal with their own problems, partners are expected to support prisoners and to look after children, who are likely to be particularly hard to manage if their parent has been imprisoned …
>
> Partners face other difficulties that are more intrinsic to the facts of imprisonment … Prisoners' partners can suffer because of a lack of information about the imprisonment, visiting, and contact procedures (Ferraro et al. 1983). Maintaining contact can be fraught with difficulties such as busy booking lines, inconvenient visiting hours, a lack of transport, and the cost and distance of travel (Hounslow et al. 1982). Exacerbating these problems, prisons are clearly not family-friendly places to visit. Poor visiting facilities and hostile attitudes of staff can put families off visiting, especially those with children (Peart and Asquith 1992). (Murray 2005, 445)

We apply reasoning similar to that for children to the disutility of the partners of incarcerated parents. In other words, we assume that partners lose 30% of their quality of life, though this must be reduced by some proportion to account for antagonistic, disrupted, or unalterably broken relationships. Partners aged 32 years lose .9442 QALYs from a 30% reduction in quality of life over 39 months. If we assume that half of incarcerated parents have valued relationships with partners that reduce the partner's quality of life by 30%, the net present value in lost partner quality of life for the average prisoner would be:

Lost quality of life calculation for partner (2006 dollars):
.2998 QALYs x .50 partners/prisoner x $100,000/QALY = $14,990 lost partner QoL/parent first year
.9442 QALYs x .50 partners/prisoner x $100,000/QALY = $47,210 lost partner QoL/parent NPV

This is an external cost for the partner and children.

This is by no means the end of the story. Braman's dissertation, in particular his extensive, carefully drawn kinship diagrams matched with wide ranging interviews, show conclusively that quality of life losses from the incarceration of a parent affect far more people than the parent's partner and children. We have not touched the costs borne by grandparents, brothers, sisters, ex-wives and ex-partners who remain involved, and in-laws whose attempts to intervene and better a very difficult situation are all amply documented. With these real quality of life losses not yet

estimated our figures for partner and children represent a cost floor that will rise considerably as our methods and data allow us to achieve more realism in capturing the social cost to families of a parent's incarceration.

Depleted Neighborhood Economic Strength and Quality of Life

Few studies of the costs of incarceration mention its impact on the community. Piehl, Useem, and DiIulio were among the first in their enumeration of social costs:

> By "social costs" we mean any burdens on society in addition to the resources it takes to run a prison system. They include the lost labor-market productivity of inmates, the loss to families of having a member away from home, and the loss to communities of having a resident removed. (1999, 4)

Little was made of this insight until the work of Dina Rose and Todd Clear began to appear in the late 1990s. In a series of papers Rose and Clear focused a spotlight on the effects of incarceration on neighborhoods. They established the theoretical foundations for predicting that heavy reliance on incarceration as a social control strategy would lead to the disorganization of the communities where its effects are concentrated (Rose and Clear 1998), they explored the role of "coercive mobility" (i.e., high rates of incarceration and reentry) in *increasing* crime rates at the neighborhood level (Clear et al. 2003), they studied how interpersonal networks were disrupted by concentrated incarceration (Clear, Rose, and Ryder 2001), and specifically probed the potential of offender reentry for both good and ill in the lives of their family members and children (Rose and Clear 2004). They coined the term "reentry cycling" to describe the close association of removal and reentry of offenders (i.e., in the same neighborhoods) and argued that:

> the immediate impact of reentry cycling is a series of weakenings of the sources of informal social control that serve as the basis for public safety and community quality of life. … high rates of incarceration and reentry, concentrated in poor places among people of color, serve to further weaken the community capacity of those places rather than to strengthen it. (Clear et al. 2003)

To date no one has attempted to estimate the costs to the community of this pattern, and it remains an important topic for future cost-benefit analysis.

Additional Social, Health, and Educational Services Required by the Family of the Prisoner

It is intuitively appealing, given the findings of the Rose and Clear studies regarding the disorganizing effect of concentrated reentry cycling and the evidence of family economic strain, to presume that the families and children of incarcerated offenders may access and use more public services than they otherwise would. Eric Cadora and his colleagues used GIS mapping in Brooklyn to match the block-by-block rates of incarcerated residents against individuals on TANF (Cadora, et al. 2003). They found substantial overlap in the neighborhoods with the highest concentrations of these individuals, suggesting that they are the same populations. They also matched incarcerated parents against minor children receiving public assistance, finding an even more precise overlap. These overlapping mappings offer a circumstantial case but not proof for the increased use of public services. Further, ongoing work with women offenders in

Illinois may challenge this assumption when it is finally published. We therefore treat this as a potential, but presently undemonstrated effect of a parent's incarceration.

Decreased Future Productivity of Children of the Prisoner
Increased Delinquency and Criminality of Children of the Prisoner
Decreased Health of Children
Decreased Mental Health of Children

A recent literature review (Murray 2005: 446-47) and our own review reveal that the evidence for these potential effects is weak, equivocal, and in some cases non-existent and so we do not attempt to estimate their costs.

Section V: Social Benefits of Incarceration

Elements of Social Benefit

The potential benefits of incarceration have three primary components: Deterrence, incapacitation, and retribution.[33] However, there are also collateral benefits that are much less frequently mentioned in the literature and never estimated. The literature on the collateral benefits of incarceration is sparse, and calls for the development of data and new estimation methods.

Deterrence occurs when commission of a crime is averted because the potential perpetrator fears the consequences. Some analysts hold that the effect of deterrence is greatest with property crimes that have relatively low social costs (Levitt 1998). Incapacitation occurs because an offender cannot commit (community) crime when in prison. Incapacitation effects are largest for violent crimes (Levitt 1998). Retribution is mentioned as a social purpose of incarceration but almost never further explored and no value has yet been attached (Piehl and DiIulio 1995; M. Cohen 2000; Lynch 1994; McDougall et al. 2003). Most attention focuses on deterrence and incapacitation as the principal benefits of incarceration.

Our inventory of the potential social benefits of incarceration includes the following:

a. Savings/Benefits from Averted Crime (Incapacitation)
b. Reduced Cost of Insurance
c. Increased Value of Property
d. Increased Economic Activity
e. Lowered Cost of Personal Security
f. Savings from Suppression of Negative Behavior
g. Removal of Harmful Influence and Behavior in the Home
h. Removal of Harmful Role Model and Behavior in the Neighborhood
i. Rehabilitative Effect of Prison
j. Improvements in Offender Health and Human Capital

Savings/Benefits from Averted Crime (Incapacitation)

Our reconstruction of offenses committed based on the arrest histories of members of the cohort serves to define the crimes avoided by incapacitation and the value of those crimes. As noted in our analysis above, each cohort member would, on average, commit about 30 crimes per year with a mean value of about $864 per crime if they had not been locked up. Most of these crimes are minor, on the scale of things, and only 2.4% fit into a broadly defined category of violent crime. The net present value per prisoner of crimes averted is $85,406 over the average length of stay and the total savings to victims and the Hawai'i community from averted crime is about $16.8 million (2006 dollars) from the incarceration of this cohort.

We do not address the number or value of crimes avoided by deterrence effects. The reality of deterrence and the ability to measure it independently of incapacitation were hotly debated in a

[33] Rehabilitation is often mentioned as the third leg of this stool rather than retribution. Discussion of rehabilitation effects has faded from the research literature as rehabilitation has withered as an element of social policy among the states. Evidence for the decline of rehabilitation is abundant and may be found in the much reduced expenditures for in-prison programming discussed in the publications of the New School of Convict Criminology.

recent issue of the Journal of Quantitative Criminology (2007, vol. 23) with some contributing authors declaring deterrence an imaginary or phantom effect.

Reduced Cost of Insurance
Increased Value of Property
Increased Economic Activity
Lowered Cost of Personal Security
Lynch alludes to these collateral benefits of incarceration:

> … many hidden benefits also may be associated with increased incarceration, particularly if increased incarceration can be shown to reduce crime. For example, insurance premiums in high crime areas may begin to fall, resources spent on personal security may be freed for more desired allocations if the threat of victimization is reduced. The difference in the value of the consumption of security-related goods and the value of a more preferred set of goods would itself be a hidden benefit associated with reductions in crime rates. (1994, 4)

However, Clear and colleagues (Clear, Waring, and Scully 2005; Clear et al. 2003) demonstrate the paradoxical result that high levels of incarceration in particular neighborhoods actually increase crime and recidivism and exacerbate poverty, calling into question the causal chain:

$$\textit{incarceration} \longrightarrow \textit{reduction in crime} \longrightarrow \textit{increased economic activity}$$

Though there are studies of the relationship between property values and crime rates, we have not found in the literature specific cost estimates of these effects. Improved property value remains as an unestimated but real potential benefit of incarceration.

Savings from Suppression of Negative Behavior
Removal of Harmful Influence and Behavior in the Home
A balanced assessment of the impact of a parent's incarceration on their family members must at least acknowledge the possibility that it may have some beneficial effects. This is rarely explored in research and advocacy about incarcerated parents and their children. Watts and Nightingale (1996, 4) frame the issue squarely:

> … removing a negative influence from the home could yield positive effects. If a person who has been disruptive, offensive, or irresponsible at home is incarcerated, remaining family members may stabilize. Adults may feel more able to pursue education, employment, and other productive activity that could improve their own human capital. Similarly, children may improve psychologically and perform better in school, which should, in the long run, increase their human capital. There is at least anecdotal information from a study of teen parent programs that some young mothers making noticeable progress in education, training, and employment experience a setback when their male partners are released from the justice system (B. Cohen 1992).

Marilyn Brown found the same dynamics in her interviews with female parolees in Hawai'i:

> At the time of the crime, Nora was involved with a very abusive man. In fact, she told me, it was only when he was incarcerated that she was safe from his violence and threats. Thus the broader context of the family and relationships with significant others come into view as factors that distort a woman's parental behavior. (Brown 2003, 214)

We have not found studies that systematically assess such potential positive impacts. The estimates of Miller and colleagues (Miller, Cohen, and Wiersema 1996) regarding the very high social cost of child abuse and the relatively high cost of child neglect suggest that savings could be significant, depending on the frequency of these events. However, we lack solid information about the prevalence of child abuse and neglect committed by incarcerated parents. Hence, we offer no estimate.

Removal of Harmful Role Model and Behavior in the Neighborhood

To our knowledge, there have been no estimates of this effect. It nevertheless constitutes a real potential savings from the incarceration of offenders. Balancing this, Clear and colleagues (Rose and Clear 2004; Clear, Rose, and Ryder 2001) make the case that reentering offenders can be valuable male role models and can make real contributions to their neighborhoods' social fabric. This same point is driven home in abundant personal detail in Braman's ethnography (2002). Just as returning parents can model responsible behavior they are also capable of this role prior to their arrest and incarceration. Nevertheless, we have no national or Hawai'i data on neighborhood benefits from removing bad actors and no estimates of its value.

Rehabilitative Effect of Prison

Improvements in Offender Health and Human Capital

LaLonde and George (personal communication [2003]) describe improvements in personal health and apparent increases in human capital for incarcerated female offenders in their Illinois study. Their study participants were in very poor condition upon incarceration and the circumstance of incarceration, with the implied absence of drug and alcohol abuse and the behaviors necessary to sustain such habits, provided the opportunity for some recovery both in terms of health, in terms of addiction, and also in terms of skills. Therefore, improvements in health and human capital are potential benefits for the offender and for society due to incarceration if opportunities for rehabilitation are sincere, available, and used by the offender. Unfortunately, as we noted above, research and the direct testimony of convicts show that these gains are more the exception than the rule. We have no estimates of these effects but the available literature suggests the value may be small.

Section VI: Summary of Costs and Benefits for the 2006 Cohort of Released Drug Felons

We summarize the itemization of social costs and benefits of incarceration in tables 10 and 11. Cost calculations are based on the mean sentence served by drug felons in Hawai'i who were released during FY 2006 (39.03 months).

A number of items we identified as costs and benefits of incarceration currently lack estimates. For some costs, such as training for probation and parole agents, we can guess at the magnitude by analogizing with the costs of training for other professionals (e.g., alcohol and drug abuse counselors). Other costs to society that are incurred only for some fraction of the families of offenders, such as the administration of welfare payments, are likely to be small when averaged across the cohort of prisoners.[34] The costs associated with the economic and social effect of concentrated reentry cycling on neighborhoods are potentially large, as are those that may accrue from the increased use of social and health services by the families of incarcerated offenders.[35]

The unestimated costs to families are those they bear by supporting the offender in prison, caring for the offender's children, and by absorbing the offender post-release.[36] These may be significant, from the family's point of view, and their absence from our calculations means that total family costs as currently stated are an underestimate. Costs to other family members are potentially of the same magnitude as those estimated for the partner and the children. In other words, other family member losses in quality of life may be quite large. The only offender cost left unestimated is that associated with the offender's effort to avoid or reduce incarceration. These costs are simply unknown, since such avoidance strategies are documented only anecdotally and, to our knowledge, have never been systematically studied.

On the benefit side, reduced insurance cost, increased property values, lowered cost of security, and increased economic activity are likely to be small on a per-offender basis. Removing a harmful role model, including averting some instances of child abuse and neglect, could have an impact on the estimate of social benefits. However, only a small fraction of offenders would commit child abuse or neglect their children were they free, and a fraction of children of incarcerated parents will also be abused or neglected by their substitute caregivers due in part to the prisoner's absence (see Braman 2002, 162 and Brown 2003, 217 for such cases). These effects probably cancel each other out. In addition, the prisoner may function as a *positive* role model in the family and neighborhood to some degree, as Clear and Rose suggest, and the social *benefit* derived from removing him is therefore at least partly offset by the societal *cost* from his loss.

There is no estimate for the social value of retribution, though conceivably contingent valuation studies might be capable of exploring this or it could be derived from penalty assessments in civil trials. Regardless, retribution would have to be worth at least double the value of avoided

[34] If 40% of cohort families received $10,000 (NPV) in welfare payments over the course of the parent's sentence, and administrative costs were 4%, the net present value would be on the order of $160 per parent-prisoner.
[35] The manner of distributing neighborhood costs of reentry cycling across a specific cohort of offenders as average per-parent costs remains to be developed.
[36] Our prior calculations included costs of child care for only one child. However, many families end up providing care and supervision for two children, the average for parent-prisoners.

crime to bring societal benefits into alignment with societal costs. The value of avoided crime might be considered an absolute upper bound on the value of retribution.

Table 10: Social Cost for Average Hawai'i Parent Drug Offender (net present value)

Social Cost of Incarceration	State	Family (external)	Offender (internal)	Total Social Cost
CJS Processing: Arrest	$2,500			$2,500
CJS Processing: Conviction	$2,216			$2,216
Private legal defense			$373	$373
Public legal defense	$344			$344
Efforts to avoid prison			n.d.	$0
Presentence investigation	(included)			$0
Preincarceration detention	$8,142			$8,142
Prison bed	$122,919			$122,919
Criminogenic effect of prison	n.d.			$0
Child care	n.d.	$17,701		$17,701
Foster care for children	$900		n.d.	$900
Parole supervision	$3,186		n.d.	$3,186
Training of parole agents	n.d.			$0
Training of other providers	n.d.			$0
Specialty services	n.d.			$0
Admin. of welfare	n.d.			$0
Family support of inmate		n.d.		$0
Family provision of housing		n.d.		$0
Lost wages		$31,731	$31,731	$63,462
Lost fringe benefits on lost wages			$18,848	$18,848
Lost taxes on lost wages	$12,959			$12,959
Lost household productivity		$9,519		$9,519
Lost future earnings			$58,542	$58,542
Lost fringes on lost future earnings			$17,563	$17,563
Lost taxes on lost future earnings	$11,954			$11,954
Pain & suffering-prisoner			$94,356	$94,356
Pain & suffering-children		$196,512		$196,512
Pain & suffering-partner		$47,212		$47,212
Depleted neighborhood economy, QoL	n.d.			$0
Additional social services used	n.d.			$0
Totals	**$165,121**	**$302,675**	**$221,413**	**$689,209**

n.d. = no data

Table 11: Social Benefit for Average Hawai'i Parent Drug Offender (net present value)

Social Benefit of Incarceration	State	Family (external)	Offender (internal)	Total Social Benefit
Avoided crime	$85,407			$85,407
Rehabilitative effect of prison			n.d.	$0
Value of retribution	n .d.			$0
Reduced insurance cost	n.d.			$0
Increased property values	n.d.			$0
Increased economic activity	n.d.			$0
Lowered cost of security	n.d.			$0
Reduced negative behavior		n.d.		$0
Removal of harmful influence		n.d.		$0
Removal of harmful role model	n.d.			$0
Increased health			n.d.	$0
Increased human capital			n.d.	$0
Totals	**$85,407**	**$0**	**0**	**$85,407**
Costs less benefits	$79,714	$302,675	$221,413	$603,802
Cost-benefit ratio	**1.93**	**--**	**--**	**8.07**

n.d. = no data

A few of our estimates, such as CJS costs and legal defense costs, are based on averages derived from other states or national data rather than Hawai'i data. These costs are small compared to the other variables. We also use national estimates for the value of a statistical life. However, the use of large, aggregate national data to derive these estimates is the source of their validity, and has become standard practice in cost-benefit analysis.

In brief, this comparison shows that Hawai'i is losing $1.93 for every dollar of benefit derived from incarcerating parent drug offenders. Just as clear as the magnitude of these losses is the conclusion that the largest share of costs for the incarceration of drug offenders with minor children is borne by the offender and the offender's family.

Net Costs and Benefits to Hawai'i

The database furnished by the Hawai'i Department of Public Safety shows that 197 drug offenders were released from Hawai'i prisons during FY 2006 after serving an average sentence of 39.03 months. 59.6% of these offenders had minor children. Applying this proportion to the cohort of drug felons and multiplying by the per-parent costs from table 10 generates our estimate of the cost for incarcerating the sub-cohort of parent-prisoners. A parallel estimate can be made of the costs of incarcerating *non-parent* offenders (40.4% of the cohort), by removing most family costs from the calculation and deleting the state estimates for day care and foster care. This yields the following totals for parent-offenders, non-parent offenders and grand total for all incarcerated drug offenders in the cohort for the average length of stay (table 12).[37]

[37] The estimated net present value of the state cost for incarcerating a non-parent in this cohort is $164,221.

Table 12: Total Costs and Benefits for Incarcerating Full Cohort

Parents	State (external)	Family (external)	Offender (internal)	Total Social Cost
Total Cost	$19,387,214	$35,537,705	$25,996,487	$80,921,407
Total Benefit	$10,027,678	$0	$0	$10,027,678
Net Cost	$9,359,536	$35,537,705	$25,996,487	$70,893,729
Non-parents				
Total Cost	$13,070,014	$4,515,130	$20,147,201	$37,732,345
Total Benefit	$6,797,285	$0	$0	$6,797,285
Net Cost	$6,272,729	$4,515,130	$20,147,201	$30,935,060
All offenders				
Total Cost	$32,457,228	$40,052,836	$46,143,688	$118,653,752
Total Benefit	$16,824,963	$0	$0	$16,824,963
Net Cost	$15,632,265	$40,052,836	$46,143,688	$101,828,789

The bottom line for the Hawai'i community is a loss of about $15.6 million when only the state's costs are considered and a loss of about $101.8 million when all social costs are counted. Comparing the average parent with the average non-parent drug offender (not shown) reveals that it costs the State about the same to incarcerate parents and non-parents considering only external state costs, but about twice as much to incarcerate parents if the external costs to family and children are factored in. Adding the offender's (internal) costs to the equation leavens the differential between parents and non-parents, because personal costs to offenders and non-offenders are equal, adding about $221,000 to both sides of the comparison. The net result is that it costs Hawai'i about 45% more to incarcerate a parent drug offender compared to a non-parent taking all social costs into account. Comparing total social costs to social benefits, for the full cohort over the average sentence costs exceed benefits by a ratio of about 7:1.

Section VII

Cost of Treatment Alternatives in Hawai'i

In Hawai'i 61.9% of cohort members were imprisoned for simple possession of drugs or paraphernalia (FC), 30.5% were locked up for possession *or* distribution (FB),[38] 6.6% of the total were incarcerated for drug distribution (FA), and 1.0% were in prison for obtaining controlled substances (FC). Since many drug abusers and addicts finance their habits by selling drugs it is reasonable to suppose that the crimes of some of those incarcerated for possession/distribution (FB, above) were in fact driven by dependence or addiction rather than strictly by profit motive. This profile and reasoning suggest that drug abuse treatment may be an appropriate alternative to incarceration for a large proportion—perhaps 60 to 70%—of this population. Various capacitation strategies that seek to prepare and place offenders in economically rewarding occupations may be appropriate for a share of the rest.

Cost-benefit evaluations of treatment programs for drug abusers and drug offenders have found a wide range of such programs to be cost-effective. The evaluation of the CALDATA project laid the foundation for much subsequent work by assessing treatment effects in a sample that represented a population of 150,000 in California (Gerstein et al. 1994). Gerstein and colleagues determined that the specific benefits of treatment—including reduced alcohol and drug use, reduced health care costs, and reduced crime—exceeded treatment costs in a range between 4:1 and 12:1, depending on the type of treatment. Mauser and colleagues provided evidence from the Treatment Alternative Program (TAP) in three counties in Wisconsin that diversion of drug offenders into treatment reduced criminal involvement and, for program completers, also recidivism (Mauser, Van Stelle, and Moberg 1993). Rajkumar and French summarized their analysis of data from the national Treatment Outcome Prospective Study (TOPS) in words that stand for many parallel studies: "… drug abuse treatment clearly has the potential to return significant net benefits to society in the form of avoided criminal activity (1997, 318)."

Evaluations of the effectiveness of drug courts, which incentivize drug offenders to participate and complete treatment with legal sanctions, have been conducted in many jurisdictions in recent years, including St. Louis (Loman 2004), Portland (Finnigan 1998), Brooklyn (Zarkin et al. 2005), Washington, D.C. (Harrell, Cavanaugh, and Roman 1998), and Honolulu (Okamoto Consulting Group 1998), to name just a few. Drug court studies consistently find that the benefits of participation, which primarily accrue from reductions in criminal activity, outweigh the costs. The Hawai'i Joint House-Senate Task Force on Ice and Drug Abatement offered their assessment of this literature in the following terms:

> Treatment through Drug Court programs is more cost effective than incarceration. Graduates of Drug Court treatment programs have low rates of recidivism. While the number of offenders terminated from [the Hawai'i] Drug Court is high, the program successfully graduates more than 50 percent of its admissions. (Hamakawa, Hanabusa, and Aduja 2004, 72)

[38] Hawai'i has several statutes that punish the acts of possession of defined amounts of drugs *or* distribution of any amount. For this cohort the relevant statutes are Promoting a Dangerous Drug 2, and Promoting a Harmful Drug 2. Both are class B felonies.

Other studies have further defined the mechanisms and variables that influence the outcomes of drug abuse treatment for drug offenders. French and colleagues determined that length of stay in treatment had an independent and significant negative impact on post-treatment drug use and criminal activity (1993, 31). Offenders in residential treatment showed the greatest relative improvement in drug use and criminal activity from additional treatment time. Anglin and collaborators showed that treatment results were not related to the degree of coercion by the criminal justice system for participants in a methadone maintenance program in Southern California. "Although voluntary entrants may intend to make relatively permanent changes in their lives when they enter treatment, it is clear that even coerced entrants make equivalent behavioral changes that are of benefit to society and to the individual addict (Anglin, Brecht, and Maddahian 1989, 554)." In Delaware, an in-prison work release therapeutic community for drug offenders complemented by aftercare services produced much better results than work release-only (McCollister et al. 2003).

All together, the research shows that drug treatment programs can be effective in reducing subsequent criminal activity, health costs, and drug use itself. Drug courts that propel offenders into treatment and coerce them to complete treatment have generally fulfilled their promise by reducing drug use, criminal activity, and recidivism among program completers while diverting drug offenders from prison. Coercing drug offenders into treatment does not appear to reduce the positive effects. Longer treatment provides greater benefits, and residential treatment may have an edge over other treatment modalities.

These benefits are available in Hawai'i through existing programs, subject to capacity limitations. And, the capacity limitations are real. The Ice and Drug Abatement Task Force in 2004 made an effort to define the scope of available treatment and compare it to the scope of need. They found a large gap—more than 3,000—between the public slots available to treat adult substance abusers (alcohol, drug, or any substance) and the number of adults *willing* to enter treatment (Hamakawa et al. 2004, chart 5). But the real gap is far larger. Federal estimates, based on the 2000 National Household Survey on Drug Abuse, showed that about 17,000 individuals in Hawai'i were taking illicit drugs, needed treatment, and did not receive it (Hamakawa et al. 2004, 54). The Task Force found that *public* resources, which pay for 55% of treatment services in Hawai'i, were capable of serving about 6,400 adults (2004, chart 5, chart 6). Combined public and private substance abuse services in Hawai'i therefore had an implied capacity to serve about 11,600 substance abusers, leaving about 5,500 of them with no chance of receiving services. This situation led the Task Force to recommend to the legislature $10.8 million in additional funding for treatment services, by far the largest of its funding recommendations.

Information on the effectiveness of substance abuse treatment in Hawai'i is sketchy, apparently because treatment providers are not required by the state or their other funding sources to keep and report follow-up data on their clients. Thus, there is no information on relapse rates available from Hawai'i service providers. Some outcomes, collected by the Department of Health via self-reports of clients six months after program completion, suggest a degree of success in avoiding arrest (about 90% in 2003), avoiding hospitalization (about 93% in 2003), and achieving stable living arrangements (about 82% in 2003) (Hamakawa et al. 2004, chart 8).

Of course, these are the self-reports of program completers, and rates of program completion range from 41 to 60% (Hamakawa et al. 2004, table 13). Therefore, about half of those who enter substance abuse treatment in the state fail to finish, are for that reason not surveyed, and the effects of the program on their health and behavior remain a significant question mark.

The fact that substance abuse treatment has demonstrated its effectiveness in a variety of sites and formats, and that programs following these models are well established in Hawai'i together invite a comparison between program costs and the cost of incarceration for drug offenders. Hina Mauka, a provider that offers a full range of substance abuse services throughout the Islands, and the only in-state treatment center that is CARF certified for criminal justice treatment programs, represents the costs associated with treatment of drug offenders in this market (Hamakawa et al. 2004, 159-60). Between mid-2000 and mid-2003 Hina Mauka served an average of about 1,700 clients per year of which 59.6% needed treatment for methamphetamine or "other" drug abuse (excluding marijuana). Hina Mauka's residential treatment program would be the modality of choice for drug offenders as an alternative to prison, both because of its edge in effectiveness over other models (e.g., outpatient), and because of the incapacitation effects of residential program supervision.[39]

The State of Hawai'i Alcohol and Drug Abuse Division (ADAD) of the Department of Health quotes the going rate for adult residential treatment as $165 per day, with a maximum length of stay in treatment of 75 days. Hina Mauka abides and charges these rates for its residential services. Their outpatient services run $230 per week. For criminal justice clients the recommended course of treatment at Hina Mauka is 45-60 days of in-patient treatment followed by 10 weeks of outpatient treatment (Alan Johnson, Executive Director, Hina Mauka, personal communication, 12/07). This yields the following base cost for a full course of residential treatment for drug offenders:

(60 x $165) + (10 x $230) = $12,200 base residential treatment cost

In addition, the State offers Integrated Case Management (ICM) substance abuse treatment for criminal justice clients, also at $165 per day. Assuming the graduate of a full course of residential and outpatient treatment receives one day of ICM during each of the 42 weeks remaining in a 12 month period ICM costs would be:

1 day/week x 42 weeks x $165/day = $6,930

This generates an estimate for total treatment and case management costs of:

$12,200 base residential and outpatient treatment
$ 6,930 ICM services
$19,130 Total treatment cost (2007 dollars)

[39] Simply put, clients in a residential program are less likely to commit crime or drug use than comparable clients who are less closely monitored. The incapacitation effect of residential treatment, though presumably much less, is nevertheless parallel to incarceration.

Deflated to 2006 dollars this amounts to total first year treatment costs per drug offender of $18,600.

Assuming that 50% of the 2006 cohort of released drug offenders would be appropriate candidates for this course of substance abuse treatment, we can compare first year costs and benefits of incarceration against the first year costs of treatment. First years costs of incarceration for parent-prisoners can be read directly from the Year One row of each table in appendix 4. Other costs are given in the preceding analysis (e.g., legal defense). The first year costs for *non-parent-prisoners* are a subset of parent-prisoner costs, derived by disregarding costs for child care, foster care, and the pain and suffering of children (table 13).[40]

Table 13: First Year Costs and Benefits for Incarcerating the Average Parent and Non-Parent

Parent	State (external)	Family (external)	Offender (internal)	Total Social Cost
Total Cost	$60,779	$96,098	$62,524	$219,401
Total Benefit	$27,116	$0	$0	$27,116
Net Cost	$33,663	$96,098	$62,524	$192,285
Non-parent				
Total Cost	$60,493	$18,013	$72,598	$151,104
Total Benefit	$27,116	$0	$0	$27,116
Net Cost	$33,377	$18,013	$72,598	$123,988

Total Social Cost includes costs for the first year of parole supervision, and for the first year of lost future earnings, taxes, and fringe benefits.

The state's net first year cost of incarceration for the full cohort is the sum of net costs for parents plus the sum of net costs for non-parents:

Parents: 59.6% parents in cohort x 197 x $33,663/parent = $3,952,440
Non-Parents: 40.4% non-parents in cohort x 197 x $33,377/non-parent = $2,656,409
Total first year incarceration costs for the state: $6,608,849

This comparison demonstrates that the State's net first year cost of incarcerating a drug offender, regardless of parental status (roughly $33,500), is about double the cost of a full year of intensive substance abuse treatment. If the costs to family are included the differential for each parent-prisoner is just over $111,000:

($33,663 + $96,098) - $18,600 = $111,161

Recognizing the costs that accrue to the offender raises the social cost per parent differential to ($192,285 - $18,600) = $173,685. A major portion of these staggering costs derives from the losses in quality of life to family members and secondarily to the offender, losses that must be

[40] Costs of lost household productivity and pain and suffering of a partner are retained for non-parent-prisoners because we assume that non-parents were nevertheless part of some household, and that about half had significant relationships with a partner.

acknowledged in any responsible and comprehensive account of the consequences of incarceration.

The savings for the average drug offender can be expanded to the full cohort by simple multiplication, subtracting treatment costs from incarceration costs for half of the cohort of 197 drug offenders.[41] This provides a state-wide perspective on the economic consequences of incarceration. Table 14 offers a calculation of *first year savings* as well as savings over the average length of stay.

Table 14: Savings from Treatment of 50% of Cohort (1st Year and ALOS)

	State Savings - 1st year	State Savings (ALOS)	State + Family Savings (ALOS)*	Total Social Cost Savings (ALOS)†
Per Parent	$42,179	$146,521	$449,196	$670,609
Per Non-parent	$41,893	$145,621	$202,352	$455,496
50% of Parents	$2,476,161	$8,601,675	$26,370,528	$39,368,772
50% of Non-parents	$1,667,097	$5,794,839	$8,052,404	$18,126,004
50% of Cohort	$4,143,258	$14,396,514	$34,422,932	$57,494,776

*Includes amounts counted as State Savings (column C).

† Does not represent the row sum.

ALOS calculations do not include the costs of further crimes committed by drug offenders while in treatment or post-treatment, or costs of additional treatment after year one.

Calculation based on first-year treatment costs of $18,600 (2006 dollars).

The ALOS calculation assumes that no further costs accrue, after the first year, from an offender's diversion to community-based treatment. This is clearly a counter-factual assumption, since most cost-benefit evaluations of diversion programs for drug offenders find that some crimes are committed, some participants are arrested, and some are convicted of new crimes both during and after treatment. Expectably, this is more true of program non-completers vs. completers, and of the post-treatment period as compared to active treatment. Though these untoward events occur at lower rates than among untreated comparison groups, they nevertheless impose costs on victims, on the criminal justice system, and on the corrections system. Furthermore, program completers as well as non-completers may require additional treatment costs after year one. No cost-benefit evaluations have been conducted on substance abuse treatment programs in Hawai'i, so we cannot estimate these real costs of diversion. Our estimates above therefore represent a best case scenario with respect to the positive effects of treatment over the average length of stay, but are relatively realistic for the first year.

First year savings for the state from the diversion into treatment of half of the 2006 cohort of released drug offenders amount to a little more than $4.1 million. Savings over the average

[41] The calculation is based on the assumption that 59.6% of the cohort of 197 are parents and the complement of non-parents comprises 40.4% of the population. These are national proportions derived from the 2004 National Survey of Inmates.

length of stay, bearing in mind the caveats above, are much larger, summing to $14.4 million for the state alone, and growing to $57.5 million when all social costs are recognized.

The magnitude of these costs is surprising if not shocking. But the costs are the simple product of incarceration costs that substantially exceed the benefits from averted crime, multiplied by the relatively large number of citizens imprisoned for drug offenses. On an annual basis, represented by our first year calculations, the net cost of incarceration (costs less benefits) per offender far exceeds even a generous estimate of the cost of residential substance abuse treatment with intensive case follow-up. First year treatment costs for half the cohort amount to $1,832,100. Dividing the state's first year net incarceration costs for half the cohort—$3.3 million—by that figure indicates that every dollar spent on treatment for these drug offenders would return about $1.80 in avoided incarceration costs for the state alone, during year one. If we assume that treatment costs over 39 months are *double* the first year costs ($3,664,200) then each treatment dollar would produce a return on that investment of about $13.90 in terms of avoided social welfare losses (total social cost), over the full 39 month average sentence.[42]

[42] These ratios of return on investment are very similar to the range determined in the CALDATA evaluation—4:1 to 12:1.

Section VIII

Implications and Conclusions

Methodology and the public perception of offenders

The study of offending patterns suffers from an emphasis on "high profile crimes." This is commonly manifested by basing analysis on Part I Index crimes or the crimes surveyed in the NCVS, sometimes justified by an appeal to limitations of the dataset available to the investigator. Exactly the same bias characterizes the cost-of-crime literature. However, in neither of these related fields has there been a demonstration that high profile crimes are those which are most commonly committed or those which have the greatest impact on a community. A focus on high profile crimes would grossly distort the profile and impact of Hawai'i drug offenders and would lead the public and policy makers in the wrong direction.

In fact, we have found that detailed information about offenders, including arrests, is readily available at least at the state level, contrary to assertions that data are not accessible. Arrests are by no means limited to Part I Index crimes, and in fact Part I crimes do not approach being the majority of arrests. When arrests are expanded into offense rates, applying well understood methods, Part I Index crimes amount to about 18% of estimated offenses for the cohort we studied. Likewise, cost-of-crime estimates have focused on crimes that have the greatest per-victim cost, typically Part I offenses, rather than those that are the most frequent and probably have the greatest impact on the community (e.g., drug offenses, public order offenses, non-felony theft).[43] This emphasis on "headline" crimes skews much of the research on offending and the cost-of-crime and feeds public perceptions about the nature and behavior of those who commit crime. Regrettably, it sows the impression that criminals commit high profile felonies with catastrophic consequences for victims, paradoxically reinforcing the public's fear of crime, an anxiety that the very same criminologists are at pains to correct in an era of declining crime rates.

Constructing an accurate profile of the nature and intensity of offending by a particular group of criminals requires abandoning these artificial constraints. We found that the arrest records of our cohort were far more diverse than acknowledged in much of the literature on offending, spread across 283 named offenses. Nor is offending accurately represented by considering only felonies, since felonies at most make up 36.5% of total arrests, but misdemeanors constitute at least 40.6% of the charges in our complete database of 7,867 charges.[44] Given this context, the analysis of frequencies of ten or twelve high profile felonies to represent the offending patterns of a cohort of criminals proceeds with very weak logical, methodological, and empirical foundations. These social and methodological imperatives counsel application of a more inclusive methodology in the study of offending.

[43] Of 348 theft charges 48.9% were felonies, 18.7% were felony or misdemeanor charges, and 32.5% were misdemeanors.

[44] These percentages represent "pure" charges which are unambiguously either a felony or misdemeanor, plus counts of charges which cross severity classes (e.g., a crime that could have been charged as a class C felony or as a misdemeanor). Crimes with multi-valent class membership are counted as belonging to their highest severity class. Therefore, our percentages overstate the proportion of felonies in the full arrest database, since 4.6% of felony arrests were multi-valent and some proportion of these were charged as misdemeanors.

Implementing such an inclusive approach to the subject, we found that drug offenders in the cohort commit almost exclusively drug and non-violent property and public order offenses.[45] For drug crimes, both in terms of arrests and in terms of estimated offenses, the violations were overwhelmingly possession charges. Among property crimes theft predominates. The individuals we studied are also non-conforming in their driving habits (e.g., driving without a license) and possession of weapons (e.g., possession by a felon). Participation in violent crimes is minimal, the most significant such offense being domestic violence, though it occurs at a far lower frequency than the crimes detailed above. If the 2006 cohort of released drug offenders is representative for Hawai'i—and there is every reason to believe that it is—then drug offenders do not appear to pose a direct, personal risk to the citizens of the State. Instead, they pose a risk to general health and safety by abuse and small sales of drugs, and secondarily by non-personal acquisitive crimes that are likely motivated by the need to purchase the substances that slake their addiction. This profile does not support current sentencing policy or prosecution practices that assign these drug offenders sentences that amount to 86% of the average sentence for all felons released from Hawai'i's prisons in FY 2006.[46] Exactly this policy and practice is responsible for the substantial losses to the State from incarceration of this class of offenders and the much larger losses to the general public welfare.

The Breadth and Ubiquity of Social Costs

The extent of the costs implicated in incarcerating parents is hidden from view because, like some diseases, these costs hide in many corners of the body politic and they reemerge at different times after the initial crisis. The full inventory of both costs and benefits is probably more robust than what we have inventoried here. Future research will clarify whether some of the proposed effects, such as long term consequences for children, in fact occur, and will also quantify some of the known effects that exist but remain unestimated, such as the impact on neighborhoods of concentrated incarceration and reentry. As such studies unfold the amounts of money counted on both the cost and benefit side will rise.

The shape of the equation for civil society is nevertheless clear. Incarceration is an immensely costly form of social control. We can now appreciate that these costs do not devolve primarily on the punished person, even when the value of their loss of freedom (i.e., quality of life) is considered. About 24% of the total social cost of placing a parent behind bars in Hawai'i is the *public's* loss, while the losses borne directly by the offender are about 32%. Families suffer the largest share of costs (44%), primarily in terms of reduced quality of life and secondarily in terms of lost income, lost productivity, and out-of-pocket child care. The incarceration of a parent must therefore be thought of as a very substantial public investment in a linked series of actions and people. It is somewhat like investing $700,000 in a dramatic production—a documentary actually—centering on the offender and his family, but also drawing in as supporting actors law enforcement, court personnel, lawyers, prison staff, day care providers, foster parents, social workers, and a host of others. It is a large cast, and, in ultimate economic and social terms, everyone must be paid. The currency used is the public welfare, and the price is heavy.

[45] Non-violent, non-personal crimes amount to 97.6% of estimated offenses for the cohort. These classes of offenses include non-violent property crime (18.97%), public order offenses (3.62%), driving offenses (6.25%), drug offenses (62.1%), weapons possession (6.05%), and Other (0.62%).

[46] The average sentence for all felons released during FY 2006 was 45.08 months. The average sentence for the cohort of drug offenders released in this same period was 39.03 months.

The State of Hawai'i, perhaps without fully realizing it, sponsored 197 of these extravagant semi-public dramas when it incarcerated the cohort of drug offenders who left prison in 2006. This public theater gouged a spillway draining the reservoir of the state's tax dollars to the tune of $28,000 per day for every day of the average drug offender's time served, or $840,000 per month. In one year's time the *state's* share of costs for this cohort summed to about $10 million, or almost the amount of additional funding recommended by the 2004 Task Force to fund the gap in substance abuse treatment for drug offenders in the state. Reframed, this means that the State of Hawai'i would have been able to fund this need had it shortened the average sentence for drug offenders by 10 months, bringing it close to the average sentence served by New York State drug offenders released in 2005 (29.8 months).

The question, of course, is whether the state's investment in incarceration is worth it. A glance at the costs of different types of crimes makes clear that the benefits of imprisonment will only approach the costs if incapacitation and deterrence prevent the commission of very costly crimes. Indeed, if the primary benefit of incarceration is incapacitation, as most seem to agree, the value of crimes averted per drug offender in Hawai'i per year would have to total $52,000 to match the state's share of social costs, and about $190,000 per year for benefits to match total social costs over the course of an average sentence. The offending patterns of the 2006 cohort of drug offenders do not approach this threshold.

We now know that some types of offenders, such as drug offenders, largely commit crimes that have very low social costs, such as property and drug offenses. In terms of cost-benefit economics, prison is a stratified economic space, consisting of tiers of inmates who potentially impose different costs on society for their imprisonment (e.g., substance abusers vs. non-substance abusers, women vs. men), but who also have vastly different social benefit profiles, depending of the value of the crimes averted via their imprisonment. The public loses the most on offenders who tend to commit low cost crimes such as drug use and theft, it experiences a somewhat better return on auto thieves, still better for robbers, and so on. When the effects of such cross-cutting distinctions are compounded the prison population can be arrayed in a matrix from those with the lowest benefit-highest cost profile in one corner (e.g., female drug offenders with a partner and minor children) to those with the highest benefit and lowest cost in the other (e.g., men without children or partners who murder). Economically, it makes little sense to speak of the "average" prisoner. Public policy on crime would be wise to take this into account, not by selective incarceration, but rather by selective non-incarceration.[47]

It is not as though we lack alternatives for some of these tiers of offenders. A wide variety of studies of various modalities of drug treatment have shown that some types of treatment succeed in reducing or eliminating drug use for a good portion of participants, and can lower the rate at which participants subsequently commit crime, get arrested, and go to prison. The most expensive of these modalities in Hawai'i carries first-year costs that amount to about 3.5% of what the public invests in the prison drama of one offender over the average sentence (total

[47] Selective incarceration of the most prolific and dangerous offenders has been shown to be impossible in practice and also unnecessary, partly because high rate offenders are naturally more frequently selected into the correctional system.

social costs less benefits). Gary Zarkin's comments provide appropriate punctuation to this discussion:

> Social concern about substance abuse has put policymakers in a bind. On the one hand, many taxpayers prefer to see substance abusers arrested, prosecuted, and jailed for violating drug laws. On the other hand, these policies have resulted in substantial jail and prison expenses, overloaded court dockets, a need for more jail and prison space, and a growing recognition that incarceration per se does not address an offender's underlying drug problem. (Zarkin et al. 2005, 20)

We can hope that, with refinement, the economic analysis of incarceration such as that offered here will feed the development of intentional and intelligent public policy and generate a distribution of public resources and investments that makes economic and social sense.

Section IX

Policy Recommendations

We offer here several findings and recommendations for state and department policy that emerge from this study. Several of these recommendations were advanced in prior studies of the incarceration of parents in Hawai'i (Lengyel and Harris 2003; Lengyel 2005). Recommendations are based on the premise that the state has the ability to reduce the prison population through policy, legislation, and legal practice (e.g., prosecution, sentencing).

- Finding: The cost of incarcerating drug offenders greatly exceeds the corresponding social benefit.

  Recommendations:

  - Practice selective non-incarceration. Shift from incarceration to community supervision and support for certain classes of inmates who are now facing sentencing or serving time.

  - Savings from prisoner diversion should be invested in programs that delay or forestall incarceration, such as drug abuse treatment and education, job training, and economic opportunity.

- Finding: Families, grandparents, and relatives bear the greatest share of costs imposed by the incarceration of a parent. They seldom have adequate resources to fulfill the role they play in the lives of the parent and the parent's children.

  Recommendations:

  - Initiate supports for partners, grandparents, and relative caregivers of children with parents in prison, including respite care, housing assistance, parenting support, and material support.

- Finding: Substance abuse treatment services are an appropriate alternative for the majority of drug offenders, but these services are grossly inadequate in prison and fall far short of the need in the community.

  Recommendations:

  - Provide appropriate substance abuse treatment on demand both in the community and in prison.

- Finding: Hawai'i lacks accurate knowledge of its parent-prisoners and their children.

  Recommendations:

  - Keep demographic information on all children, on custody (legal and informal), on care giving arrangements, and on services needed or anticipated.
  - Integrate family information into the Department of Public Safety central databank on prisoners on a regular basis.

- Finding: Placement on the mainland, based on administrative considerations, forecloses the possibility of visits and imposes stiff costs on families attempting to stay connected.

  Recommendations:

- The Department of Public Safety should factor in the ability to maintain parent-child contact when making prison placements
- Parent inmates should be placed on the basis of the "best interest of the family."

- Finding: The social costs of incarceration are largely hidden from public view, and remain unacknowledged by the courts when they dispense justice.
  - All presentence investigations that recommend incarceration should include an estimate of the social costs of the recommended term based on the parameters documented in this study, as well as the cost of the best reasonable alternative. Judges should explicitly incorporate these estimates in their sentencing decisions, and should acknowledge in court the weight given to them.

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Appendices

Appendix 1: Arrests and Estimated Incidence of Crimes for Cohort

Hawai'i Description	Crime Group	Total Arrests w/in 5 yrs	5 yr Annual Arrest Rate/MYR	5 yr **Corrected** Annual Arrests/ MYR	Scaling factor	Estimated incidence per inmate/yr	Estimated incidence per inmate/ALOS	Estimated incidence for cohort /ALOS
ASSAULT 1	Assault	1	0.00126	0.00063	0.2795	0.0022	0.0073	1.4390
ASSAULT 2		13	0.01632	0.00816	0.2795	0.0292	0.0950	18.7067
ASSLT POLICE 1		5	0.00628	0.00314	0.2795	0.0112	0.0365	7.1949
ASSAULT POLICE		1	0.00126	0.00063	0.2795	0.0022	0.0073	1.4390
ASSAULT 3		27	0.03390	0.01695	0.2795	0.0606	0.1972	38.8525
KIDNAPPING		10	0.01255	0.00628	0.2795	0.0225	0.0730	14.3898
UNLAW IMPRS 1		0	0.00000	0.00000	0.2795	0.0000	0.0000	0.0000
UNLAW IMPRS 2		1	0.00126	0.00063	0.2795	0.0022	0.0073	1.4390
DET STOLEN PROP	Auto theft	0	0.00000	0.00000	0.1697	0.0000	0.0000	0.0000
UN CON PR VEH		140	0.17577	0.08788	0.1697	0.5178	1.6841	331.7703
BRIBERY	Bribery	1	0.00126	0.00063	0.0810	0.0078	0.0252	4.9672
BURGLARY 1	Burglary	24	0.03013	0.01507	0.0622	0.2422	0.7877	155.1730
BURGLARY 2		15	0.01883	0.00942	0.0622	0.1514	0.4923	96.9831
POS OF BURG TL		1	0.00126	0.00063	0.0622	0.0101	0.0328	6.4655
WEL MINOR	Child Neglect	1	0.00126	0.00063	0.0689	0.0091	0.0296	5.8377
WELFARE MIN 2		1	0.00126	0.00063	0.0689	0.0091	0.0296	5.8377
WELFARE MIN 2		1	0.00126	0.00063	0.0689	0.0091	0.0296	5.8377
CRIM CONSPIRACY	Conspiracy	1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
LIAB FOR ANOTHR		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
CUSTODY INTER 1	Custody Interference	2	0.00251	0.00126	0.1697	0.0074	0.0241	4.7396
CUSTODY INTER 2		0	0.00000	0.00000	0.1697	0.0000	0.0000	0.0000
ABUSE FAMILY	Domestic Violence	65	0.08161	0.04080	0.1645	0.2480	0.8068	158.9331
SPOUSE ABUSE		1	0.00126	0.00063	0.1645	0.0038	0.0124	2.4451
ACC-DEATH/P.I.	Driving w. Injury	0	0.00000	0.00000	0.2795	0.0000	0.0000	0.0000
ACC-DEATH/S.I.		0	0.00000	0.00000	0.2795	0.0000	0.0000	0.0000

Hawai'i Description	Crime Group	Total Arrests w/in 5 yrs	5 yr Annual Arrest Rate/MYR	5 yr **Corrected** Annual Arrests/ MYR	Scaling factor	Estimated incidence per inmate/yr	Estimated incidence per inmate/ALOS	Estimated incidence for cohort /ALOS
ALT MV SERIAL #	Driving Offenses	2	0.00251	0.00126	0.0403	0.0312	0.1013	19.9602
C/P LIQ OP VEH		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
CERT OF REG/OWN		2	0.00251	0.00126	0.0403	0.0312	0.1013	19.9602
DEFACE SERIAL #		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
DELINQ PENALTY		6	0.00753	0.00377	0.0403	0.0935	0.3040	59.8806
DRIV SUSP LIC		5	0.00628	0.00314	0.0403	0.0779	0.2533	49.9005
DRIVE SIDEWALK		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
DRIVE W/SUS LIC		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
DWOL-LICENSING		77	0.09667	0.04834	0.0403	1.1993	3.9008	768.4673
EXPIRE DRIV LIC		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
FALSE CERT.		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
FRAUD USE PLATE		10	0.01255	0.00628	0.0403	0.1558	0.5066	99.8010
HABITUAL DUI		2	0.00251	0.00126	0.0403	0.0312	0.1013	19.9602
INATTENT DRIV		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
INSTRUCT PERMIT		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
MV PROTECT DEV		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
MV SAF ACT-PENL		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
NONRESIDENTS		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
PROHIB PEDDLING		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
PROOF FIN RESP		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
RECKLESS DRIVE		10	0.01255	0.00628	0.0403	0.1558	0.5066	99.8010
SUSP OF LICENSE		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
TITLE TRANSFER		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
TRAF LAWS-BIKES		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
TWO LIC PLATES		2	0.00251	0.00126	0.0403	0.0312	0.1013	19.9602

Hawai'i Description	Crime Group	Total Arrests w/in 5 yrs	5 yr Annual Arrest Rate/MYR	5 yr **Corrected** Annual Arrests/ MYR	Scaling factor	Estimated incidence per inmate/yr	Estimated incidence per inmate/ALOS	Estimated incidence for cohort /ALOS
CONTROLLED	Drug offenses (possession, sale, manufacture)	0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
DRUG		2	0.00251	0.00126	0.0403	0.0312	0.1013	19.9602
METH TRAFF 1		4	0.00502	0.00251	0.0403	0.0623	0.2026	39.9204
METH TRAFFICKNG		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
MFG DRUG W CHLD		7	0.00879	0.00439	0.0403	0.1090	0.3546	69.8607
PROHIBITIONS		436	0.54739	0.27370	0.0403	6.7911	22.0879	4351.3215
DRG PARAPHERNAL		2	0.00251	0.00126	0.0403	0.0312	0.1013	19.9602
DRUG PARAPHERN.		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
IMIT CONTLD SUB		7	0.00879	0.00439	0.0403	0.1090	0.3546	69.8607
IMITATION SUBST		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
POSS OBNOX SUB		480	0.60263	0.30132	0.0403	7.4764	24.3170	4790.4456
PRO DANG DR 3		17	0.02134	0.01067	0.0403	0.2648	0.8612	169.6616
PRO HARM DR 3		31	0.03892	0.01946	0.0403	0.4829	1.5705	309.3829
PRO HARM DR 4		2	0.00251	0.00126	0.0403	0.0312	0.1013	19.9602
PROM PR CON 1		3	0.00377	0.00188	0.0403	0.0467	0.1520	29.9403
PROM PR CON 2		29	0.03641	0.01820	0.0403	0.4517	1.4692	289.4228
PRO DANG DR 1		141	0.17702	0.08851	0.0403	2.1962	7.1431	1407.1934
PRO DANG DR 2		2	0.00251	0.00126	0.0403	0.0312	0.1013	19.9602
PRO DET DR 1		12	0.01507	0.00753	0.0403	0.1869	0.6079	119.7611
PRO DET DR 2		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
PRO DRUG-MINOR		8	0.01004	0.00502	0.0403	0.1246	0.4053	79.8408
PRO HARM DR 1		7	0.00879	0.00439	0.0403	0.1090	0.3546	69.8607
PRO HARM DR 2		5	0.00628	0.00314	0.0403	0.0779	0.2533	49.9005
PRO MARIJUANA 1		2	0.00251	0.00126	0.0403	0.0312	0.1013	19.9602
PRO MARIJUANA 2		4	0.00502	0.00251	0.0403	0.0623	0.2026	39.9204
PRO SUB NR SCH		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
PROMO MARIJUANA PROH ACTS C		9	0.01130	0.00565	0.0403	0.1402	0.4559	89.8209
RECK ENDNGR 1	Endangerment	1	0.00126	0.00063	0.1645	0.0038	0.0124	2.4451
RECK ENDNGR 2		4	0.00502	0.00251	0.1645	0.0153	0.0496	9.7805

Hawai'i Description	Crime Group	Total Arrests w/in 5 yrs	5 yr Annual Arrest Rate/MYR	5 yr **Corrected** Annual Arrests/ MYR	Scaling factor	Estimated incidence per inmate/yr	Estimated incidence per inmate/ALOS	Estimated incidence for cohort /ALOS
BAIL JUMPING 1	Fleeing	2	0.00251	0.00126	0.0622	0.0202	0.0656	12.9311
BAIL JUMPING 2		1	0.00126	0.00063	0.0622	0.0101	0.0328	6.4655
ESCAPE 2		14	0.01758	0.00879	0.0622	0.1413	0.4595	90.5176
RS ORDR TO STOP		14	0.01758	0.00879	0.0622	0.1413	0.4595	90.5176
COMPUTR FRAUD 1	Fraud	2	0.00251	0.00126	0.0403	0.0312	0.1013	19.9602
CRED CD FRAUD		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
FRAUD USE CR CD		16	0.02009	0.01004	0.0403	0.2492	0.8106	159.6815
GAMBLING	Gambling	0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
POS GAM REC 2		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
PROM GAMB 2		4	0.00502	0.00251	0.0403	0.0623	0.2026	39.9204
TEMP REST ORDER	Harrassment	12	0.01507	0.00753	0.1645	0.0458	0.1489	29.3415
TRO-HARASSMENT		4	0.00502	0.00251	0.1645	0.0153	0.0496	9.7805
VIOL OF PRIV		1	0.00126	0.00063	0.1645	0.0038	0.0124	2.4451
VIOLATE PRT-ODR		19	0.02385	0.01193	0.1645	0.0725	0.2358	46.4574
SEX ASLT 4	Indecent exposure	2	0.00251	0.00126	0.0689	0.0182	0.0593	11.6740
MANSLAUGHTER	Murder, manslaughter, neglicent homicide	1	0.00126	0.00063	0.9000	0.0007	0.0023	0.4469
MURDER		0	0.00000	0.00000	0.9000	0.0000	0.0000	0.0000
MURDER 1		0	0.00000	0.00000	0.9000	0.0000	0.0000	0.0000
MURDER 2		0	0.00000	0.00000	0.9000	0.0000	0.0000	0.0000
NEG HOMICIDE 1		1	0.00126	0.00063	0.9000	0.0007	0.0023	0.4469
ILLEG NITE HUNT	Permit Violations	0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
POSSESS/PERMITS		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
PRESCRIPTIONS		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
REGS-PEDDLERS		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
CR PROP DMG 1	Property Damage	5	0.00628	0.00314	0.0403	0.0779	0.2533	49.9005
CR PROP DMG 2		3	0.00377	0.00188	0.0403	0.0467	0.1520	29.9403
CR PROP DMG 3		9	0.01130	0.00565	0.0403	0.1402	0.4559	89.8209

Hawai'i Description	Crime Group	Total Arrests w/in 5 yrs	5 yr Annual Arrest Rate/MYR	5 yr **Corrected** Annual Arrests/ MYR	Scaling factor	Estimated incidence per inmate/yr	Estimated incidence per inmate/ALOS	Estimated incidence for cohort /ALOS
PROM PROSTI 2	Public Disorder	0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
FEDERAL ARREST		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
FORFEITURES		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
HIND PROSEC 1		3	0.00377	0.00188	0.0403	0.0467	0.1520	29.9403
HIND PROSEC 2		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
IMPERSONATING 2		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
LAMP,ETC-BIKE		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
LIQ VIOL/MINOR		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
PENALTIES		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
REFUSE TO LEAVE		2	0.00251	0.00126	0.0403	0.0312	0.1013	19.9602
REND FALSE ALRM		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
RESIST ARREST		12	0.01507	0.00753	0.0403	0.1869	0.6079	119.7611
UNSWRN FALSE AU		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
RAPE 1	Sexual Assault	0	0.00000	0.00000	0.0689	0.0000	0.0000	0.0000
RAPE 3		1	0.00126	0.00063	0.0689	0.0091	0.0296	5.8370
SEX ABUSE 1		0	0.00000	0.00000	0.0689	0.0000	0.0000	0.0000
SEX ASLT 1		4	0.00502	0.00251	0.0689	0.0364	0.1185	23.3479
SEX ASLT 2		0	0.00000	0.00000	0.0689	0.0000	0.0000	0.0000
SEX ASLT 3		2	0.00251	0.00126	0.0689	0.0182	0.0593	11.6740
SODOMY 1		1	0.00126	0.00063	0.0689	0.0091	0.0296	5.8370
ROBBERY 1	Robbery	2	0.00251	0.00126	0.1777	0.0071	0.0230	4.5259
ROBBERY 2		10	0.01255	0.00628	0.1777	0.0353	0.1149	22.6295

Hawai'i Description	Crime Group	Total Arrests w/in 5 yrs	5 yr Annual Arrest Rate/MYR	5 yr **Corrected** Annual Arrests/ MYR	Scaling factor	Estimated incidence per inmate/yr	Estimated incidence per inmate/ALOS	Estimated incidence for cohort /ALOS
CRED CD MACHINE		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
EXTORTION 1		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
EXTORTION 2		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
FORGERY 1		4	0.00502	0.00251	0.0403	0.0623	0.2026	39.9204
FORGERY 2		13	0.01632	0.00816	0.0403	0.2025	0.6586	129.7412
FORGERY 3		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
NEG WRTH INS		12	0.01507	0.00753	0.0403	0.1869	0.6079	119.7611
REM OF ID MARKS	Theft	1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
SHOPLIFTING		6	0.00753	0.00377	0.0403	0.0935	0.3040	59.8806
THEFT 1		9	0.01130	0.00565	0.0403	0.1402	0.4559	89.8209
THEFT 2		101	0.12680	0.06340	0.0403	1.5732	5.1167	1007.9896
THEFT 3		53	0.06654	0.03327	0.0403	0.8255	2.6850	528.9450
THEFT/FORG CARD		21	0.02637	0.01318	0.0403	0.3271	1.0639	209.5820
UNAUTH ENTRY MV		53	0.06654	0.03327	0.0403	0.8255	2.6850	528.9450
UNLAW POSS		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
INT CORR WORKER		1	0.00126	0.00063	0.1645	0.0038	0.0124	2.4451
TERR THREAT 1	Threats	30	0.03766	0.01883	0.1645	0.1145	0.3724	73.3533
TERR THREAT 2		17	0.02134	0.01067	0.1645	0.0649	0.2110	41.5668
CRIM TRESS 1	Tresspass	23	0.02888	0.01444	0.0403	0.3582	1.1652	229.5422

Hawai'i Description	Crime Group	Total Arrests w/in 5 yrs	5 yr Annual Arrest Rate/MYR	5 yr **Corrected** Annual Arrests/ MYR	Scaling factor	Estimated incidence per inmate/yr	Estimated incidence per inmate/ALOS	Estimated incidence for cohort /ALOS
CARRY DEAD WPN	Weapons Possession	10	0.01255	0.00628	0.0403	0.1558	0.5066	99.8010
ELECTRIC GUNS		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
ELECTRIC GUNS		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
FELON IN POSSES		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
FLSE REP LW E A		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
GUN PERMIT		10	0.01255	0.00628	0.0403	0.1558	0.5066	99.8010
MATERIALS-GUN		1	0.00126	0.00063	0.0403	0.0156	0.0507	9.9801
NO PERMIT CARRY		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
OWN/POSS PROHIB		67	0.08412	0.04206	0.0403	1.0436	3.3942	668.6664
PLACE TO KEEP		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
USE/PL TO KEEP		15	0.01883	0.00942	0.0403	0.2336	0.7599	149.7014
POS OF PRO WPNS		3	0.00377	0.00188	0.0403	0.0467	0.1520	29.9403
PROHIBIT WEAPON		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
REG FIREARM		8	0.01004	0.00502	0.0403	0.1246	0.4053	79.8408
SWITCHBLADES		0	0.00000	0.00000	0.0403	0.0000	0.0000	0.0000
Total		2268	2.84743	1.42372		30.3879	98.8366	**19470.8097**

Appendix 2: Crimes, Scaling Factors, and Sources

Hawai'i Description	Crime Group	Scaling factor	Uses Hawai'i scaling factor for	Comment/reasoning	Uses Victim Cost For	Source of Victim Cost
ASSAULT 1	Assault	0.2795	Aggravated assault		Aggravated assault	Cohen & Piquero 2009, table 5
ASSAULT 2		0.2795	Aggravated assault		Aggravated assault	
ASSLT POLICE 1		0.2795	Aggravated assault		Aggravated assault	
ASSAULT POLICE		0.2795	Aggravated assault		Aggravated assault	
ASSAULT 3		0.2795	Aggravated assault		Simple assault	Cohen & Piquero 2009, table 5
KIDNAPPING		0.2795	Aggravated assault		Simple assault	
UNLAW IMPRS 1		0.2795	Aggravated assault		Simple assault	
UNLAW IMPRS 2		0.2795	Aggravated assault		Simple assault	
DET STOLEN PROP	Auto theft	0.1697	Auto theft		Auto theft	Cohen & Piquero 2009, table 5
UN CON PR VEH		0.1697	Auto theft		Auto theft	
BRIBERY	Bribery	0.0810	Total property crime	Closest analog among scaling factors	Other offenses	Cohen & Piquero 2009, table 5
BURGLARY 1	Burglary	0.0622	Burglary		Burglary	Cohen & Piquero 2009, table 5
BURGLARY 2		0.0622	Burglary		Burglary	
POS OF BURG TL		0.0622	Burglary		Burglary	
WEL MINOR	Child Neglect	0.0689	Rape/attempt	Closest analog: Low probability of report, low probability of arrest	Child abuse-emotional	Miller, Cohen, & Wiersema 1996
WELFARE MIN 2		0.0689	Rape/attempt		Child abuse-emotional	
WELFARE MIN 2		0.0689	Rape/attempt		Child abuse-emotional	
CRIM CONSPIRACY	Conspiracy	0.0403	Larceny/theft	Low probability of report, very low probability of arrest	Fraud	Cohen & Piquero 2009, table 5
LIAB FOR ANOTHR		0.0403	Larceny/theft		Fraud	
CUSTODY INTER 1	Custody Interference	0.1697	Motor vehicle theft	High probability of report, low probability of arrest	Other offenses	Cohen & Piquero 2(table 5
CUSTODY INTER 2		0.1697	Motor vehicle theft		Other offenses	

Hawai'i Description | Crime Group | Scaling factor | Uses Hawai'i scaling factor for | Comment/reasoning | Uses Victim Cost For | Source of Victim Cost

Hawai'i Description	Crime Group	Scaling factor	Uses Hawai'i scaling factor for	Comment/reasoning	Uses Victim Cost For	Source of Victim Cost
ABUSE FAMILY	Domestic Violence	0.1645	Total violent crime	Closest analog: Low probability of report, high probability of arrest	Simple assault	Cohen & Piquero 2009, table 5
SPOUSE ABUSE		0.1645	Total violent crime		Simple assault	
ACC-DEATH/P.I.	Driving w. Injury	0.2795	Aggravated assault	High probability of report and arrest	Drunk driving crash	Cohen & Piquero 2009, table 5
ACC-DEATH/S.I.		0.2795	Aggravated assault		Drunk driving crash	
ALT MV SERIAL #	Driving Offenses	0.0403	Larceny/theft	Closest analog: Low probability of report, very low probability of arrest	Other offenses	Cohen & Piquero 2009, table 5
C/P LIQ OP VEH		0.0403	Larceny/theft		Other offenses	
CERT OF REG/OWN		0.0403	Larceny/theft		Other offenses	
DEFACE SERIAL #		0.0403	Larceny/theft		Other offenses	
DELINQ PENALTY		0.0403	Larceny/theft		Other offenses	
DRIV SUSP LIC		0.0403	Larceny/theft		Other offenses	
DRIVE SIDEWALK		0.0403	Larceny/theft		Other offenses	
DRIVE W/SUS LIC		0.0403	Larceny/theft		Other offenses	
DWOL-LICENSING		0.0403	Larceny/theft		Other offenses	
EXPIRE DRIV LIC		0.0403	Larceny/theft		Other offenses	
FALSE CERT.		0.0403	Larceny/theft		Other offenses	
FRAUD USE PLATE		0.0403	Larceny/theft		Other offenses	
HABITUAL DUI		0.0403	Larceny/theft		Other offenses	
INATTENT DRIV		0.0403	Larceny/theft		Other offenses	
INSTRUCT PERMIT		0.0403	Larceny/theft		Other offenses	
MV PROTECT DEV		0.0403	Larceny/theft		Other offenses	
MV SAF ACT-PENL		0.0403	Larceny/theft		Other offenses	
NONRESIDENTS		0.0403	Larceny/theft		Other offenses	
PROHIB PEDDLING		0.0403	Larceny/theft		Other offenses	
PROOF FIN RESP		0.0403	Larceny/theft		Other offenses	
RECKLESS DRIVE		0.0403	Larceny/theft		Other offenses	
SUSP OF LICENSE		0.0403	Larceny/theft		Other offenses	
TITLE TRANSFER		0.0403	Larceny/theft		Other offenses	
TRAF LAWS-BIKES		0.0403	Larceny/theft		Other offenses	
TWO LIC PLATES		0.0403	Larceny/theft		Other offenses	

CONTROLLED DRUG	Drug offenses (possession, sale, manufacture)	0.0403	Larceny/theft	Closest analog: Low probability of report, very low probability of arrest	Drug offenses	Bhati, Roman, & Chalfin 2008, table 3.7
METH TRAFF 1		0.0403	Larceny/theft		Drug offenses	
METH TRAFFICKNG		0.0403	Larceny/theft		Drug offenses	
MFG DRUG W CHLD		0.0403	Larceny/theft		Drug offenses	
PROHIBITIONS		0.0403	Larceny/theft		Drug offenses	
DRG PARAPHERNAL		0.0403	Larceny/theft		Drug offenses	
DRUG PARAPHERN.		0.0403	Larceny/theft		Drug offenses	
IMIT CONTLD SUB		0.0403	Larceny/theft		Drug offenses	
IMITATION SUBST		0.0403	Larceny/theft		Drug offenses	
POSS OBNOX SUB		0.0403	Larceny/theft		Drug offenses	
PRO DANG DR 3		0.0403	Larceny/theft		Drug offenses	
PRO HARM DR 3		0.0403	Larceny/theft		Drug offenses	
PRO HARM DR 4		0.0403	Larceny/theft		Drug offenses	
PROM PR CON 1		0.0403	Larceny/theft		Drug offenses	
PROM PR CON 2		0.0403	Larceny/theft		Drug offenses	
PRO DANG DR 1		0.0403	Larceny/theft		Drug offenses	
PRO DANG DR 2		0.0403	Larceny/theft		Drug offenses	
PRO DET DR 1		0.0403	Larceny/theft		Drug offenses	
PRO DET DR 2		0.0403	Larceny/theft		Drug offenses	
PRO DRUG-MINOR		0.0403	Larceny/theft		Drug offenses	
PRO HARM DR 1		0.0403	Larceny/theft		Drug offenses	
PRO HARM DR 2		0.0403	Larceny/theft		Drug offenses	
PRO MARIJUANA 1		0.0403	Larceny/theft		Drug offenses	
PRO MARIJUANA 2		0.0403	Larceny/theft		Drug offenses	
PRO SUB NR SCH		0.0403	Larceny/theft		Drug offenses	
PROMO MARIJUANA		0.0403	Larceny/theft		Drug offenses	
PROH ACTS C		0.0403	Larceny/theft		Drug offenses	
RECK ENDNGR 1	Endangerment	0.1645	Total violent crime	Closest analog: Low probability of report, high probability of arrest	Simple assault	Cohen & Piquero 2009, table 5
RECK ENDNGR 2		0.1645	Total violent crime		Simple assault	

Hawai'i Description	Crime Group	Scaling factor	Uses Hawai'i scaling factor for	Comment/reasoning	Uses Victim Cost For	Source of Victim Cost
BAIL JUMPING 1	Fleeing	0.0622	Burglary	High probability of report, low probability of arrest	Other offenses	Cohen & Piquero 2009, table 5
BAIL JUMPING 2		0.0622	Burglary		Other offenses	
ESCAPE 2		0.0622	Burglary		Other offenses	
RS ORDR TO STOP		0.0622	Burglary		Other offenses	
COMPUTR FRAUD 1	Fraud	0.0403	Larceny/theft	Closest analog: Low probability of report, very low probability of arrest	Fraud	Cohen & Piquero 2009, table 5
CRED CD FRAUD		0.0403	Larceny/theft		Fraud	
FRAUD USE CR CD		0.0403	Larceny/theft		Fraud	
GAMBLING	Gambling	0.0403	Larceny/theft	Closest analog: Low probability of report, very low probability of arrest	Other offenses	Cohen & Piquero 2009, table 5
POS GAM REC 2		0.0403	Larceny/theft		Other offenses	
PROM GAMB 2		0.0403	Larceny/theft		Other offenses	
TEMP REST ORDER	Harrassment	0.1645	Total violent crime	Closest analog: Low probability of report, high probability of arrest	Other offenses	Cohen & Piquero 2009, table 5
TRO-HARASSMENT		0.1645	Total violent crime		Other offenses	
VIOL OF PRIV		0.1645	Total violent crime		Other offenses	
VIOLATE PRT-ODR		0.1645	Total violent crime		Other offenses	
SEX ASLT 4	Indecent exposure	0.0689	Rape/attempt		Simple assault	Cohen & Piquero 2009, table 5
MANSLAUGHTER	Murder, manslaughter, neglicent homicide	0.9000	(no analog)	Assumes almost all Hawai'i homicides are solved.	Homicide	Cohen & Piquero 2009, table 5
MURDER		0.9000	(no analog)		Homicide	
MURDER 1		0.9000	(no analog)		Homicide	
MURDER 2		0.9000	(no analog)		Homicide	
NEG HOMICIDE 1		0.9000	(no analog)		Homicide	
ILLEG NITE HUNT	Permit Violations	0.0403	Larceny/theft	Closest analog: Low probability of report, very low probability of arrest	Other offenses	Cohen & Piquero 2009, table 5
POSSESS/PERMITS		0.0403	Larceny/theft		Other offenses	
PRESCRIPTIONS		0.0403	Larceny/theft		Other offenses	
REGS-PEDDLERS		0.0403	Larceny/theft		Other offenses	

Hawai'i Description	Crime Group	Scaling factor	Uses Hawai'i scaling factor for	Comment/reasoning	Uses Victim Cost For	Source of Victim Cost
CR PROP DMG 1	Property Damage	0.0403	Larceny/theft	Closest analog: Low probability of report, very low probability of arrest	vandalism	Cohen & Piquero 2009, table 5
CR PROP DMG 2		0.0403	Larceny/theft		vandalism	
CR PROP DMG 3		0.0403	Larceny/theft		vandalism	
PROM PROSTI 2	Public Disorder	0.0403	Larceny/theft	Closest analog: Low probability of report, very low probability of arrest	Other offenses	Cohen & Piquero 2009, table 5
FEDERAL ARREST		0.0403	Larceny/theft		Other offenses	
FORFEITURES		0.0403	Larceny/theft		Other offenses	
HIND PROSEC 1		0.0403	Larceny/theft		Other offenses	
HIND PROSEC 2		0.0403	Larceny/theft		Other offenses	
IMPERSONATING 2		0.0403	Larceny/theft		Other offenses	
LAMP,ETC-BIKE		0.0403	Larceny/theft		Other offenses	
LIQ VIOL/MINOR		0.0403	Larceny/theft		Other offenses	
PENALTIES		0.0403	Larceny/theft		Other offenses	
REFUSE TO LEAVE		0.0403	Larceny/theft		Other offenses	
REND FALSE ALRM		0.0403	Larceny/theft		Other offenses	
RESIST ARREST		0.0403	Larceny/theft		Other offenses	
UNSWRN FALSE AU		0.0403	Larceny/theft		Other offenses	
RAPE 1	Sexual Assault	0.0689	Rape/attempt		Rape	Cohen & Piquero 2009, table 5
RAPE 3		0.0689	Rape/attempt		Rape	
SEX ABUSE 1		0.0689	Rape/attempt		Rape	
SEX ASLT 1		0.0689	Rape/attempt		Rape	
SEX ASLT 2		0.0689	Rape/attempt		Rape	
SEX ASLT 3		0.0689	Rape/attempt		Rape	
SODOMY 1		0.0689	Rape/attempt		Rape	
ROBBERY 1	Robbery	0.1777	Robbery		Armed robbery	Cohen & Piquero 2009, table 5
ROBBERY 2		0.1777	Robbery		Robbery	Cohen & Piquero 2009, table 5

Hawai'i Description	Crime Group	Scaling factor	Uses Hawai'i scaling factor for	Comment/reasoning	Uses Victim Cost For	Source of Victim Cost
CRED CD MACHINE	Theft	0.0403	Larceny/theft		Larceny/theft	Cohen & Piquero 2009, table 5
EXTORTION 1		0.0403	Larceny/theft		Larceny/theft	
EXTORTION 2		0.0403	Larceny/theft		Larceny/theft	
FORGERY 1		0.0403	Larceny/theft		Larceny/theft	
FORGERY 2		0.0403	Larceny/theft		Larceny/theft	
FORGERY 3		0.0403	Larceny/theft		Larceny/theft	
NEG WRTH INS		0.0403	Larceny/theft		Larceny/theft	
REM OF ID MARKS		0.0403	Larceny/theft		Larceny/theft	
SHOPLIFTING		0.0403	Larceny/theft		Larceny/theft	
THEFT 1		0.0403	Larceny/theft		Larceny/theft	
THEFT 2		0.0403	Larceny/theft		Larceny/theft	
THEFT 3		0.0403	Larceny/theft		Larceny/theft	
THEFT/FORG CARD		0.0403	Larceny/theft		Larceny/theft	
UNAUTH ENTRY MV		0.0403	Larceny/theft		Larceny/theft	
UNLAW POSS		0.0403	Larceny/theft		Larceny/theft	
INT CORR WORKER	Threats	0.1645	Total violent crime	Low probability of report, high probability of arrest	Other offenses	Cohen & Piquero 2009, table 5
TERR THREAT 1		0.1645	Total violent crime		Other offenses	
TERR THREAT 2		0.1645	Total violent crime		Other offenses	
CRIM TRESS 1	Tresspass	0.0403	Larceny/theft	Closest analog: Low probability of report, very low probability of arrest	Other offenses	Cohen & Piquero 2009, table 5

Hawai'i Description	Crime Group	Scaling factor	Uses Hawai'i scaling factor for	Comment/reasoning	Uses Victim Cost For	Source of Victim Cost
CARRY DEAD WPN	Weapons Possession	0.0403	Larceny/theft	Closest analog: Low probability of report, very low probability of arrest	Other offenses	Cohen & Piquero 2009, table 5
ELECTRIC GUNS		0.0403	Larceny/theft		Other offenses	
ELECTRIC GUNS		0.0403	Larceny/theft		Other offenses	
FELON IN POSSES		0.0403	Larceny/theft		Other offenses	
FLSE REP LW E A		0.0403	Larceny/theft		Other offenses	
GUN PERMIT		0.0403	Larceny/theft		Other offenses	
MATERIALS-GUN		0.0403	Larceny/theft		Other offenses	
NO PERMIT CARRY		0.0403	Larceny/theft		Other offenses	
OWN/POSS PROHIB		0.0403	Larceny/theft		Other offenses	
PLACE TO KEEP		0.0403	Larceny/theft		Other offenses	
USE/PL TO KEEP		0.0403	Larceny/theft		Other offenses	
POS OF PRO WPNS		0.0403	Larceny/theft		Other offenses	
PROHIBIT WEAPON		0.0403	Larceny/theft		Other offenses	
REG FIREARM		0.0403	Larceny/theft		Other offenses	
SWITCHBLADES		0.0403	Larceny/theft		Other offenses	

Appendix 3: Estimated Costs by Crime and Total Crimes for Cohort for ALOS (2007 dollars)

		A	B	C	D	E	F	G	H
Hawai'i Description	Crime Group	Total Arrests w/in 5 yrs	Estimated incidence per inmate/year	Estimated incidence per inmate/ALOS	Estimated incidence for cohort/ALOS	Estimated Incidence for Crime Group	Victim Cost Per Crime	Total Cost per Inmate/Yr	Total Cost for Cohort for ALOS
ASSAULT 1	Assault	1	0.0022	0.0073	1.4390	83.461	$37,000	$83	$53,242.28
ASSAULT 2		13	0.0292	0.0950	18.7067		$37,000	$1,080	$692,149.68
ASSLT POLICE 1		5	0.0112	0.0365	7.1949		$37,000	$415	$266,211.42
ASSAULT POLICE		1	0.0022	0.0073	1.4390		$37,000	$83	$53,242.28
ASSAULT 3		27	0.0606	0.1972	38.8525		$4,500	$273	$174,836.15
KIDNAPPING		10	0.0225	0.0730	14.3898		$4,500	$101	$64,754.13
UNLAW IMPRS 1		0	0.0000	0.0000	0.0000		$4,500	$0	$0.00
UNLAW IMPRS 2		1	0.0022	0.0073	1.4390		$4,500	$10	$6,475.41
DET STOLEN PROP	Auto theft	0	0.0000	0.0000	0.0000	331.770	$5,500	$0	$0.00
UN CON PR VEH		140	0.5178	1.6841	331.7703		$5,500	$2,848	$1,824,736.39
BRIBERY	Bribery	1	0.0078	0.0252	4.9672	4.967	$0	$0	$0.00
BURGLARY 1	Burglary	24	0.2422	0.7877	155.1730	258.622	$2,000	$484	$310,346.05
BURGLARY 2		15	0.1514	0.4923	96.9831		$2,000	$303	$193,966.28
POS OF BURG TL		1	0.0101	0.0328	6.4655		$2,000	$20	$12,931.09
WEL MINOR	Child Neglect	1	0.0091	0.0296	5.8377	17.513	$38,742	$353	$226,165.75
WELFARE MIN 2		1	0.0091	0.0296	5.8377		$38,742	$353	$226,165.75
WELFARE MIN 2		1	0.0091	0.0296	5.8377		$38,742	$353	$226,165.75
CRIM CONSPIRACY	Conspiracy	1	0.0156	0.0507	9.9801	9.980	$1,100	$17	$10,978.10
LIAB FOR ANOTHR		0	0.0000	0.0000	0.0000		$1,100	$0	$0.00
CUSTODY INTER 1	Custody Interference	2	0.0074	0.0241	4.7396	4.740	$0	$0	$0.00
CUSTODY INTER 2		0	0.0000	0.0000	0.0000		$0	$0	$0.00
ABUSE FAMILY	Domestic Violence	65	0.2480	0.8068	158.9331	161.378	$4,500	$1,116	$715,198.82
SPOUSE ABUSE		1	0.0038	0.0124	2.4451		$4,500	$17	$11,003.06
ACC-DEATH/P.I.	Driving w. Injury	0	0.0000	0.0000	0.0000	0.000	$28,000	$0	$0.00
ACC-DEATH/S.I.		0	0.0000	0.0000	0.0000		$28,000	$0	$0.00

Hawai'i Description	Crime Group	A Total Arrests w/in 5 yrs	B Estimated incidence per inmate/year	C Estimated incidence per inmate/ALOS	D Estimated incidence for cohort/ALOS	E Estimated Incidence for Crime Group	F Victim Cost Per Crime	G Total Cost per Inmate/Yr	H Total Cost for Cohort for ALOS
ALT MV SERIAL #	Driving Offenses	2	0.0312	0.1013	19.9602	1217.572	$0	$0	$0.00
C/P LIQ OP VEH		1	0.0156	0.0507	9.9801		$0	$0	$0.00
CERT OF REG/OWN		2	0.0312	0.1013	19.9602		$0	$0	$0.00
DEFACE SERIAL #		1	0.0156	0.0507	9.9801		$0	$0	$0.00
DELINQ PENALTY		6	0.0935	0.3040	59.8806		$0	$0	$0.00
DRIV SUSP LIC		5	0.0779	0.2533	49.9005		$0	$0	$0.00
DRIVE SIDEWALK		0	0.0000	0.0000	0.0000		$0	$0	$0.00
DRIVE W/SUS LIC		1	0.0156	0.0507	9.9801		$0	$0	$0.00
DWOL-LICENSING		77	1.1993	3.9008	768.4673		$0	$0	$0.00
EXPIRE DRIV LIC		0	0.0000	0.0000	0.0000		$0	$0	$0.00
FALSE CERT.		1	0.0156	0.0507	9.9801		$0	$0	$0.00
FRAUD USE PLATE		10	0.1558	0.5066	99.8010		$0	$0	$0.00
HABITUAL DUI		2	0.0312	0.1013	19.9602		$0	$0	$0.00
INATTENT DRIV		1	0.0156	0.0507	9.9801		$0	$0	$0.00
INSTRUCT PERMIT		0	0.0000	0.0000	0.0000		$0	$0	$0.00
MV PROTECT DEV		0	0.0000	0.0000	0.0000		$0	$0	$0.00
MV SAF ACT-PENL		0	0.0000	0.0000	0.0000		$0	$0	$0.00
NONRESIDENTS		0	0.0000	0.0000	0.0000		$0	$0	$0.00
PROHIB PEDDLING		0	0.0000	0.0000	0.0000		$0	$0	$0.00
PROOF FIN RESP		0	0.0000	0.0000	0.0000		$0	$0	$0.00
RECKLESS DRIVE		10	0.1558	0.5066	99.8010		$0	$0	$0.00
SUSP OF LICENSE		1	0.0156	0.0507	9.9801		$0	$0	$0.00
TITLE TRANSFER		0	0.0000	0.0000	0.0000		$0	$0	$0.00
TRAF LAWS-BIKES		0	0.0000	0.0000	0.0000		$0	$0	$0.00
TWO LIC PLATES		2	0.0312	0.1013	19.9602		$0	$0	$0.00

Hawai'i Description	Crime Group	A Total Arrests w/in 5 yrs	B Estimated incidence per inmate/year	C Estimated incidence per inmate/ALOS	D Estimated incidence for cohort/ALOS	E Estimated Incidence for Crime Group	F Victim Cost Per Crime	G Total Cost per Inmate/Yr	H Total Cost for Cohort for ALOS
CONTROLLED DRUG	Drug offenses (possession, sale, manufacture)	0	0.0000	0.0000	0.0000	12095.875	31	$0	$0.00
METH TRAFF 1		2	0.0312	0.1013	19.9602		31	$1	$618.77
METH TRAFFICKNG		4	0.0623	0.2026	39.9204		31	$2	$1,237.53
MFG DRUG W CHLD		1	0.0156	0.0507	9.9801		31	$0	$309.38
PROHIBITIONS		7	0.1090	0.3546	69.8607		31	$3	$2,165.68
DRG PARAPHERNAL		436	6.7911	22.0879	4351.3215		31	$211	$134,890.96
DRUG PARAPHERN.		2	0.0312	0.1013	19.9602		31	$1	$618.77
IMIT CONTLD SUB		0	0.0000	0.0000	0.0000		31	$0	$0.00
IMITATION SUBST		7	0.1090	0.3546	69.8607		31	$3	$2,165.68
POSS OBNOX SUB		0	0.0000	0.0000	0.0000		31	$0	$0.00
PRO DANG DR 3		480	7.4764	24.3170	4790.4456		31	$232	$148,503.81
PRO HARM DR 3		17	0.2648	0.8612	169.6616		31	$8	$5,259.51
PRO HARM DR 4		31	0.4829	1.5705	309.3829		31	$15	$9,590.87
PROM PR CON 1		2	0.0312	0.1013	19.9602		31	$1	$618.77
PROM PR CON 2		3	0.0467	0.1520	29.9403		31	$1	$928.15
PRO DANG DR 1		29	0.4517	1.4692	289.4228		31	$14	$8,972.11
PRO DANG DR 2		141	2.1962	7.1431	1407.1934		31	$68	$43,623.00
PRO DET DR 1		2	0.0312	0.1013	19.9602		31	$1	$618.77
PRO DET DR 2		12	0.1869	0.6079	119.7611		31	$6	$3,712.60
PRO DRUG-MINOR		1	0.0156	0.0507	9.9801		31	$0	$309.38
PRO HARM DR 1		8	0.1246	0.4053	79.8408		31	$4	$2,475.06
PRO HARM DR 2		7	0.1090	0.3546	69.8607		31	$3	$2,165.68
PRO MARIJUANA 1		5	0.0779	0.2533	49.9005		31	$2	$1,546.91
PRO MARIJUANA 2		2	0.0312	0.1013	19.9602		31	$1	$618.77
PRO SUB NR SCH		4	0.0623	0.2026	39.9204		31	$2	$1,237.53
PROMO MARIJUANA		0	0.0000	0.0000	0.0000		31	$0	$0.00
PROH ACTS C		9	0.1402	0.4559	89.8209		31	$4	$2,784.45
RECK ENDNGR 1	Endangerment	1	0.0038	0.0124	2.4451	12.226	$4,500	$17	$11,003.06
RECK ENDNGR 2		4	0.0153	0.0496	9.7805		$4,500	$69	$44,012.24

Hawai'i Description	Crime Group	A Total Arrests w/in 5 yrs	B Estimated incidence per inmate/year	C Estimated incidence per inmate/ALOS	D Estimated incidence for cohort/ALOS	E Estimated Incidence for Crime Group	F Victim Cost Per Crime	G Total Cost per Inmate/Yr	H Total Cost for Cohort for ALOS
BAIL JUMPING 1	Fleeing	2	0.0202	0.0656	12.9311	200.432	$0	$0	$0.00
BAIL JUMPING 2		1	0.0101	0.0328	6.4655		$0	$0	$0.00
ESCAPE 2		14	0.1413	0.4595	90.5176		$0	$0	$0.00
RS ORDR TO STOP		14	0.1413	0.4595	90.5176		$0	$0	$0.00
COMPUTR FRAUD 1	Fraud	2	0.0312	0.1013	19.9602	179.642	$1,100	$34	$21,956.21
CRED CD FRAUD		0	0.0000	0.0000	0.0000		$1,100	$0	$0.00
FRAUD USE CR CD		16	0.2492	0.8106	159.6815		$1,100	$274	$175,649.67
GAMBLING	Gambling	0	0.0000	0.0000	0.0000	39.920	$0	$0	$0.00
POS GAM REC 2		0	0.0000	0.0000	0.0000		$0	$0	$0.00
PROM GAMB 2		4	0.0623	0.2026	39.9204		$0	$0	$0.00
TEMP REST ORDER	Harassment	12	0.0458	0.1489	29.3415	88.024	$0	$0	$0.00
TRO-HARASSMENT		4	0.0153	0.0496	9.7805		$0	$0	$0.00
VIOL OF PRIV		1	0.0038	0.0124	2.4451		$0	$0	$0.00
VIOLATE PRT-ODR		19	0.0725	0.2358	46.4574		$0	$0	$0.00
SEX ASLT 4	Indecent exposure	2	0.0182	0.0593	11.6740	11.674	$4,500	$82	$52,532.83
MANSLAUGHTER	Murder, manslaughter, negligent homicide	1	0.0007	0.0023	0.4469	0.894	$4,600,000	$3,208	$2,055,792.81
MURDER		0	0.0000	0.0000	0.0000		$4,600,000	$0	$0.00
MURDER 1		0	0.0000	0.0000	0.0000		$4,600,000	$0	$0.00
MURDER 2		0	0.0000	0.0000	0.0000		$4,600,000	$0	$0.00
NEG HOMICIDE 1		1	0.0007	0.0023	0.4469		$4,600,000	$3,208	$2,055,792.81
ILLEG NITE HUNT	Permit Violations	0	0.0000	0.0000	0.0000	9.980	$0	$0	$0.00
POSSESS/PERMITS		1	0.0156	0.0507	9.9801		$0	$0	$0.00
PRESCRIPTIONS		0	0.0000	0.0000	0.0000		$0	$0	$0.00
REGS-PEDDLERS		0	0.0000	0.0000	0.0000		$0	$0	$0.00
CR PROP DMG 1	Property Damage	5	0.0779	0.2533	49.9005	169.662	$370	$29	$18,463.18
CR PROP DMG 2		3	0.0467	0.1520	29.9403		$370	$17	$11,077.91
CR PROP DMG 3		9	0.1402	0.4559	89.8209		$370	$52	$33,233.72

Hawai'i Description	Crime Group	A Total Arrests w/in 5 yrs	B Estimated incidence per inmate/year	C Estimated incidence per inmate/ALOS	D Estimated incidence for cohort/ALOS	E Estimated Incidence for Crime Group	F Victim Cost Per Crime	G Total Cost per Inmate/Yr	H Total Cost for Cohort for ALOS
PROM PROSTI 2	Public Disorder	0	0.0000	0.0000	0.0000	219.562	$0	$0	$0.00
FEDERAL ARREST		0	0.0000	0.0000	0.0000		$0	$0	$0.00
FORFEITURES		0	0.0000	0.0000	0.0000		$0	$0	$0.00
HIND PROSEC 1		3	0.0467	0.1520	29.9403		$0	$0	$0.00
HIND PROSEC 2		1	0.0156	0.0507	9.9801		$0	$0	$0.00
IMPERSONATING 2		1	0.0156	0.0507	9.9801		$0	$0	$0.00
LAMP,ETC-BIKE		0	0.0000	0.0000	0.0000		$0	$0	$0.00
LIQ VIOL/MINOR		1	0.0156	0.0507	9.9801		$0	$0	$0.00
PENALTIES		0	0.0000	0.0000	0.0000		$0	$0	$0.00
REFUSE TO LEAVE		2	0.0312	0.1013	19.9602		$0	$0	$0.00
REND FALSE ALRM		1	0.0156	0.0507	9.9801		$0	$0	$0.00
RESIST ARREST		12	0.1869	0.6079	119.7611		$0	$0	$0.00
UNSWRN FALSE AU		1	0.0156	0.0507	9.9801		$0	$0	$0.00
RAPE 1	Sexual Assault	0	0.0000	0.0000	0.0000	46.696	$135,000	$0	$0.00
RAPE 3		1	0.0091	0.0296	5.8370		$135,000	$1,230	$787,992.52
SEX ABUSE 1		0	0.0000	0.0000	0.0000		$135,000	$0	$0.00
SEX ASLT 1		4	0.0364	0.1185	23.3479		$135,000	$4,919	$3,151,970.09
SEX ASLT 2		0	0.0000	0.0000	0.0000		$135,000	$0	$0.00
SEX ASLT 3		2	0.0182	0.0593	11.6740		$135,000	$2,460	$1,575,985.04
SODOMY 1		1	0.0091	0.0296	5.8370		$135,000	$1,230	$787,992.52
ROBBERY 1	Robbery	2	0.0071	0.0230	4.5259	27.155	$29,000	$205	$131,251.06
ROBBERY 2		10	0.0353	0.1149	22.6295		$12,000	$424	$271,553.91

Hawai'i Description	Crime Group	A Total Arrests w/in 5 yrs	B Estimated incidence per inmate/year	C Estimated incidence per inmate/ALOS	D Estimated incidence for cohort/ALOS	E Estimated Incidence for Crime Group	F Victim Cost Per Crime	G Total Cost per Inmate/Yr	H Total Cost for Cohort for ALOS
CRED CD MACHINE		0	0.0000	0.0000	0.0000		$450	$0	$0.00
EXTORTION 1		1	0.0156	0.0507	9.9801		$450	$7	$4,491.04
EXTORTION 2		1	0.0156	0.0507	9.9801		$450	$7	$4,491.04
FORGERY 1		4	0.0623	0.2026	39.9204		$450	$28	$17,964.17
FORGERY 2		13	0.2025	0.6586	129.7412		$450	$91	$58,383.56
FORGERY 3		1	0.0156	0.0507	9.9801		$450	$7	$4,491.04
NEG WRTH INS		12	0.1869	0.6079	119.7611		$450	$84	$53,892.51
REM OF ID MARKS	Theft	1	0.0156	0.0507	9.9801	2754.506	$450	$7	$4,491.04
SHOPLIFTING		6	0.0935	0.3040	59.8806		$450	$42	$26,946.26
THEFT 1		9	0.1402	0.4559	89.8209		$450	$63	$40,419.39
THEFT 2		101	1.5732	5.1167	1007.9896		$450	$708	$453,595.32
THEFT 3		53	0.8255	2.6850	528.9450		$450	$371	$238,025.27
THEFT/FORG CARD		21	0.3271	1.0639	209.5820		$450	$147	$94,311.90
UNAUTH ENTRY MV		53	0.8255	2.6850	528.9450		$450	$371	$238,025.27
UNLAW POSS		0	0.0000	0.0000	0.0000		$450	$0	$0.00
INT CORR WORKER		1	0.0038	0.0124	2.4451		$0	$0	$0.00
TERR THREAT 1	Threats	30	0.1145	0.3724	73.3533	117.365	$0	$0	$0.00
TERR THREAT 2		17	0.0649	0.2110	41.5668		$0	$0	$0.00
CRIM TRESS 1	Trespass	23	0.3582	1.1652	229.5422	229.542	$0	$0	$0.00

Hawai'i Description	Crime Group	A Total Arrests w/in 5 yrs	B Estimated incidence per inmate/year	C Estimated incidence per inmate/ALOS	D Estimated incidence for cohort/ALOS	E Estimated Incidence for Crime Group	F Victim Cost Per Crime	G *Total Cost per Inmate/Yr*	H Total Cost for Cohort for ALOS
CARRY DEAD WPN	Weapons Possession	10	0.1558	0.5066	99.8010	1177.651	$0	$0	$0.00
ELECTRIC GUNS		1	0.0156	0.0507	9.9801		$0	$0	$0.00
ELECTRIC GUNS		1	0.0156	0.0507	9.9801		$0	$0	$0.00
FELON IN POSSES		1	0.0156	0.0507	9.9801		$0	$0	$0.00
FLSE REP LW E A		1	0.0156	0.0507	9.9801		$0	$0	$0.00
GUN PERMIT		10	0.1558	0.5066	99.8010		$0	$0	$0.00
MATERIALS-GUN		1	0.0156	0.0507	9.9801		$0	$0	$0.00
NO PERMIT CARRY		0	0.0000	0.0000	0.0000		$0	$0	$0.00
OWN/POSS PROHIB		67	1.0436	3.3942	668.6664		$0	$0	$0.00
PLACE TO KEEP		0	0.0000	0.0000	0.0000		$0	$0	$0.00
USE/PL TO KEEP		15	0.2336	0.7599	149.7014		$0	$0	$0.00
POS OF PRO WPNS		3	0.0467	0.1520	29.9403		$0	$0	$0.00
PROHIBIT WEAPON		0	0.0000	0.0000	0.0000		$0	$0	$0.00
REG FIREARM		8	0.1246	0.4053	79.8408		$0	$0	$0.00
SWITCHBLADES		0	0.0000	0.0000	0.0000		$0	$0	$0.00
Total		2268	30.3879	98.8366	19470.8097	19470.810		$27,888	$17,869,327.92 (undiscounted)

A Total arrests for cohort for listed crime during five years preceding reference incarceration.

B Estimated incidence of listed crime per inmate per year. = ((Total arrests/MYR)/2)/scaling factor for listed crime

C Estimated incidence per inmate for ALOS. = B x 3.2525

D Estimated incidence for cohort for ALOS (from Appendix 2).

E Estimated incidence for crime group. = sum of estimated incidences of included crimes

F Victim cost per crime. From Cohen and Piquero 2009, table 5, unless noted.

G Victim cost per inmate per year for listed crime. = B x F

H Total victim cost for cohort for listed crime for ALOS. = D x F

Victim cost for child neglect from Miller, Cohen, and Wiersema 1996 (corrected to 2007 dollars).

Victim cost for drug offenses from Bhati, Roman, and Chalfin 2008, table 3.7.

Appendix 4
Calculations of Net Present Value

Calculations are based on the average sentence served by Hawai'i drug felons who were released in FY 2006 (39.03 months), using a discount rate of 3%.

Item	Item Cost	Discount Rate	Discounted value
Prison bed			
Year One	$39,026	0.0000	$39,026
Year Two	$39,026	0.0300	$37,889
Year Three	$39,026	0.0300	$36,786
37 - 39 months	$9,854	0.0076	$9,219
Total Net Present Value			**$122,919**
Lost Wages			
Year One	$20,102	0.0000	$20,102
Year Two	$20,102	0.0300	$19,517
Year Three	$20,102	0.0300	$18,948
37 - 39 months	$5,076	0.0076	$4,749
Total Net Present Value			**$63,316**
Lost Fringes on lost wages			
Year One	$5,970	0.0000	$5,970
Year Two	$5,970	0.0300	$5,797
Year Three	$5,970	0.0300	$5,628
37 - 39 months	$1,508	0.0076	$1,410
Total Net Present Value			**$18,805**
Lost Taxes on lost wages			
Year One	$4,105	0.0000	$4,105
Year Two	$4,105	0.0300	$3,985
Year Three	$4,105	0.0300	$3,869
37 - 39 months	$1,036	0.0076	$970
Total Net Present Value			**$12,929**

Item	Item Cost	Discount Rate	Discounted value
Lost Household Productivity			
Year One	$3,015	0.0000	$3,015
Year Two	$3,015	0.0300	$2,928
Year Three	$3,015	0.0300	$2,842
37 - 39 months	$761	0.0076	$712
Total Net Present Value			**$9,497**

Cost of Parole			
Year One	$0	0.0000	$0
Year Two	$0	0.0300	$0
Year Three	$0	0.0300	$0
37 - 39 months	$0	0.0076	$0
40 - 51 months	$1,780	0.0300	$1,617
52 - 63 months	$1,780	0.0300	$1,570
64th month (0.6 months)	$89	0.0300	$76
Total Net Present Value			**$3,186**

Lost future earnings			
Year One	$0	0.0000	$0
Year Two	$0	0.0300	$0
Year Three	$0	0.0300	$0
37 - 39 months	$0	0.0076	$0
40 - 51 months (year 1)	$13,646	0.0300	$12,394
52 - 63 months (year 2)	$13,646	0.0300	$12,033
64 - 75 months (year 3)	$13,646	0.0300	$11,683
76 - 87 months (year 4)	$13,646	0.0300	$11,343
88 - 99 months (year 5)	$13,646	0.0300	$11,012
Total Net Present Value			**$58,465**

Item	Item Cost	Discount Rate	Discounted value
Lost fringes on lost future earnings			
Year One	$0	0.0000	$0
Year Two	$0	0.0300	$0
Year Three	$0	0.0300	$0
36 - 39 months	$0	0.0076	$0
40 - 51 months (year 1)	$4,094	0.0300	$3,718
52 - 63 months (year 2)	$4,094	0.0300	$3,610
64 - 75 months (year 3)	$4,094	0.0300	$3,505
76 - 87 months (year 4)	$4,094	0.0300	$3,403
88 - 99 months (year 5)	$4,094	0.0300	$3,304
Total Net Present Value			**$17,540**
Lost taxes on lost future earnings			
Year One	$0	0.0000	$0
Year Two	$0	0.0300	$0
Year Three	$0	0.0300	$0
36 - 39 months	$0	0.0076	$0
40 - 51 months (year 1)	$2,787	0.0300	$2,531
52 - 63 months (year 2)	$2,787	0.0300	$2,457
64 - 75 months (year 3)	$2,787	0.0300	$2,386
76 - 87 months (year 4)	$2,787	0.0300	$2,316
88 - 99 months (year 5)	$2,787	0.0300	$2,249
Total Net Present Value			**$11,939**
Value of crimes averted			
Year One	$27,116	0.0000	$27,116
Year Two	$27,116	0.0300	$26,326
Year Three	$27,116	0.0300	$25,559
37 - 39 months	$6,847	0.0076	$6,405
Total Net Present Value			**$85,406**
Cost of foster care/child			
Year One	$9,465	0.0000	$9,465
Year Two	$9,465	0.0300	$9,189
Year Three	$9,465	0.0300	$8,922
37 - 39 months	$2,390	0.0076	$2,236
Total Net Present Value			**$29,812**

Item	Item Cost	Discount Rate	Discounted value
Cost of child care - parent			
Year One	$5,620	0.0000	$5,620
Year Two	$5,620	0.0300	$5,456
Year Three	$5,620	0.0300	$5,297
37 - 39 months	$1,419	0.0076	$1,328
Total Net Present Value			**$17,701**

Appendix 5: Predicted Relative Pre-Incarceration Wages of Incarcerated Parents

Group	B Educational Attainment Level	C % of Incarcerated Parents (2004)	D % of Non-incarcerated Wages for Group and Level	E Contribution to Group Relative Earning Power (CxD)	F % of Incarcerated Parents by Race in State Prison	G Share of cohort relative earning power (ExF)
Whites						
	Less than HS dipl	0.672	0.79	0.5306		
	HS diploma	0.217	0.76	0.1651		
	Some college	0.110	0.69	0.0762		
	Net of sub-groups			0.7720	0.3519	0.2717
Blacks						
	Less than HS dipl	0.672	0.65	0.4366		
	HS diploma	0.217	0.58	0.1260		
	Some college	0.110	0.58	0.0640		
	Net of sub-groups			0.6267	0.4053	0.2540
Hispanics*						
	Less than HS dipl	0.672	0.72	0.4836		
	HS diploma	0.217	0.67	0.1456		
	Some college	0.110	0.635	0.0701		
	Net of sub-groups			0.6993	0.1816	0.1270
Others*						
	Less than HS dipl	0.672	0.72	0.4836		
	HS diploma	0.217	0.67	0.1456		
	Some college	0.110	0.635	0.0701		
	Net of sub-groups			0.6993	0.0612	0.0428
	Net ratio of non-incarcerated wages for all incarcerated parent groups					0.6954
	Percent of incarcerated parents employed in the month before arrest					0.75
	Adjustment factor for mean non-incarcerated wage (ratio x percent)					**0.5216**

*The ratio of wages for incarcerated vs. employed Hispanics and Others is assumed to be midway between whites and blacks.

Sources:

Mumola, Christopher J. 2000. *Incarcerated Parents and Their Children*. Table 3 and table 13. Bureau of Justice Assistance.

Western, Bruce. 2006. *Punishment and Inequality in America* (Chapter 4, Figure 4.6, p. 100). New York: Russell Sage.

Glaze, Lauren E. and Laura M. Maruschak. 2008. *Parents in Prison and Their Minor Children.* Appendix table 2, table 4, and table 16. Bureau of Justice Assistance.

Appendix 6: Net Reduction in Post-Incarceration Annual Wages for Reentering Offenders

	B: Calculated % of incarcerated parents (2004)	C: Calculated % reduction for group (Western 2006, Fig. 5.1)	Share of net reduction for cohort (drug offenders) (BxC)
Whites	0.3519	0.358	0.1260
Blacks	0.4053	0.369	0.1495
Hispanics*	0.1816	0.322	0.0585
Others*	0.0612	0.322	0.0197
Total of shares (total reduction in annual wages):			0.3537

*The percent reduction in wages for incarcerated vs. never-incarcerated Others is assumed to be the same as for Hispanics.

Sources: Western 2006, figure 5.1
Glaze and Maruschak 2008, appendix table 16

Appendix 7: Calculation of Disutility (Loss in Quality of Life)

Source of method: French, Michael T., Josephine A. Mauskopf, Jacqueline L. Teague, and E. Joyce Roland. 1996. Estimating the dollar value of health outcomes from drug-abuse interventions. *Medical Care* 34 (9): 890-910.

$$\text{Discounted QALYs lost} = \sum_{i=n}^{D} \frac{\text{Relative Utility Decline}}{(1+r)^{i-n}} \times \text{Prob}\,(A_i|A_{i-1})$$

i ranges across the time period of the period of disutility, in months or years, in this case the period of incarceration.
r is the discount rate (3%).
Prob $(A_i|A_{i-1})$ is the probability of being alive at year i given being alive at age i – 1.

Assumptions
$A_i|A_{i-1}$ is taken from United States Life Tables (2003), National Vital Statistics Reports vol. 54, number 14 (Arias 2006).
Discounted QALYs lost x Value of one statistical life year = Total $ value of disutility
Value of one statistical life year = $100,000 in 2006 dollars.

Quality of Life Losses for HI Prisoners, Children, and Partners

Year	Age	Prob. Of Dying	Prob Ai| Ai-1	Lost QoL (%)	Discount Rate	QALYs lost	Value @ $100,000
(Prisoner)							
1	white male, 32	0.001387	0.9986	0.3	0	0.2996	$29,958
2	white male, 33	0.001385	0.9986	0.3	0.03	0.2909	$29,086
3	white male, 34	0.00148	0.9985	0.3	0.03	0.2824	$28,236
37-39 mos	white male, 35	0.001577	0.9984	0.07575	0.007575	0.0708	$7,075
	Total					0.9436	$94,356
(Partner)							
1	white female, 32	0.000622	0.9994	0.3	0	0.2998	$29,981
2	white female, 33	0.00072	0.9993	0.3	0.03	0.2911	$29,105
3	white female, 34	0.000741	0.9993	0.3	0.03	0.2826	$28,257
37-39 mos	white female, 35	0.000861	0.9991	0.07575	0.007575	0.0708	$7,080
	Total					0.9442	$94,424
(Child)							
1	white male, 8	0.000147	0.9999	0.3	0	0.3000	$29,996
2	white male, 9	0.00013	0.9999	0.3	0.03	0.2912	$29,122
3	white male, 10	0.000164	0.9998	0.3	0.03	0.2827	$28,273
37-39 mos	white male, 11	0.000147	0.9999	0.07575	0.007575	0.0709	$7,085
	Total					0.9448	$94,477