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Impact and Cost-Benefit Analysis of the Anchorage Wellness Court

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research for safer communities

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Despite their guidance, all remaining errors are our own.

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EXECUTIVE SUMMARY

The primary goal of this research is to estimate the costs and benefits of serving misdemeanor DUI offenders in the Anchorage Wellness Court (AWC), a specialized court employing principles of therapeutic jurisprudence. The Urban Institute, as the subcontractor to the University of Alaska-Anchorage, conducted an impact and a cost-benefit analysis (CBA) to estimate the effectiveness of the AWC. The study focused on the impact of the program on reducing the prevalence and incidence of new criminal justice system contact. Costs were collected to estimate the opportunity cost of the AWC. Recidivism variables were monetized to estimate the benefits from crime reductions. Outcomes were observed at 24, 30, 36, and 48 months.

The Anchorage Wellness Court began serving misdemeanor DUI offenders in Anchorage, AK in August, 1999, with the goal of reducing alcohol-related offending through treatment and increased individual accountability. The Anchorage Wellness Court began as a bail and sentencing option. Arrestees with an identified alcohol problem were released into the community where they received substance abuse treatment and regular judicial supervision. Over time, the AWC expanded operations to include more components of therapeutic jurisprudence, eventually evolving into a mature therapeutic court. Program components included substance abuse treatment, moral reconation therapy (MRT), recovery meetings (such as Alcoholics Anonymous), employment and financial responsibility, case management and substance abuse monitoring, judicial supervision, and complex criminal justice collaborations.[1] Participant eligibility was determined by clinical staff and prosecutors. Defendants voluntarily enrolled into the program and received reductions in jail terms and fines if they successfully completed the program, which usually required about 18 months.

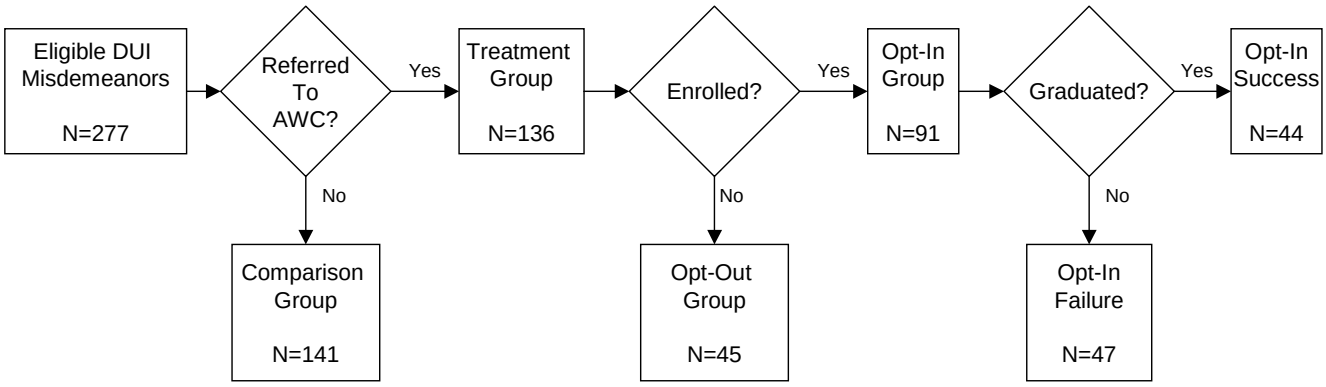
In this study we make two sets of comparisons to estimate the effect of AWC on participant behavior. First, we compare the outcomes for 277 individuals who were eligible for the Anchorage Wellness Court (AWC)—141 individuals who had no contact with the program (the Comparison Group), and 136 who were referred to the program (the Treatment Group). Although not everyone who was referred to the program formally enrolled, all who were referred received at least some exposure to AWC[2]. We refer to those who formally opt-in to the program as the Opt-In Group, and those who were referred but did not formally enroll as the Opt-Out Group. To account for the

[1] For a complete description of the program and operations of the Anchorage Wellness Court and a discussion of the transferability of the model, please see Susie Mason Dosik. (2008). Transferability of the Anchorage Wellness Court Model. Anchorage, AK: Alaska Judicial Council. 1-232.

[2] Dosik notes that "[a]significant lag time—sometimes months" might elapse between referral and formal enrollment, and "the defendant was receiving substance abuse treatment and program services during that time" (2008:4).

presence of two distinct groups within the Treatment Group, we then compare outcomes for the Opt-In Group (91, including those who ultimately graduate (44) and those who fail (47)), the Opt-Out Group (45), and the Comparison Group (141).[3]

Figure 1. Flow of Cases into the Anchorage Wellness Court



Source: urban Institute Analysis of program data.

Given the complicated enrollment process, both tests are necessary to understand the effectiveness of AWC. Those who eventually opt-out of AWC may receive considerable services from AWC before exiting the program. In effect, the decision to enroll is an intermediate outcome where those who are doing well (or are expected to do well) formally enroll and those who are not, exit. If this initial success or failure is used to determine group composition, final outcomes are confounded. Those who are on a positive path and opt-in include individuals who would be expected to do better than the average person referred to AWC, since the Comparison Group includes both those who would have opted-in and also those who would have opted-out. If such a decision rule is used to determine who is in the Treatment Group, the results are likely to be biased. As a result, the impact of AWC on all who are referred must be tested.[4] However, it is also important to determine whether those who received the full program had better outcomes, and thus we include a second set of tests where the outcomes of the Opt-In and Opt-Out Groups are estimated separately.

RESULTS

Overall we find that AWC reduced recidivism and reconviction for the Treatment Group. Despite the decrease in the prevalence of recidivism, the Treatment Group returned negative benefits in the form of significantly higher costs to the criminal justice system and victims that result from their

[3] A complete explanation of this graphic can be found on page 7 of this report.

[4] There is an additional reason to evaluate the effectiveness of AWC on all who are referred to the program. That is, one critical measure of program effectiveness is how successful the program was in getting referred individuals to enroll and receive services. If those who are treated do well, but few who are eligible ultimately enroll, it is prudent to ask whether that program should be deemed successful. Including all those who were assigned to AWC within the Treatment Group allows for this type of comparison.

new offending. However, when the Treatment Group is divided into the Opt-in and Opt-Out Groups, a much different pattern emerges. We find that the Opt-In Group had significantly lower likelihood of any rearrest and reconviction and significantly fewer Opt-In Group members were rearrested and reconvicted in all four follow-up periods. Those in the Opt-In Group had large and significant benefits to the criminal justice system and crime victims, returning over three dollars in benefits for each dollar in program costs. By contrast the Opt-Out Group has worse outcomes than the Comparison Group on almost all measures.

RESULTS OF THE EVALUATION OF THE TREATMENT AND COMPARISON GROUPS

Bivariate Results

The general pattern of results is that the Treatment Group had better outcomes on most indicators of success, including the likelihood of a new arrest and the number of new arrests, but that the program was more costly to administer than the comparison, and the harms from new offending were greater. In the bivariate analysis, we find that at 24 months, 37 percent of the Treatment Group had been rearrested, compared to 53 percent of the Comparison Group. These significant differences ($p<0.01$) persist through 48 months where 47 percent of the Treatment Group had been rearrested compared to 66 percent of the Comparison Group. Those in the Treatment Group were less likely to be re-convicted as well, although the difference is only significant at 24 months. There were no significant differences in the number of rearrests or reconvictions. While the arrest and conviction prevalence were lower for the Treatment Group, we find negative benefits to the criminal justice system and the public from new offending – that is, the harms from new offending were higher for the Treatment Group than the Comparison Group. Overall, we estimate that the cost of the program was about $3,300 per participant. When the cost of AWC and the costs of new offending are combined, we find that AWC was not cost-beneficial.

Multivariate Results

There are differences between the Treatment and Comparison Groups in terms of the attributes of each group's membership. To control for any bias this may introduce, we ran multivariate analyses to confirm the bivariate findings. In general, the same results are returned. The odds of a Treatment Group member being rearrested are lower than the Comparison Group in all four periods, as are the odds of a reconviction (but again the differences are only statistically significant at 24 months). We again find no statistically significant differences in the number of re-arrests and the number of re-convictions. We also find no significant differences in the time to rearrest, though there is a significantly longer time to reconviction for the Treatment Group. In the multivariate models, we again find large negative benefits (additional costs) associated with the new offending of the Treatment Group. These differences are significant in the first three follow-up periods and average about $7,800 per participant (and these costs are in addition to the $3,300 in new costs associated with AWC programming.

RESULTS OF THE EVALUATION OF THE OPT-IN, OPT-OUT AND COMPARISON GROUPS

Bivariate Results—Opt-In Group vs. Comparison Group

The Opt-In Group had better outcomes than the Comparison Group on virtually all indicators of success. In the bivariate analysis, we find that at 24 months, 26 percent of the Opt-In Group had been rearrested, compared to 53 percent of the Comparison Group. These significant differences ($p<0.01$) persist through 48 months where 42 percent of the Opt-In Group had been rearrested compared to 66 percent of the Comparison Group. Those in the Opt-In Group were less likely to be re-convicted as well in all four follow-up periods. The Opt-In Group had fewer reconvictions in all four periods and fewer rearrests at 36 and 48 months. We find no difference in the bivariate comparisons of benefits to the criminal justice system and the public from new offending – although costs to police from new offending by the Opt-In Group were significantly lower, costs to supervision agencies were significantly higher. Overall, we estimate that the cost of the program was higher for the Opt-In Group then the Comparison Group, averaging about $3,900 per participant.

Bivariate Results—Opt-Out Group vs. Comparison Group

For the Opt-Out Group, we largely find no effect or negative effects. In the bivariate analysis, we find that at 24 months, 55 percent of the Opt-Out Group had been rearrested, compared to 53 percent of the Comparison Group, and there were no differences at any of the follow-up periods. At 48 months 55 percent of the Opt-Out Group had been rearrested compared to 66 percent of the Comparison Group, but the difference is not statistically significant[5]. There are no differences between the Opt-Out Group and the Comparison Group on measures of the likelihood of a reconviction or the number of rearrests and reconviction. However, in the bivariate comparisons of benefits to the criminal justice system and the public from new offending, the Opt-Out Group had large and significant negative benefits. That is, at 48 months, the costs of new offending by the Comparison Group were about $25,300, while the costs associated with new offending by the Opt-Out Group were about $37,500. We estimate that the program expenditures were much lower for the Opt-Out Group then the Treatment Group, averaging about $700 per participant.

Multivariate Results—Opt-In Group vs. Comparison Group

Because there are differences between the Opt-In Group and Comparison Groups in terms of the attributes of their membership, we ran multivariate analyses to confirm the bivariate findings. In general, the same results are returned. The odds of an Opt-In Group member being rearrested are significantly lower for the Opt-In Group in the first three periods, as are the odds of a reconviction (but the differences are only significant at 24 and 30 months). We find significant reductions in the number of re-arrests and re-convictions (at 24 and 36 months). In the multivariate models, we again find large positive benefits (a reduction in costs) associated with the new offending of the Opt-In Group at 24 months (a savings of about $13,400) and 30 months (a savings of about $11,900). These

[5] Unless otherwise noted in the text, throughout this paper, results are considered to be statistically significant if $p<0.05$.

differences are significant and more than offset the additional cost of about $3,900 of treating this group. In addition, there is a significantly longer time to re-arrest for the Opt-In Group.

Multivariate Results—Opt-Out Group vs. Comparison Group

Multivariate models were run to control for baseline differences in attributes between the Opt-Out Group and Comparison Groups. Again, similar results are returned. The odds of an Opt-Out Group member being rearrested are higher than the Comparison Group in the first two follow-up periods and lower in the last two follow-up periods, although none of the differences are significant. Interestingly, by 48 months, the odds of re-arrest for the Opt-In Group and the Opt-Out Group are almost identical. Odds of a reconviction are higher for the Opt-Out Group than the Comparison Group in all four periods, but none of the differences are significant. An identical pattern for the odds of any reconviction and the number of reconvictions is observed. In the multivariate models, we again find large and significant negative benefits (an increase in harms associated with new offending) for the Opt-In Group at all four periods, and the Opt-Out Group had average negative benefits of $15,900-$17,400. These differences are significant and add to the additional cost of about $700 of treating each member of the Opt-Out Group.

SUMMARY

In general, we find that the AWC was effective in reducing recidivism and associated harms for the Opt-In Group. Among those who were referred to the program, but who did not enter the program (the Opt-Out Group), there was no effect on some outcomes and negative effects on other outcomes including a finding that this group contributed substantial additional harms to society. Thus, if the AWC is evaluated only on the effectiveness of serving those who were sufficiently motivated to formally enroll in the program, the results are an unqualified success. If a more expansive lens is used, and the effectiveness of the program considers whether the program was effective in serving all who were referred, which is surely a goal of the program, then the effectiveness of the program is modest.

BACKGROUND

Over the last two decades, agencies within the criminal justice system have developed and implemented several innovative programs to link intensive criminal justice system surveillance with substance abuse (including alcohol) treatment. These programs are designed to address the underlying causes of criminal behavior among a substance using population with the goal of reducing the burden of chronic drug use on private citizens and the criminal justice system. The most acclaimed of these interventions has been specialized court dockets, including drug courts and DWI/DUI courts. DWI/DUI courts identify and treat offenders whose alcohol use and abuse is determined to be a significant cause of their criminality. Alcohol treatment is generally provided in the community to a population that otherwise would have been incarcerated. DWI/DUI programs can be implemented using a variety of models, but most are short-term diversion programs that provide pretrial services. These programs generally use direct judicial monitoring in combination with treatment and ensure compliance with a program of graduated sanctions.

The Anchorage Wellness Court began serving misdemeanor DUI offenders in Anchorage, AK in August, 1999 with the goal of reducing alcohol-related offending through treatment and increased individual accountability. The Anchorage Wellness Court began as a bail and sentencing option. Arrestees with an identified alcohol problem were released into the community where they received substance abuse treatment and regular judicial supervision. Over time, the AWC expanded operations to include more components of therapeutic jurisprudence, eventually evolving into a mature therapeutic court. Program components included substance abuse treatment, moral reconation therapy (MRT), recovery meetings (such as Alcoholics Anonymous), employment and financial responsibility, case management and substance abuse monitoring, judicial supervision, and complex criminal justice collaborations.[6] Participant eligibility was determined by clinical staff and prosecutors. Defendants voluntarily enrolled into the program and received reductions in jail terms and fines if they successfully completed the program, which usually required about 18 months.

The goal of this research is to determine how cost-effective the AWC is in delivering services to arrestees with alcohol problems. How much does it cost to treat a client in AWC? How many crimes are prevented when arrestees receive treatment? Do the benefits vary according to how much treatment is delivered, and in particular, do those who are exposed to the program but not treated still have positive outcomes? Is there a longer time to rearrest for treated clients? Can some ex ante predictors of treatment success be identified to inform other similar programs?

[6] For a complete description of the program and operations of the Anchorage Wellness Court and a discussion of the transferability of the model, please see Susie Marie Dosik. (2008). Transferability of the Anchorage Wellness Court Model. Anchorage, AK: Alaska Judicial Council. 1-232.

PRIOR RESEARCH

The Relationship between Alcohol and Crime

Substance use (both drug and alcohol) has been routinely linked to criminality (Anglin and Perrochet 1998; Boyum and Kleiman 2002; DeLeon 1988a; DeLeon 1988b; Harrison and Gfroerer 1992; Inciardi et al. 1996; Inciardi 1992; Inciardi and Pottieger 1994; MacCoun and Reuter 2001; Miller and Gold 1994). Much of the cause of alcohol-related crime is psychopharmacologic, where the effects of alcohol consumption lead users to commit crimes while intoxicated (Greenfeld 1998; Stuart et al. 2006). Alcohol abusers are also more likely to be the victims of violence than those who are not (Greenfeld 1998; Stuart, et al. 2006). Alcohol-related violence is associated with more severe injuries and more chronic cases of violence (Reider et al. 1988; Brecklin 2002; Graham, Plant, and Plant 2004; Leonard and Senchak, 1996; Martin and Bachman, 1997).

The total economic costs associated with alcohol use are estimated to be more than $235 billion in 2007 dollars (Harwood 2000). The cost of alcohol-related automobile crashes in the United States put the figure at more than $141 billion, including more than $50 billion in monetary costs and almost $90 billion in quality of life losses (Miller, Spicer, and Levy 1999). When taking into account all crimes, those attributed to alcohol or other drugs (AOD) cost society over $263 billion (when taking into account tangible expenses and the value of pain and suffering, and lost quality of life) (Miller et al. 2006). Expenditures by the criminal justice system make up a significant percentage of these costs. Alcohol related motor vehicle accidents and the harms caused by long-term alcohol use (medical costs and lost productivity due to alcohol-related mortality and morbidity) make up about two-thirds of alcohol-related costs (Harwood 2000).

The economic costs of alcohol abuse and dependence are not completely internalized by the user, and negative externalities include alcohol-related crime, lost productivity and taxpayer subsidized health care (Simon et al. 2005; Harwood 2000; NIDA 1992; NIAAA 1991). Alcohol abuse and dependence is related to an increased risk of traumatic injury (Woodruff and Baron 1994; Holt et al. 1980; Honkanen and Visuri 1976; Stephens 1985; Rund, Summers and Levin 1981). Long-term health effects of alcohol abuse and alcoholism include alcohol psychosis, cirrhosis of the liver, alcohol poisoning, heart disease or pancreatitis (Solfrizzi et al. 2007; NIAA 2000; Pearson 1996; Monforte et. al 1995). With respect to criminality, the Bureau of Justice Statistics (1988) reported that alcohol use contributed to about 40 percent of violent victimizations (by the offender or the victim). A similar percentage of offenders self-report using alcohol at the time of the offense.

The National Highway Traffic Safety Administration (NHTSA) estimates that alcohol-related crashes were associated with more than $50 billion in economic costs in 2000 (Blincoe et al. 2002). The costs of DWI accidents estimated by Miller, Cohen and Wiersma (1996) to be about $6,000 per drunk driving accident, and $18,000 if the pain and suffering is included. Costs associated with alcohol-related accidents vary widely. Miller and colleagues (1996) estimate that the DWI cost totals $71,000 if there is an injury and $2,700 if there is no injury. Costs from alcohol-related accidents in Alaska are estimated to exceed $500 million (Blincoe et al. 2002). While costs associated with drunk

driving in Alaska are slightly below national averages, Alaskans are estimated to drive while impaired from alcohol consumption more often than residents of any other state, and drive while impaired at almost three times the national average (Liu et al. 1997). It is estimated that Alaska residents spend 2.5 percent of per capita personal income on costs associated with drunk driving accidents (Blincoe et al. 2002).

Effectiveness of Alcohol Treatment

A substantial literature has linked reductions in alcohol-related offending to treatment. Harms from alcohol-related automobile accidents can be minimized by combining treatment with licensing actions (DeYoung 1997; Donovan et al 1988; Donovan et al 1985). Existing research suggests treatment has a small but positive effect on reducing the rate of repeated DUI offenses and involvement in alcohol-related crashes (Wells-Parker 1994). Results from a comprehensive meta-analysis find DUI remediation reduces recidivism by at least 7-9 percent (Wells-Parker et al. 1995). Moreover, treatment has a modest effect on reducing driving under the influence and alcohol-related crashes among offenders who are recipients of mandated intervention (DeYoung 1997; Wells-Parker and Williams 2002). Moreover, diversion to treatment substantially reduces long-term mortality rates (Mann et al. 1994). Economic studies have found there is no relationship between cost and effectiveness across 36 different treatment modalities though outpatient treatment is generally more cost effective than inpatient treatment for most individuals (Finney and Monahan 1996; Dill and Wells-Parker 2006; NIAAA 2000).

Criminal Justice System Interventions with Alcohol-Dependent Offenders

Given the preponderance of evidence that treatment can be effective, various criminal justice system innovations have emerged to treat drug and alcohol abusing offenders in the community with criminal justice system oversight over the last three decades. The first widespread intervention, Treatment Accountability for Safe Communities (TASC), redirected drug offenders from the court system into treatment facilities. TASC provided the link between the judicial system and treatment services and offered participation incentives in the form of case dismissal for successful completion (Nolan 2001). In the late 1980s, a more rigorous program, Intensive Supervision Probation (ISP), was developed to monitor drug offenders in the community as an alternative to incarceration with the goal of reducing prison crowding and providing more thorough supervision than regular probation (Tonry 1990). Similar programs such as those mandated under Proposition 36 passed in California in 2001 and the Drug Offender Sentencing Alternative (DOSA) program in Washington serve large numbers of offenders in several states, and these have generally been found to yield better treatment and criminal justice outcomes (Aos et al. 2005; Longshore et al. 2004).

While each of these programs has linkages to the criminal justice system, they did not fully exploit the coercive powers of the criminal justice system to incentivize compliance with treatment protocols. Under the rubric of therapeutic jurisprudence, a more formal model of intensive court-based supervision, referred to as drug treatment courts, emerged in the 1990s (Hora, Schma and Rosenthal 1999; Senjo and Leip 2001; Slobogin 1995; Wexler and Winick 1991). The therapeutic

jurisprudence model posits that legal rules and procedures can be used to improve psychosocial outcomes, an idea supported by a growing research consensus that coerced treatment is as effective as voluntary treatment (Anglin et al. 1990; Belenko 1999; Collins and Allison 1983; DeLeon 1988a; DeLeon 1988b; Hubbard et al. 1989; Lawental et al. 1996; Siddall and Conway 1988; Trone and Young 1996). A number of studies have found that drug treatment court participation reduces recidivism rates (Finigan, 1998; Goldkamp and Weiland 1993; Gottfredson and Exum 2002; Harrell and Roman 2002; Jameson and Peterson 1995; Peters and Murrin 2000; Wilson et al. 2006). In response, the model has proliferated, and by 2005 there were about 600 adult drug courts in operation in the United States, including most medium and large counties (Rossman, Zweig, and Roman 2008).

The model was originally developed to treat those at risk of drug abuse and dependence, but co-occurring alcohol problems led to the extension of this model to alcohol courts (Cook and Reuter 2007, 1184). Results from a recent study of the Rio Hondo DUI court in Los Angeles County, California found no evidence that the program reduced DUI recidivism and drinking and driving (MacDonald, et al. 2007). However, the absence of statistically significant results may be due to the lack of "a credible threat of jail time" thereby reducing incentives to comply with treatment (18). A study of the same program found the DUI court was cost-effective only for third-time offenders due to the high costs of jail time (Eibner, et al. 2006). Alternatively, a study of an Oregon program emphasizing intensive supervision and treatment, similar to a DUI court, found statistically significant results suggesting the program reduced recidivism (Lapham, et al. 2006).

Based on available evidence on the general crime reducing benefits that accrue by treating drug involved offenders, our research was motivated by the need to provide policy makers some guidance on the prospects of going to scale. That is, what crime reductions can we reasonably expect if more drug involved offenders received treatment? We explain our analytical strategy for exploring this issue next.

THE RESEARCH DESIGN

In this section of the paper, we first describe our data sources and then specify the hypotheses we test in the evaluation. This is followed by a discussion of the baseline characteristics of the full sample, the Treatment and Comparison Groups, and of the Opt-In and Opt-Out Groups that comprise the Treatment Group. We then turn to the methods to be used in the analysis, first discussing the propensity scores used to balance the samples, and then briefly describe the multivariate models used in the impact evaluation, the survival analysis, the cost-benefit analysis, and the outcome evaluation.

DATA

Data used to construct our sample and to measure criminal history and recidivism, program costs, and demographic information were provided to us from a number of sources including the Alaska Department of Public Safety, the Alaska Alcohol Safety Action Program and the University of Alaska Anchorage.

Criminal History and Recidivism

The Alaska Department of Public Safety provided arrest and conviction data for all participants in the evaluation. These data were at the level of arrest event and included the disposition for each event. For the Treatment Group, prior arrests were counted if they occurred prior to the date of opt-in to the AWC (see discussion of anchor dates below). For the Comparison Group, prior arrests were counted if they occurred prior to the arrest date of the judicial case that landed them in the Comparison Group. Recidivism arrests and convictions were counted if they occurred after these respective dates—depending on the follow-up period. If the follow-up period was two years, then recidivism events were only counted if they occurred within two years of the aforementioned start dates. Recidivism in this study therefore does not include probation or parole violations.

Treatment Data

The Alaska Alcohol Safety Action Program (ASAP) provides substance abuse screening, case management and supervision for individuals with DWI or other alcohol-related misdemeanor court cases. Individuals are referred to ASAP from District Court for an assessment. Once assessed, ASAP links the criminal justice system and health care providers by monitoring cases as individuals enter education and/or treatment programs.

An extract of the ASAP case management database was provided to the Urban Institute for each individual referred to ASAP by the courts. The Anchorage Wellness Court or the district court referred 190 offenders, of the 298 enrolled in the evaluation, to ASAP for screening and monitoring. The information collected by ASAP and provided to Urban includes demographic data, court case data (including incident information), case management notes and information on treatment and outreach assignments. Data were provided in hierarchical files that were flattened to the person-level.

Cost estimates

Cost estimates for treatment and judicial oversight were obtained from semi-structured interviews with individuals that were associated with the court system and treatment providers. Three site visits were conducted in Anchorage, and more than two dozen interviews were conducted. The initial interviews were to inform development of data collection instruments. These interviews solicited information about the types of services provided and whether those services were exclusive to AWC participants. Subsequent interviews gather detailed data about the prices and quantities of services delivered (a detailed discussion of the cost-benefit method can be found later in the report). For the most part, price data were obtained from budgets or expense reports, and data on quantities were obtained from administrative data. Estimates of the amount of court time were developed from direct observations. Cost data on jail/prison stays were provided by the University of Alaska Anchorage. This data included length of stay and type of incarceration for each individual in our study, if applicable.

Demographic and sample definition

Information on the characteristics of the study's participants was obtained through a database that was maintained by the University of Alaska in Anchorage. This data included all those referred to AWC between 2000 and 2004. In addition, a matched sample of individuals who were arrested in the same period, and were eligible for AWC – but not referred – was used to construct the Comparison Group. Subjects were retained if their data met the following criteria:

- the date of the arrest or enrollment into AWC occurred early enough for a minimum of a two-year follow-up period to be observed,
- they had an arrest date, initial hearing date, or date of enrollment that was not missing
- they had a nonmissing date of enrollment into the AWC if their date of arrest was prior to the year 2000 when the AWC began.

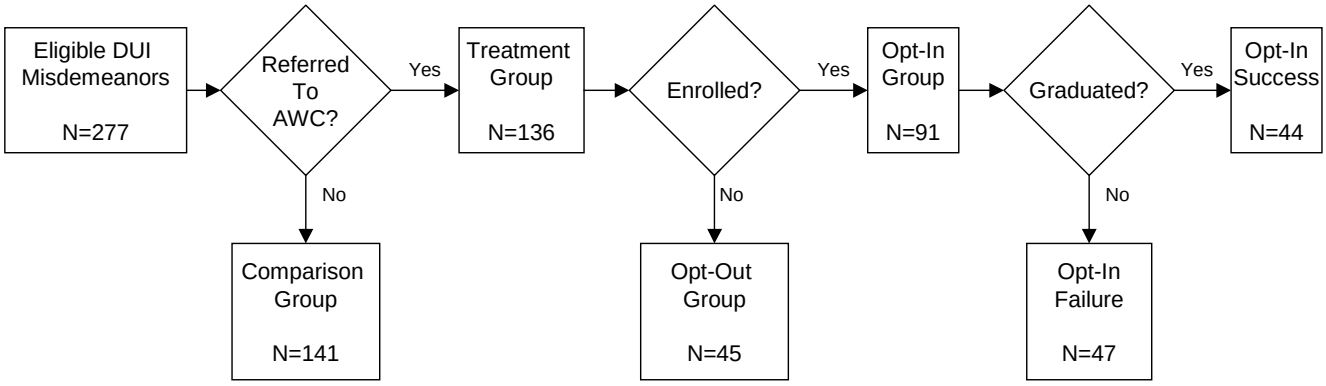
These criteria yield a final sample of 277 individuals included in the study.

Figure 2 describes the flow of cases into the Anchorage Wellness Court. In total, we identified 277 offenders who were eligible for AWC based on their initial charge, and were matched to AWC participants on several characteristics, including current charge, age, gender and number of prior

arrests.[7] Of these 277 arrestees, 136 were referred to AWC, and 141 were not. Those who were not referred became the studies comparison group. Those who were referred became the studies treatment group. Of the 136 who were referred to AWC, 91 formally signed a rule 11 agreement – the formal plea agreement -- and entered the program. These 91 individual's comprise the 'Opt-In' group. Of those 81 individuals, 44 ultimately graduated from the program and are labeled "Opt-In Successes" and 47 did not graduate and are labeled as 'Opt-In Failure'.

The other 45 of the 136 who were referred to AWC did not formally sign a plea agreement. This group is labeled as the Opt-Out group. Dosik and Cohn (2008) note that those who opted out of AWC may have received substantial services before opting out. They state, "A significant lag time—sometimes months—occurred between the defendant being identified as appropriate for Anchorage Wellness Court and the entry of the defendant's plea agreement … the defendant was receiving substance abuse treatment and program services during that time" (2008:4). Therefore, it is appropriate to include this group in the Treatment Group.

Figure 2. Flow of Cases into the Anchorage Wellness Court



Source: urban Institute Analysis of program data.

HYPOTHESES

In order to evaluate the Alaska Wellness Court's effectiveness in improving public safety we tested the following hypotheses:

(1) Those who were referred to AWC (the Treatment Group) will have lower odds of any rearrest and reconviction than the Comparison Group;

[7] Due to limited data availability at the time the match was performed, the match was based on categorical variables. Thus, for example, an offender entering AWC may be matched to an individual who was not referred based on matches across each of these variables. However, a match would occur if both individuals had two or more prior arrests. Since the mean number of prior arrests was much greater than 2, significant differences remained between the groups, even after the matching was used to select the cohorts. Thus, additional controls for selection were employed in this analysis.

(2) Those who were referred to AWC and enrolled in the program (the Opt-In Group) will have lower odds of any rearrest and reconviction than the Comparison Group and the Opt-Out Group.

(3) Those who were referred to AWC (the Treatment Group) will have fewer rearrests and reconvictions than the Comparison Group.

(4) Those who were referred to AWC and enrolled in the program (the Opt-In Group) will fewer rearrests and reconvictions than the Comparison Group and the Opt-Out Group.

(5) Those who were referred to AWC (the Treatment Group) will have a larger benefit to cost ratio that the Comparison Group.

(6) Those who were referred to AWC and enrolled in the program (the Opt-In Group) will have a larger benefit to cost ratio than the Comparison Group and the Opt-Out Group.

(7) More days will pass before those who were referred to AWC (the Treatment Group) will be rearrested and reconvicted than the Comparison Group.

(8) More days will pass before the Opt-In Group will be rearrested and reconvicted than the Comparison Group and the Opt-Out Group.

Each of these outcomes captures a different dimension of recidivism, where each hypothesis tests a different dimension of the general hypothesis that the AWC will reduce recidivism.

Sample Characteristics

The sample is comprised of arrestees who enter the Anchorage Wellness Court (n=136), and a matched sample of comparisons (n=141) who resemble those who enrolled in AWC, but who did not participate in the program. The last column on the right of Table 1 describes the characteristics of the full sample (n=277). Overall, the sample is older than the population of arrestee's entering the criminal justice system with an average age of almost 39. The sample also includes a higher percentage of women (29 percent) then the criminal justice system as a whole. Whites are about half the sample (51 percent) and Alaska natives (29 percent) and American Indians (12 percent) are the largest minority groups. The sample has substantial prior criminal justice system contact, averaging about 10 prior arrests. While public order (society) offenses, which include prior DWI/DUI offenses accounts for about half of these prior arrests, sample members also average about two prior violent arrests and almost three prior arrests for a property crime.

Treatment Sub-Groups

The Treatment Group includes several heterogeneous groups. The Treatment Group includes (1) those who actually participated in the AWC (i.e. the Opt-In Group) and (2) individuals who initially intended to participate in the AWC but opted out shortly thereafter (i.e. the Opt-Out Group). For most of this report, we concentrate on the differences between the full Treatment Group and the comparison, and the differences between these two sub-groups of treatment clients and the comparison. It is worth noting that within the Opt-In Group there are two additional sub-groups:

(3) those who graduated from AWC (i.e. treatment successes) and (4) those who did not graduate (i.e. treatment failures). We describe the characteristics of each of these groups below, again referring to Table 1. In general, each of these sub-groups was similar to the pooled Treatment Group in that there had significantly more prior arrests, had a significantly greater percentage of Alaska Natives in the group then were observed in the comparison, and had a significantly smaller percentage of American Indians in the group then were observed in the comparison. The ethnic composition of all four treatment sub-groups was almost identical to the full group.

Sub-group 1—The Opt-In Group

The Opt-In Group (n=91) were slightly, though not significantly, older than the average individual in the Treatment Group. While the number of prior arrests was very similar, it was distributed slightly differently across crime types. The biggest differences were that there were fewer prior property arrests and more public order (society) arrests.

Sub-group 2—The Opt-Out Group

Among the four sub-groups of treatment participants, those who initially attended AWC but chose to drop out (n=45) before formerly enrolling in the program looked least like the full treatment sample. Those who opted out of AWC were about three and a half years younger than the full treatment sample, and significantly younger than the Comparison Group. With respect to prior criminal history, the treatment opt-outs had fewer prior violent arrests, more prior property arrests, and fewer public order (society) arrests.

Sub-group 3—Treatment successes (graduates)

Among the four sub-groups of treatment participants, those who successfully completed AWC (n=44) had the highest average age. This sub-group also had the fewest prior arrests. Within arrest categories, treatment successes had the fewest past arrests for violence, property crimes, and drugs. Despite having the fewest total prior arrests, this sub-group had the largest number of prior arrests for a public order (society) crime, and almost half of prior arrests were in this category.

Sub-group 4—Treatment failures

The sub-group of those who entered but ultimately failed AWC is slightly younger than the average of the full Treatment Group. This sub-group had the most prior arrests of any of the four sub-groups, and the most prior arrests for drug and violent crimes.

Table 1. Unweighted sample characteristics

	Treatment Group	Treatment Opt-In	Treatment Successes	Treatment Failures	Treatment Opt-Out	Comparison Group	Entire Sample
Age (years)	38.68 (8.94)	40.03 (7.90)	41.44* (6.98)	38.7 (8.54)	35.96* (10.31)	38.92 (8.94)	38.80 (8.67)
Male (%)	0.70 (0.46)	0.69 (0.46)	0.68 (0.47)	0.70 (0.46)	0.71 (0.46)	0.72 (0.45)	0.71 (0.45)
Alaskan native (%)	0.38*** (0.49)	0.38*** (0.49)	0.43 (0.50)	0.34* (0.48)	0.36** (0.48)	0.21 (0.41)	0.29 (0.45)
American indian (%)	0.06*** (0.24)	0.05*** (0.23)	0.05*** (0.21)	0.06** (0.25)	0.07** (0.25)	0.17 (0.38)	0.12 (0.32)
White (%)	0.47 (0.50)	0.45 (0.50)	0.41 (0.50)	0.49 (0.51)	0.51 (0.51)	0.52 (0.50)	0.51 (0.50)
Other race (%)	0.10 (0.30)	0.11 (0.31)	0.11 (0.32)	0.11 (0.31)	0.07 (0.25)	0.08 (0.27)	0.09 (0.28)
Number of prior arrests	13.96*** (19.60)	14.02*** (14.14)	13.09*** (14.51)	14.89*** (13.89)	13.82* (27.75)	5.89 (7.74)	9.85 (15.32)
Number of prior violent arrests	2.65*** (3.96)	2.84*** (4.43)	1.98 (3.65)	3.64*** (4.95)	2.29*** (2.81)	1.08 (2.08)	1.85 (3.17)
Number of prior property arrests	3.86** (11.48)	3.12** (7.06)	2.98 (8.13)	3.26* (5.99)	5.36 (17.30)	1.49 (3.04)	2.65 (8.40)
Number of prior drug arrests	0.56** (1.01)	0.68*** (1.14)	0.5 (0.90)	0.85*** (1.32)	0.31 (0.60)	0.29 (0.72)	0.42 (0.88)
Number of prior society arrests	6.88*** (7.43)	7.38*** (6.01)	7.64*** (6.29)	7.15*** (5.79)	5.87* (9.69)	3.03 (4.28)	4.92 (6.33)
N	136	91	44	47	45	141	277

Significance testing is based on independent sample t-tests comparing each treatment group to the comparison group.
Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

In Table 1, the Treatment Group (the first column) can be compared to the Comparison Group (in the second column from the right) along each of eleven demographic variables to generate an initial assessment of how well the two groups are balanced. If the means of the Treatment Group are significantly different than the means of the Comparison Group, there is the potential for selection effects which confound interpretation of the impact of AWC. If the two groups differ on characteristics that may have an independent effect on outcomes. For example, as shown in Table 1, the Treatment Group averages more than twice as many prior arrests. Because the main outcome is recidivism, these differences in baseline characteristics suggest that the Treatment Group is at much higher risk of a new arrest (since past criminality is the best predictor of future criminality). In addition, the Treatment Group averages more prior arrests in each of the four arrest categories. The Treatment Group also has a higher percentage of Alaska Natives and a lower percentage of American Indians than the Comparison Group. In order to minimize selection bias, it is important to have treatment and Comparison Groups that are as similar as possible along all characteristics, except for the variable which is being manipulated (which in this case is whether an individual received AWC). We return to the subject of selection below.

Some possible associations between characteristics at baseline and an individual's ultimate disposition can be inferred from these data, although there is no way to independently verify this hypothesis. For instance, those with the high percentage of public order (society) crimes were most

likely to be in a group that succeeded. For instance, 58 percent of prior crimes for the graduate sub-group were public order, compared to only 42 percent for treatment opt-outs and 48 percent for treatment failures. This may be due to a high correlation between the severity of the individuals' alcohol problem and the number of prior public order arrests (which include DUI/DWI arrests). These differences suggest that this group may have had less severe alcohol problems and chose not to opt-in as a result, and those with the most severe alcohol problems opted-in.

Creating Anchor Dates

In order to capture a consistent date that sample members were enrolled into the evaluation cohort, an anchor date was assigned for each observation in the sample.. The date of enrollment into the sample was measured slightly differently for different sub-groups (Table 2). For the Comparison Group, the date of the arrest that made them eligible for inclusion in the study was used as the starting date for the purpose of observing and counting new arrests. For the treatment sub-group of opt-outs, the date they first appeared in Wellness Court was used as the starting date if such a date was available, and arrest date was used if no starting date was observed. For the Opt-In Group treatment sub-group, the date of first appearance at AWC was used as the starting date. The different dates were used so that only new arrests after any AWC treatment was received were counted. For many in the Treatment Group, there was often an additional arrest after the arrest that was associated with AWC participation. That is, a client was arrested, was in the court system awaiting disposition for that charge, but had not participated in AWC in any manner, and was subsequently rearrested before enrolling in AWC. Since no AWC treatment had been received at the time of the second arrest, we did not count that arrest as a post-AWC recidivism event. The enrollment period for Comparison Group observations extends beyond the time of AWC operation, since a sufficient number of appropriate comparisons could not be found within the period of AWC operation.

Table 2. Number of AWC Treatment Group members enrolled from 1999 - 2004

Year	Treatment Opt-In	Treatment Successes	Treatment Failures	Treatment Opt-outs	Treatment
1999	**0**	**0**	**0**	**1**	**1**
	0%	0%	0%	2%	1%
2000	**13**	**9**	**4**	**3**	**16**
	14%	20%	9%	7%	12%
2001	**26**	**12**	**14**	**18**	**44**
	29%	27%	30%	40%	32%
2002	**25**	**11**	**14**	**5**	**30**
	27%	25%	30%	11%	22%
2003	**20**	**11**	**9**	**6**	**26**
	22%	25%	19%	13%	19%
2004	**7**	**1**	**6**	**12**	**19**
	8%	2%	13%	27%	14%
Sample Size	91	44	47	45	136

METHODS

Selection Models

A common problem in nonrandom experiments is that individuals in the Treatment Group may differ systematically from individuals in the Comparison Group. If those systematic differences are related to outcomes (rearrest, reconviction) and are not observable in the covariates of a multivariate model, then the observed program impact is biased. For instance, if one group systematically differs on a characteristic that makes members of that group less likely to recidivate (such as motivation to get a job or desist from crime), that group would be expected to have better outcomes whether or not the group received the intervention. Since the Treatment Group has significantly more prior criminal justice system contact, it is reasonable to presume that unless those differences are controlled for in the modeling of outcomes, the Treatment Group will do worse than the comparison on measured of recidivism, all else being equal.

One approach to control for these selection effects is to run propensity score models to balance the samples, to the extent possible, ex ante. This approach parses out (1) the independent effect of control variables (such as age and prior criminal history) on assignment to the treatment or control group from (2) the independent effect of those controls on the outcomes. In doing so, they allow for weights to be constructed that balance the two groups using information from (1). If the model in (1) has a lot of predictive power, then the weighted observations will resemble an experimental design.

In order to account for the effect of self-selection into AWC in the multivariate outcome models, inverse weights were generated using the fitted predicted values from a logistic regression model on treatment. Treatment observations were weighted according to their inverse probability of being in the Treatment Group and comparison observations were weighted according to their inverse probability of being in the Comparison Group. That is, the treatment observations were assigned a weight of one divided by the predicted probability of being in the Treatment Group. Thus, if a treatment observation had a low predicted probability of being in the Treatment Group—and thus had attributes similar to the Comparison Group—then that observation was given a higher weight. Conversely, if the available information predicted that a treatment observation would have been in the Treatment Group then that observation was given a low weight. The same approach was used to weight the Comparison Group. Each observation was weighted as one divided by the predicted probability of being in the Comparison Group. Thus, comparison observations that were predicted by the model to be similar to treatment observations would be given the largest weights. For those Comparison Group observations that had high predicted probabilities of being in the Comparison Group, a very small weight is assigned, so those observations would count less. A complete description of this processed can be found in Appendix IV.

Table 3. Weighted sample characteristics

	Treatment	Treatment Opt-Ins	Treatment Successes	Treatment Failures	Treatment Opt-outs	Comparison	Entire Sample
Age (years)	38.02	40.26	40.86	39.67	34.49***	38.91	38.44
	(9.52)	(8.05)	(6.63)	(9.21)	(10.98)	(7.20)	(8.41)
Male (%)	0.76	0.73	0.75	0.71	0.81	0.70	0.73
	(0.43)	(0.43)	(0.43)	(0.43)	(0.44)	(0.43)	(0.43)
Alaskan native (%)	0.23*	0.23*	0.26	0.19*	0.24	0.40	0.28
	(0.43)	(0.40)	(0.43)	(0.38)	(0.47)	(0.44)	(0.44)
American indian (%)	0.18**	0.19**	0.14	0.24***	0.17	0.09	0.14
	(0.39)	(0.38)	(0.34)	(0.41)	(0.41)	(0.27)	(0.34)
White (%)	0.47	0.45	0.46	0.44	0.48	0.61	0.49
	(0.50)	(0.48)	(0.49)	(0.48)	(0.55)	(0.47)	(0.49)
Other race (%)	0.12*	0.13**	0.14*	0.13	0.10	0.06	0.09
	(0.33)	(0.33)	(0.34)	(0.32)	(0.33)	(0.22)	(0.28)
Number of prior arrests	6.52***	7.31**	6.75**	7.86	5.29***	10.60	8.44
	(6.32)	(6.14)	(6.02)	(6.27)	(6.52)	(10.59)	(8.97)
Number of prior violent arrests	1.26*	1.21	0.84**	1.57	1.33***	1.77	1.50
	(2.10)	(1.97)	(1.42)	(2.34)	(2.37)	(2.68)	(2.42)
Number of prior property arrests	0.85***	0.82***	0.41***	1.22**	0.91***	2.95	1.84
	(1.91)	(1.88)	(1.50)	(2.13)	(1.99)	(4.12)	(3.38)
Number of prior drug arrests	0.34	0.37	0.31	0.43	0.29	0.46	0.40
	(0.65)	(0.71)	(0.68)	(0.75)	(0.5)	(0.84)	(0.75)
Number of prior society arrests	4.07**	4.91	5.18	4.64	2.76	5.42	4.71
	(3.98)	(4.06)	(4.32)	(3.82)	(3.41)	(5.90)	(5.09)
N	136	91	44	47	45	141	277

Significance testing is based on independent sample t-tests comparing each treatment group to the comparison group.
Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

Table 3 describes the sample characteristics after the samples were weighted in this manner. The data represented in Table 3 shows that there was some data available to make modest adjustments in the balance of the samples. Comparing Tables 1 and 3, the weighted sample is more balanced with respect to prior arrests and ethnic diversity. The remainder of the paper includes only the results of the weighted samples. For each table in the paper, an un-weighted table can be found in Appendix I. In Tables 1 and 3 (and in the bivariate statistics reported in the next section) independent samples t-tests were used to test if the mean values in each of the two groups differed.

Multivariate Models

The bivariate analysis demonstrates variation in attributes among groups on antecedent (baseline) characteristics that we hypothesize differentially affect outcomes. As such, multivariate analyses were conducted to control for the baseline differences and their potentially confounding effect on the relationship between treatment and key outcomes. Probability weights generated using the propensity scoring analyses were used to weight observations in all analyses. With the exception of survival models (explained later), in all analyses—rearrest, reconviction, social benefits and program costs—we used models of the following forms:

$$Y_i = \alpha_i + \beta T_i + Xd + \varepsilon_i i \quad (1)$$

$$Y_i = \varkappa_i + \theta T_i + \gamma T X_i + X\psi + \nu_i \quad (2)$$

In (1) and (2), Y_i is the dependent measure, T_i is a binary indicator of treatment status, TX_i is a binary indicator of whether or not individual i actually received treatment and X is a vector of covariates theoretically associated with outcomes related to reoffending. In (1), β, the coefficient on the treatment variable, estimates the local average treatment effect for those individuals originally enrolled in treatment. In (2), γ, the coefficient on Opt-In Group, estimates the local average treatment effect for those individuals who were actually treated. The coefficient on the binary treatment indicator (θ) in (2), estimates the average treatment effect for individuals who were enrolled in the Treatment Group but opted out of the program. Each of the models controls for age, gender, ethnicity and number of prior arrests.

Thus, the evaluation tests the impact of AWC on two distinct groups. First, the evaluation tests the impact of AWC on every eligible arrestee in Anchorage who was referred to the program and spent at least one day in the program. Second, the evaluation tests the effect of AWC on just those who were treated in the program. That is, the second set of models tests the impact of AWC on those who formally enrolled in the program. Both tests are necessary to understand the effectiveness of the program.

The test of the impact of the program on all who were referred to the program is the most expansive test of any program's effectiveness. Such a comparison assesses whether there was a decrease in offending and associated harms for all those who received some program contact, including those who ultimately decided not to enroll in the program. This comparison presents a difficult challenge for any program because in essence, the program is being held accountable for the outcomes of eligible, referred arrestees who did not ultimately enroll. We believe this is an appropriate test since one of the measures of the effectiveness of any intervention is how successful the program was in inducing those who would benefit from the program to enroll and receive services. The treatment literature, as shown above, is clear that if a program can induce individuals who touch the program, e.g. who walk through the programs doors, to remain in the program long enough (at least 90 days) then the outcomes for that participant will be significantly improved. Thus, in our estimation, it is fair to judge a program not only on how successful it was in treating those who remained in the program, but also on how successful the program was on engaging potential clients. As the statistics below demonstrate, the population who touched AWC but ultimately did not enroll –the group that opted-out—were clearly a high risk group and one that could have benefited from the program. Using this approach, it is possible to compare a program that is very successful in treating the small percentage of participants who actually engage in treatment, form a program that achieves smaller gains, but is more successful in engaging a larger population of eligible entrants.

The second test is more straightforward, and closely resembles the usual evaluation approach. In the second approach two terms are entered into the model to measure program attachment. The main effect is a binary indicator that is equal to one if an individual is referred to the program and chooses to enroll. Ultimately, this is the group that will either succeed (graduate) or fail (leave the program). The other indicator is whether the individual was referred to the program (this is the main

effect in the first test described above). With both indicators in the model, this second measure captures any additional effect of referral to the program, since it is possible that merely attending an AWC hearing or two might expose an individual to some program effects. Practically, the coefficient on this term can be interpreted as the impact of exposure to the program on those who opt-out.

Thus, in each set of models describing the impact of AWC on each of the dependent variables studied here, there will be three model specifications. In the first specification, the dependent variable is regressed on T_i to measure the effect of the program with no covariates. In the second specification, a full set of covariates is modeled. The interpretation of the coefficient on T_i in this model is the impact of the program on all who were referred to the program, the first outcome described above. In the third specification, TX_i is added to the model, and γ is interpreted as the effect of the program on those who formally enrolled in AWC. θT_i is also included in the model (where T_i is again included in the model) but this time the interpretation of the coefficient is the effect of program exposure on those who opt-out.

DEPENDENT VARIABLES

Hypotheses were tested using a variety of model specifications, guided by the distribution of the dependent variable and the degree to which these distributions deviate from the assumptions of Ordinary Least Squares (OLS) regression. Regardless of the choice of specification, models were specified for four periods of follow-up (24, 30, 36, and 48 months after enrollment into the sample).

- Hypotheses investigating the impact of treatment on a binary indicator variable were tested using logistic regression models. Models tested the impact of treatment on two dependent variables: any rearrest and any reconviction. Odds ratios are reported.

- Hypotheses investigating the impact of treatment on a discrete variable that is the count of a number of events were specified using negative binomial regression and tested the impact of treatment on two dependent variables: number of rearrests and number of reconvictions. Standard coefficients are reported.

- Hypotheses investigating the impact of treatment on benefits (averted costs) to society were specified using tobit regression models, to account for the fact that the distribution of averted costs to society are left-censored at zero (for those individuals who do not recidivate). Five different dependent variables are tested with each dependent variable representing a different cost domain: averted costs to police agencies, supervision agencies, prisons and jails, crime victims and the courts.

- Hypotheses investigating the differential cost of treating offenders in the AWC compared to business as usual were estimated using OLS regression. Costs to three different stakeholders (cost of judicial oversight, cost of treatment and total cost of AWC) were estimated in separate regressions.

We specify three models for each combination of dependent variable and time period. In the first model, a single independent variable (a binary indicator of AWC participation) is modeled. In the second specification, the full set of covariates is added. In each of the models, the coefficient on

AWC is interpreted as the (local) average treatment effect. The policy question answered by this coefficient is: what is the average effect of exposure to AWC on recidivism? In the third model specification, a binary indicator of being treated in AWC is added. The interpretation of the coefficient on the treatment on the treated variable is the average additional effect of being exposed to AWC and subsequently enrolling in the program and receiving treatment. The policy question answered by this coefficient is: what is the average effect of exposure to—and treatment in—AWC on recidivism?

Cost and Benefit Models

The cost and benefit models were run in two ways. First, the cost of participating in AWC was modeled, with three dependent variables: the cost to court, the cost to treatment, and the total cost of treating the average participant. Benefits were modeled in a less intuitive way. In general, programs like AWC do not create benefits to society- perhaps some additional productivity is created. In general, the benefit of a program like AWC is that harms are reduced. That is, we hypothesize that because participants received AWC treatment fewer crimes were committed. As a result, they were fewer victims of crime, fewer police investigations (and arrests) were necessary, fewer offenders needed to be supervised, and fewer offenders needed to be incarcerated. Thus, benefits are calculated as the difference between the observed costs to society from the Treatment Groups offending, and the expected costs to society for the Treatment Group, which is measured by the observed costs to society of the Comparison Group (which represents how much crime the AWC participants would have caused had they not been treated). Thus in the benefits models, if the local average is negative that a reduction in costs occurred. If the local average is positive, the program yielded additional costs.

Survival Analysis

To test whether Wellness Court kept participants away from the criminal justice system longer than would have been expected absent AWC, a survival analysis was conducted. This approach frames the analysis by asking "What are the odds that an arrest or conviction occurred on each day subsequent to the day the participant entered the study?" Survival analysis uses the known number of days until rearrest/reconviction and then estimates the contribution that each individual's characteristics (including treatment status) made to this length of time. The results of a survival analysis should be interpreted as if we did not know the participant's number of days until rearrest/reconviction but had to rely on the estimates generated by the survival analysis to predict when he would be rearrested/reconvicted based on the characteristics entered into the model. This is useful because it allows us to determine which characteristics—especially participation in the Wellness Court—are likely to predict shorter or longer times until rearrest/reconviction.

All survival models were specified using the Cox proportional hazards model (Cox, 1972). This regression model is nonparametric and makes no assumptions about the distribution of the number of days until rearrest/reconviction. The Cox model defines the odds of being rearrested on each day in the study as a hazard ratio. On each day, the hazard ratio is calculated as the quotient of

the exponentiated form of one individual's covariates divided by the sum of all the other individuals' exponentiated covariates. As individuals are rearrested or reconvicted they drop out of subsequent calculations. The end of the follow-up period is four years from date of entry into the sample cohort. The 'hazard ratios' for each predictor and covariate are interpreted. For example, the models estimates odds (in percentage) that an individual will be rearrested on each day in the follow-up period after controlling for the included covariates in the model. The Cox model was specified as follows:

$$\log[h\{(t), (z...)\}/h_0(t)] = b_1*z_1 + ... + b_m*z_m \quad (3)$$

where h(t,...) is the resultant hazard function, given the values of the m covariates for cases (z_1, z_2, ..., z_m) and the respective survival time (t). The term $h_0(t)$ is called the baseline hazard, which is the hazard for the respective individual when all independent variable values are equal to zero (Allison, 1995). The survival model includes the same covariates as in the other models. Finally, two time-dependent interaction variables were included in the model for number of days until rearrest (age and gender) and one time-dependent variable was included in the model for number of days until reconviction (participation in the Wellness Court). Two dependent variables were modeled (number of days until rearrest, number of days until reconviction).

Four model specifications were run for each dependent variable. The first model includes the treatment indicator and usual covariates. The second model adds an indicator for the Opt-In Group. The third model adds interaction terms for age and gender interacted with time. The fourth model adds an interaction term AWC participation interacted with time, for the reconviction models only.

Outcome Models

The final set of models present the results of our outcome models. These models focus only on the Treatment Group, and seek to predict whether there are attributes of clients that predict better outcomes.

$$Y_i = \alpha_i + Xd + \varepsilon_i \quad (4)$$

In (4), Yi is a vector of dependent variables and X is a vector of covariates theoretically associated with outcomes related to reoffending. In (4), the coefficient on the covariates estimates the average treatment effect for each level of the independent variable. The vector of covariates includes age, gender, ethnicity and number of prior arrests.

Models were specified for four time periods (24, 30, 36, and 48 months after enrollment into the sample) and ten dependent variables. The ten dependent variables include the two measures or rearrest, the two measures of reconviction, and the six measures of net benefit as described above. Each of the models is specified in the same manner as discussed in previous sections of the report.

RESULTS

The following section describes the results of the empirical analysis of the effectiveness of the Anchorage Wellness Court. The first section describes bivariate comparisons of recidivism. The second section is the description of the survival analyses. A third section follows that describes the impact analysis of the AWC, and this if followed by the cost-benefit analysis. The final (fifth) section is an outcome analysis that attempts to empirically identify the characteristics of AWC participants that relate to positive outcomes that could have been observed ex ante. The goal of the first four sections is to empirically estimate the effectiveness of the AWC, and the goal of the final section is to determine whether there were characteristics of successful participants that could have been observed ex ante. If so, then those participants may be the most cost-effective potential participants that could be targeted by other interventions that employ a model similar to AWC.

BIVARIATE COMPARISONS OF RECIDIVISM

This section provides a basic analysis of the outcomes obtained in each of the Treatment Groups versus the Comparison Group. Independent samples t-tests were used to test if the mean values in each of the two groups were significantly different. We report the results at the 24, 30, 36, and 48 months after entry into our sample.

The recidivism rates (measured as the percentage with one more new arrests in a time period) for the full sample were 45 percent at 24 months, 49 percent at 30 months, 51 percent at 36 months, and 56 percent at 48 months.[8] The Treatment Group recidivism rate was significantly lower than the rate observed for the Comparison Group in each time period. The reconviction rates for the full sample were 33 percent at 24 months, 36 percent at 30 months, 38 percent at 36 months, and 42 percent at 48 months. Significantly lower Treatment Group reconviction rates attenuated over time, and there is no difference in the last two periods. In general, there were no differences in the number of rearrests and reconvictions.

[8] Again, all data reported here describe the weighted samples. Unweighted estimates can be found in Appendix 1.

Table 4. Bivariate outcome analyses of Treatment Groups versus Comparison Groups—24 month follow-up

	Treatment Group	Opt-In Group	Treatment Successes	Treatment Failures	Opt-Out Group	Comparison Group	Entire Sample
Any rearrest (%)	0.37***	0.26***	0.08***	0.44	0.55	0.53	0.45
	(0.49)	(0.42)	(0.26)	(0.48)	(0.55)	(0.47)	(0.48)
Any reconviction (%)	0.27**	0.16***	0.05***	0.27	0.45	0.40	0.33
	(0.45)	(0.35)	(0.22)	(0.42)	(0.55)	(0.46)	(0.46)
Number of rearrests	0.93	0.63	0.12***	1.14	1.40*	0.98	0.95
	(1.94)	(1.94)	(0.42)	(2.59)	(1.86)	(1.18)	(1.60)
Number of reconvictions	0.43	0.25***	0.05***	0.45	0.71	0.56	0.49
	(0.96)	(0.86)	(0.22)	(1.16)	(1.06)	(0.76)	(0.86)
Cost to police agencies	961.78	461.05**	56.00***	862.61	1750***	874.29	920.49
	(1985.3)	(1585.2)	(192.4)	(2141)	(2390.8)	(1364.7)	(1695.39)
Cost to supervision agencies	2865.7***	3032.1***	1549.3***	4502.2***	2603***	662.82	1826.23
	(3901.4)	(4396.7)	(2855.1)	(4779.4)	(3246.1)	(1472.2)	(3112.61)
Cost to jails/prisons	3713	2563.5	151.39*	4954.9	5522.4*	2800	3282.21
	(7516.4)	(6243.1)	(283.42)	(8099.8)	(9332.8)	(8669.5)	(8230.12)
Cost to crime victims	6592.4	2493.2	310.32*	4657.3	13045***	5175.4	5923.80
	(14485)	(8049.8)	(1455.9)	(10777)	(20697)	(13500)	(13983.81)
Cost to society	18639***	13156	7498.7	18765**	27268***	10905	14989.61
	(21698)	(14175)	(3640.5)	(17961)	(29753)	(19363)	(20846.08)
N	91	136	44	47	45	141	277

Significance testing is based on independent sample t-tests comparing each Treatment Group to the Comparison Group.
Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

Table 5. Bivariate outcome analyses of Treatment Groups versus Comparison Groups—Weighted 30 month follow-up

	Treatment Group	Opt-In Group	Treatment Successes	Treatment Failures	Opt-Out Group	Comparison Group	Entire Sample
Any rearrest (%)	0.41***	0.32***	0.21***	0.44*	0.55	0.58	0.49
	(0.50)	(0.45)	(0.40)	(0.48)	(0.55)	(0.46)	(0.49)
Any reconviction (%)	0.31*	0.22***	0.15***	0.28	0.45	0.42	0.36
	(0.47)	(0.40)	(0.36)	(0.43)	(0.55)	(0.46)	(0.47)
Number of rearrests	1.10	0.79	0.30***	1.28	1.57*	1.11	1.10
	(2.17)	(2.09)	(0.66)	(2.78)	(2.26)	(1.23)	(1.76)
Number of reconvictions	0.60	0.34**	0.15***	0.53	0.83	0.60	0.56
	(0.79)	(0.98)	(0.36)	(1.30)	(1.28)	(0.79)	(0.96)
Cost to police agencies	1013.90	602.73*	239.59***	962.74	2019.20***	1479.50	1087.37
	(1153.00)	(1705.60)	(561.82)	(2270.90)	(3037.20)	(2330.90)	(1942.22)
Cost to supervision agencies	3282.10***	3299.00***	1549.70	5033.20***	3255.50***	1027.00	2217.99
	(4420.10)	(4742.70)	(2855.00)	(5552.30)	(3732.70)	(3039.80)	(3929.64)
Cost to jails/prisons	4853.50	3142.00	208.60**	6050.30	7547.50*	4358.80	4620.05
	(9481.50)	(7784.70)	(357.22)	(10140.00)	(11723.00)	(11554.00)	(10570.81)
Cost to crime victims	7760.50	3237.70	1301.60**	5157.20	14880.00***	5874.50	6870.57
	(16495.00)	(8784.70)	(3783.50)	(11436.00)	(24001.00)	(13843.00)	(15202.76)
Cost to society	21097.00**	15728.00	9975.90	21430.00**	29548.00***	13667.00	17590.94
	(25352.00)	(16730.00)	(4793.20)	(21587.00)	(35459.00)	(21879.00)	(23878.92)
N	91	136	44	47	45	141	277

Significance testing is based on independent sample t-tests comparing each Treatment Group to the Comparison Group.
Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

Table 6. Bivariate outcome analyses of Treatment Groups versus Comparison Groups—Weighted 36 month follow-up

	Treatment Group	Opt-In Group	Treatment Successes	Treatment Failures	Opt-Out Group	Comparison Group	Entire Sample
Any rearrest (%)	0.44**	0.37***	0.24***	0.49	0.55	0.59	0.51
	(0.50)	(0.47)	(0.42)	(0.48)	(0.55)	(0.46)	(0.49)
Any reconviction (%)	0.34	0.26***	0.18***	0.34	0.46	0.43	0.38
	(0.48)	(0.43)	(0.38)	(0.45)	(0.55)	(0.46)	(0.47)
Number of rearrests	1.25	0.90*	0.36***	1.43	1.81	1.37	1.31
	(2.31)	(2.15)	(0.71)	(2.84)	(2.51)	(1.63)	(1.99)
Number of reconvictions	0.60	0.38**	0.18***	0.58	0.95	0.75	0.67
	(1.20)	(0.99)	(0.38)	(1.30)	(1.46)	(1.01)	(1.10)
Cost to police agencies	1327.80	745.07**	397.17***	1090.00	2245.00**	1330.00	1328.83
	(2591.00)	(1861.50)	(968.38)	(2383.90)	(3440.30)	(1814.50)	(2225.74)
Cost to supervision agencies	3675.70***	3615.40***	1921.50	5294.70***	3770.60***	1818.60	2799.42
	(4679.80)	(4911.60)	(3082.40)	(5753.50)	(4222.90)	(4136.20)	(4494.80)
Cost to jails/prisons	5769.20	4122.00	253.93**	7956.90	8362.00*	4554.10	5195.83
	(11055.00)	(9974.60)	(623.57)	(12927.00)	(12572.00)	(11938.00)	(11506.78)
Cost to crime victims	8932.70	4220.70*	2643.40*	5784.40	16350.00***	7521.80	8266.94
	(18422.00)	(10505.00)	(7849.00)	(12403.00)	(26570.00)	(15509.00)	(16984.29)
Cost to society	23753.00**	18149.00	11893.00	24353.00*	32574.00***	16617.00	20385.97
	(29056.00)	(20795.00)	(9994.60)	(26106.00)	(39381.00)	(25388.00)	(27420.72)
N	91	136	44	47	45	141	277

Significance testing is based on independent sample t-tests comparing each Treatment Group to the Comparison Group.
Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

Table 7. Bivariate outcome analyses of Treatment Groups versus Comparison Groups—Weighted 48 month follow-up

	Treatment Group	Opt-In Group	Treatment Successes	Treatment Failures	Opt-Out Group	Comparison Group	Entire Sample
Any rearrest (%)	0.47***	0.42***	0.32***	0.53	0.55	0.66	0.56
	(0.50)	(0.48)	(0.46)	(0.48)	(0.55)	(0.44)	(0.48)
Any reconviction (%)	0.37*	0.31**	0.29**	0.34*	0.46	0.48	0.42
	(0.49)	(0.45)	(0.45)	(0.45)	(0.55)	(0.47)	(0.48)
Number of rearrests	1.45	1.13**	0.64***	1.61	1.97	1.68	1.56
	(2.50)	(2.32)	(1.10)	(2.99)	(2.76)	(1.72)	(2.14)
Number of reconvictions	0.71	0.51***	0.38***	0.64	1.04	0.92	0.81
	(1.30)	(1.07)	(0.65)	(1.35)	(1.61)	(1.13)	(1.21)
Cost to police agencies	1653.20	1073.60*	803.32**	1341.60	2565.50**	1652.20	1652.74
	(3121.30)	(2294.90)	(1690.00)	(2738.90)	(4178.80)	(2027.70)	(2617.45)
Cost to supervision agencies	4503.40***	4614.70***	3009.60	6206.00***	4328.30**	2439.20	3529.38
	(5963.40)	(6437.80)	(4868.60)	(7365.00)	(4927.00)	(4997.90)	(5574.05)
Cost to jails/prisons	9352.10	9047.30	1065.10**	16961.00	9831.80	10052.00	9682.13
	(20039.00)	(21638.00)	(5785.70)	(27730.00)	(16549.00)	(27231.00)	(23930.59)
Cost to crime victims	11394.00	6607.50	5658.20	7548.80	18929.00**	9726.60	10607.40
	(23161.00)	(15310.00)	(13648.00)	(16818.00)	(32456.00)	(17230)	(20337.93)
Cost to society	30951.00	26789.00	17213.00	36284.00*	37501.00*	25262.00	28266.61
	(39350.00)	(32559.00)	(18191.00)	(39975.00)	(49972.00)	(36428.00)	(37922.72)
N	91	136	44	47	45	141	277

Significance testing is based on independent sample t-tests comparing each Treatment Group to the Comparison Group.
Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

With respect to costs and benefits of the program, in general the Treatment Group had a higher cost to society.[9] The average total costs to society produces a negative benefits from the full sample (summing the costs of new offending to victims, police, supervision agencies and corrections) was $15,000 through 24 months. The average cost (negative benefit) for the Treatment Group was about $18,600 and the average cost (negative benefit) for the comparison was about $10,900. Costs to society were higher for the Treatment Group in every category, but the only significant differences were in costs to supervision agencies and total costs to society. That general pattern is repeated through 36 months, but at 48 months treatment costs—while still higher than comparison costs—are no longer significantly higher.

Within these generally consistent findings there is substantial variation across the sub-groups within the Treatment Group. The Opt-In Group outcomes are much better than those of the treatment opt-outs, whose results are similar to, or slightly worse than, the Comparison Group. For instance, the rearrest rate at 24 months is 26 percent for the Opt-In Group and 55 percent for treatment opt-outs (which is higher than the comparison rate of 53 percent). Within the Opt-In Group, treatment successes (graduates) have substantially better outcomes. For instance, at 24 months, the treatment success group has a recidivism rate of 8 percent while 44 percent of treatment failures were rearrested. Similar variations are observed over most outcomes.

Treatment Group vs. Comparison Group

The 24 month recidivism rate for the full sample was 45 percent. The Treatment Group recidivism rate was significantly lower (37 percent) than the Comparison Group rate (53 percent). These significant differences persisted through all four time periods. As noted above, a significantly smaller percentage of the Treatment Group than the Comparison Group was reconvicted. Again, these differences persisted through all four time periods, but the differences were only significant at 24 and 30 months. No differences were observed on the number of rearrests or reconvictions. With respect to costs, the Treatment Group had significantly higher costs to supervision agencies in each of the four periods. The overall cost to society was significantly higher in all but the last time period.

Opt-In Group vs. Comparison Group

The Opt-In Group had significantly fewer reconvictions, and a significantly smaller proportion of this group was rearrested and reconvicted than the Comparison Group in all four follow-up periods. In the first two follow-up periods, there is no difference in number of rearrests, but there are significantly fewer rearrests in the Opt-In Group by months 36 and 48. The Opt-In Group had significantly higher costs to supervision agencies in all four periods. The Opt-In Group had a significantly lower cost to crime victims in the third follow-up period as are the costs to police agencies in the third and fourth follow-up periods.

[9] The cost numbers in these tables are costs from new offending. If the Treatment Group costs are less than the comparison cost, the difference is the benefit to society. Direct costs of the program are not included here and are discussed elsewhere in the report.

Opt-In Successes vs. Comparison Group

The treatment successes fared better than the comparison along all rearrest and reconviction metrics at all four follow-up periods. By 48 months, 32 percent of treatment successes had been rearrested while 66 percent of the Comparison Group had been rearrested. Costs associated with new offending for the treatment successes was lower than the costs of new offending for the Comparison Group. Significant differences were observed for lower costs to jails/prisons and police in all periods, lower costs to crime victims in the first three periods and lower costs to supervision agencies in the first period.

Opt-In Failures vs. Comparison Group

Those who failed the Wellness Court generally had outcomes that were not different than the Comparison Group. There were almost no significant differences in rearrest and reconviction incidence or prevalence (treatment failures were significantly less likely to be rearrested at 30 months and significantly less likely to be reconvicted at 48 months). Treatment failures was associated with significantly higher costs to supervision agencies costs to society in all periods.

Opt-Out Group vs. the Comparison Group

Those who initially attended Wellness Court but opted-out before formerly enrolling in the program generally had outcomes that were not different than the Comparison Group in terms of incidence and prevalence of rearrest and reconviction, but had much higher costs to society. There were almost no significant differences in rearrest and reconviction incidence or prevalence (treatment failures had significantly more rearrests at 24 and 30 months). Treatment failures were associated with significantly higher costs to supervision agencies costs to society in all periods (except for costs to jails/prisons at 48 months).

MULTIVARIATE COMPARISONS OF RECIDIVISM

Each of the tables that follow describe the results of multivariate hypotheses tests with either a binary dependent indicator, a model that regresses whether an individual was rearrested (=1) or not (=0) and an individual was reconvicted (=1) or not (=0) or a count dependent variable for the number of rearrests and reconvictions. A logistic regression model was specified for each of the four time periods (24, 30, 36 and 48 months after enrollment into the sample) when any rearrest is the dependent variable. A negative binomial model was specified for each of the four time periods (24, 30, 36, and 48 months after enrollment into the sample) when the number of rearrests is the dependent variable.

Each table below has two panels, one describing the results of the models testing the effect of the AWC on the prevalence of rearrest (any rearrest) and a second panel describing the results of the models testing the effect of AWC on criminal incidence (number of rearrests). Within each panel there are three model specifications, represented as three columns in the tables. In the first column, the dependent variable is regressed only on the indicator of treatment (and this treatment indicator

includes everyone in all four treatment sub-groups). In the second column, a vector of covariates is added. In the third column, an additional indicator is added for the Opt-In Group.

In the panel describing prevalence, the parameters reported in the tables are odds ratios. Odds ratios are commonly misinterpreted as the percentage reduction (or increase) in prevalence, when they instead describe the relative change in the odds of rearrest. Since the parameters are a change in odds, the values must be positive. Values less than 1 show a decrease in the odds of any new offenses, whereas values greater than 1 show an increase in the odds of any new offenses. For instance, an odds ratio of 0.75 would indicate that the odds of the average client in the Treatment Group being rearrested were only 75 percent of the odds of an individual in the Comparison Group being re-arrested. Likewise, an odds ratio of 1.25 would indicate that the odds of an average client in the Treatment Group being arrested were 25 percent higher than the odds of an individual in the Comparison Group being rearrested. Notably, odds ratios are often misinterpreted as a percentage reduction (in rearrest in this example). While an odds ratio can be translated into a percentage reduction, we have not done so in these tables, and the results should be interpreted with that in mind.

In the panel describing criminal incidence, the parameters reported in the tables are the change in the number of crimes. Positive values indicate an increase in the incidence of crime. Negative values represent a decrease. So, if the parameter on treatment was 0.75, the interpretation would be that on average treatment increased the number of crimes from by 0.75 per person in the Treatment Group. Similarly, if the reported parameter was 1.25, the increase would be 1.25 per person. A value of -1.25 would be interpreted as an average decrease of 1.25 per person.

Arrest

A key goal for the Anchorage Wellness Court was to reduce the likelihood that a client was rearrested during or after their participation in AWC. Tables 8, 9, 10, and 11 describe the changes in the incidence and prevalence of arrest at 24, 30, 36, and 48 months. In general, assignment to the Treatment Group was associated with a significant reduction in the odds of a new arrest, and significant reductions were observed in all four periods. Assignment to AWC reduced the odds of a new arrest substantially, as the odds of a new arrest for an AWC client were 46 to 54 percent of the odds of a new arrest for a member of the Comparison Group.

Adding covariates to the model to control for differences between the two groups reduces the effect of AWC somewhat, but the differences continue to be significant in all four time periods. Controlling for other explanations, assignment to AWC reduced the odds of a new arrest substantially, as the odds of a new arrest for an AWC client were 47 to 60 percent of the odds of a new arrest for a member of the Comparison Group. The trend in all eight models was for the treatment effect to increase over time. That is, the relative odds of a new arrest for the Treatment Group compared with the comparisons decline from 24 to 48 months.

However, when the Opt-In Group variable is added to the models, the effects are quite different. We note again that the Opt-In Group variable is an indicator of whether an individual

formally enrolled in the AWC. Thus, the interpretation of the Opt-In Group variable is the effect of formerly enrolling in the AWC. With the addition of this term to the model, the interpretation of the average treatment effect indicator changes from the average effect of assignment to AWC (including both those who do and do not formally enroll), to the average effect of assignment to AWC only. By doing so, it is possible to parse out the effects of being exposed to—but not enrolling in—treatment, from the effects of participation.

When this term is added to the model, the story changes substantially and the effect of participation in AWC (treatment on the treated) increases in early follow-up periods, but decreases over time. At 24 months, the Opt-In Group had only 24 percent of the odds as the comparisons to be rearrested ($p<0.01$) while the effect of assignment to AWC is related to a greater (but nonsignificant) likelihood of a new arrest (38 percent). Significant reductions in the odds of a new arrest persist at 30 and 36 months. However, by 48 months, the parameters on average treatment effect (61 percent) and treatment on the treated (64 percent) are about the same. This suggests that over the long-term, the effectiveness of actually receiving treatment in AWC is no different than simply being assigned to treatment.

Table 8. Impact on Re-Arrest Outcomes - Weighted 24-month followup

	Any Re-arrest			Number of re-arrests		
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment Group	0.53**	0.60*	1.38	0.22	-0.01	0.29
	(0.25)	(0.28)	(.038)	(0.17)	(0.16)	(0.21)
Opt-In Group			0.26***			-0.52**
			(0.41)			(0.23)
Age		0.94***	0.95***		-0.07***	-0.06***
		(0.02)	(0.02)		(0.01)	(0.01)
Male		0.62	0.53*		-0.14	-0.16
		(0.32)	(0.33)		(0.18)	(0.18)
Alaskan native		1.53	1.54		-0.10	-0.14
		(0.33)	(0.34)		(0.19)	(0.19)
American indian		1.06	1.02		-0.17	-0.24
		(0.44)	(0.47)		(0.28)	(0.28)
Other race		2.43*	2.76**		0.66**	0.65**
		(0.49)	(0.50)		(0.28)	(0.28)
Number of prior arrests		1.07***	1.08***		0.04***	0.05***
		(0.02)	(0.02)		(0.01)	(0.01)
Intercept				-0.17	2.08***	1.94***
				(0.13)	(0.40)	(0.40)
Log-Likelihood	-176.25	-157.38	-151.60	-229.78	-199.44	-196.87
N	277	277	277	277	277	277

Models for which the dependent variable is 'any re-arrest' are specified using logistic regression models. Odds ratios are reported. Models for which the dependent variable is 'number of re-arrests' are specified using a negative binomial specification.

Table 9. Impact on Re-Arrest Outcomes - Weighted 30-month followup

	Any Re-arrest			Number of re-arrests		
	(7)	(8)	(9)	(10)	(11)	(12)
Treatment Group	0.51***	0.55**	1.02	-0.07	0.06	0.21
	(0.25)	(0.28)	(0.37)	(0.13)	(0.19)	(0.24)
Opt-In Group			0.37**			-0.25
			(0.40)			(0.25)
Age		0.94***	0.95***		-0.06	-0.06***
		(0.02)	(0.02)		(0.01)	(0.01)
Male		0.70	0.63		0.04	0.03
		(0.32)	(0.32)		(0.20)	(0.20)
Alaskan native		1.28	1.27		-0.03	-0.04
		(0.33)	(0.34)		(0.20)	(0.20)
American indian		1.57	1.59		0.11	0.09
		(0.44)	(0.46)		(0.28)	(0.28)
Other race		2.44*	2.65**		0.66**	0.64**
		(0.48)	(0.49)		(0.31)	(0.31)
Number of prior arrests		1.08***	1.08***		0.03***	0.03***
		(0.02)	(0.02)		(0.01)	(0.01)
Intercept				-0.07	1.92***	1.86***
				(0.44)	(0.44)	(0.45)
Log-Likelihood	-177.37	-158.52	-155.31	-180.71	-157.09	-156.59
N	277	277	277	277	277	277

Models for which the dependent variable is 'any re-arrest' are specified using logistic regression models. Odds ratios are reported. Models for which the dependent variable is 'number of re-arrests' are specified using a negative binomial specification.

Table 10. Impact on Re-Arrest Outcomes - Weighted 36-month followup

	Any Re-arrest			Number of re-arrests		
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment Group	0.54**	0.57*	0.93	0.20	0.02	0.29
	(0.25)	(0.28)	(0.38)	(0.16)	(0.15)	(0.19)
Opt-In Group			0.46**			-0.46**
			(0.39)			(0.21)
Age		0.94***	0.95***		-0.06***	-0.06***
		(0.02)	(0.02)		(0.01)	(0.01)
Male		0.70	0.65		-0.08	-0.11
		(0.32)	(0.32)		(0.17)	(0.17)
Alaskan native		1.27	1.26		-0.10	-0.13
		(0.34)	(0.34)		(0.17)	(0.17)
American indian		1.44	1.45		-0.09	-0.14
		(0.44)	(0.45)		(0.24)	(0.24)
Other race		3.02**	3.20		0.73***	0.72***
		(0.49)	(0.02)		(0.25)	(0.25)
Number of prior arrests		1.08***	1.08***		0.05***	0.05***
		(0.02)	(0.02)		(0.01)	(0.01)
Intercept				0.14	2.08***	1.93***
				(0.12)	(0.37)	(0.37)
Log-Likelihood	-180.9	-158.82	-156.86	-162.81	-128.65	-126.25
N	277	277	277	277	277	277

Models for which the dependent variable is 'any re-arrest' are specified using logistic regression models. Odds ratios are reported. Models for which the dependent variable is 'number of re-arrests' are specified using a negative binomial specification.

Table 11. Impact on Re-Arrest Outcomes - Weighted 48-month followup

	Any Re-arrest			Number of re-arrests		
	(7)	(8)	(9)	(10)	(11)	(12)
Treatment Group	0.46***	0.47***	0.64	0.13	-0.03	0.16
	(0.26)	(0.29)	(0.39)	(0.15)	(0.85)	(0.18)
Opt-In Group			0.61			-0.30
			(0.39)			(0.19)
Age		0.94***	0.94***		-0.06***	-0.06***
		(0.17)	(0.02)		(0.01)	(0.01)
Male		0.64	0.60		-0.00	-0.02
		(0.32)	(0.33)		(0.16)	(0.16)
Alaskan native		1.76	1.74		0.01	-0.00
		(0.35)	(0.35)		(0.16)	(0.16)
American indian		1.34	1.34		-0.11	-0.14
		(0.45)	(0.46)		(0.23)	(0.23)
Other race		4.31***	4.44***		0.70***	0.70***
		(0.51)	(0.51)		(0.23)	(0.23)
Number of prior arrests		1.08	1.08***		0.04***	0.04***
		(0.02)	(0.2)		(0.01)	(0.01)
Intercept				0.37***	2.20***	2.09***
				(0.11)	(0.34)	(0.34)
Log-Likelihood	-174.17	-151.95	-151.19	-109.55	-70.80	-69.58
N	277	277	277	277	277	277

Models for which the dependent variable is 'any re-arrest' are specified using logistic regression models. Odds ratios are reported. Models for which the dependent variable is 'number of re-arrests' are specified using a negative binomial specification.

In terms of the incidence of crime (the number of rearrests in the second panel), the same general pattern emerges, although the magnitude of effects is smaller. Overall, there is no effect of assignment to AWC (the average treatment effect) in any of the four follow-up periods. The addition of covariates does not change this finding. The addition of the treatment on the treated variable does follow the same general pattern as observed in the prevalence of crime models. That is, the parameter on average treatment effect increases (meaning that there is more crime associated with assignment to AWC) and the parameter on Opt-In Group is negative in all four model specifications (meaning that formal enrollment in AWC decreases the number of new arrests). However, the reduction in new crime is significant only at 24 months ($p<0.05$) and 36 months ($p<0.05$).

Conviction

We believe rearrest is the most important indicator of the effectiveness of AWC. Since the true incidence and prevalence of new offending is not observable, arrest is the best proxy for true offending that is observable in the administrative data. However, since arrests can occur even when no new crime was committed, we also examine the effectiveness of AWC on reducing new convictions. In describing the results of AWC on conviction, we follow the same style used to describe the effect of AWC on arrest.

The effects of AWC on convictions are very similar to the effects on arrest, although the effect sizes are smaller. The odds of a new conviction are 56 to 68 percent as large for the Treatment Group as for the comparison. Only the 24 month outcomes are significant at conventional levels ($p<0.05$), although the effects are significant at 30 and 48 months at $p<0.10$. The addition of covariates does not change these findings, except that the effect at 24 months is now only significant at $p<0.10$ and the odds ratios have less variance (between 57 and 62 percent).

The addition of the Opt-In Group indicator changes the results in a similar way as was the case for any rearrest. The odds ratios for the treatment assignment variable increase and become nonsignificant in all periods. The odds ratios for the Opt-In Group are highly significant at 24 months ($p<0.01$) and show that a Opt-In Group subject has odds of reconviction that are only 25 percent as great as the odds for comparison subject. At 30 months, the parameter is 39 percent ($p<0.05$), 47 percent at 36 months ($p<0.10$) and 63 percent (not significant) at 48 months. Again, by 48 months, there is littler difference between the average treatment effect parameter and the Opt-In Group parameter.

In terms of the change in conviction incidence (number of new convictions), there is no effect of assignment to AWC at any of the four follow-up periods, with or without covariates. When the Opt-In Group are added, there is a significant reduction in the number of new convictions at 24 and 36 months ($p<0.01$), but nonsignificant reductions in the other follow-up periods.

Table 12. Impact on Re-Conviction Outcomes - Weighted 24-month followup

	Any Re-conviction			Number of re-convictions		
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment Group	0.56**	0.57*	1.24	0.05	-0.15	0.28
	(0.27)	(0.30)	(0.37)	(0.19)	(0.19)	(0.23)
Opt-In Group			0.25***			-0.82***
			(0.43)			(0.27)
Age		0.94***	0.96**		-0.06***	-0.05***
		(0.12)	(0.12)		(0.01)	(0.14)
Male		1.40	1.24		0.21	0.16
		(0.34)	(0.34)		(0.23)	(0.23)
Alaskan native		1.61	1.64		0.04	0.02
		(0.34)	(0.15)		(0.23)	(0.22)
American indian		1.32	1.27		0.05	-0.02
		(0.45)	(0.48)		(0.31)	(0.30)
Other race		2.69**	3.12**		0.72**	0.77**
		(0.49)	(0.51)		(0.31)	(0.31)
Number of prior convictions		1.04**	1.05**		0.04***	0.04***
		(0.12)	(0.12)		(0.01)	(0.01)
Intercept				-0.68***	1.06**	0.84*
				(0.14)	(0.47)	(0.47)
Log-Likelihood	-163.4	-150.50	-145.14	-233.78	-213.31	-208.84
N	277	277	277	277	277	277

Models for which the dependent variable is 'any re-conviction' are specified using logistic regression models. Odds ratios are reported. Models for which the dependent variable is 'number of re-convictions' are specified using a negative binomial specif

Table 13. Impact on Re-Conviction Outcomes - Weighted 30-month followup

	Any re-conviction			Number of re-convictions		
	(7)	(8)	(9)	(10)	(11)	(12)
Treatment Group	0.63*	0.58*	1.02	0.09	-0.06	0.10
	(0.26)	(0.29)	(0.38)	(0.18)	(0.18)	(0.25)
Opt-In Group			0.39**			-0.57
			(0.41)			(-0.39)
Age		0.95***	0.96***		-0.06***	-0.06***
		(0.02)	(0.02)		(0.01)	(0.02)
Male		1.63	1.49		0.38*	0.24
		(0.33)	(0.34)		(0.21)	(0.28)
Alaskan native		1.59	1.60		0.11	0.15
		(0.34)	(0.34)		(0.21)	(0.27)
American indian		2.23	2.26*		0.29	0.15
		(0.43)	(0.44)		(0.27)	(0.39)
Other race		2.27*	2.46*		0.60**	0.73**
		(0.49)	(0.49)		(0.29)	(0.35)
Number of prior convictions		1.03*	1.03**		0.03***	0.03*
		(0.02)	(0.02)		(0.01)	(0.02)
Intercept				0.56***	1.00**	1.01
				(0.13)	(0.43)	(0.68)
Log-Likelihood	-168.88	-155.85	-153.17	-243.97	-219.06	-246.14
N	277	277	277	277	277	277

Models for which the dependent variable is 'any re-conviction' are specified using logistic regression models. Odds ratios are reported. Models for which the dependent variable is 'number of re-convictions' are specified using a negative binomial specif

Table 14. Impact on Re-Conviction Outcomes - Weighted 36-month followup

	Any Re-conviction			Number of re-convictions		
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment Group	0.68	0.62	0.99	0.07	-0.10	0.30
	(0.26)	(0.29)	(0.37)	(0.17)	(0.17)	(0.20)
Opt-In Group			0.47*			-0.74***
			(0.40)			(0.23)
Age		0.95***	0.95***		-0.06***	-0.05***
		(0.02)	(0.02)		(0.01)	(0.01)
Male		1.63	1.52		0.39*	0.34*
		(0.33)	(0.33)		(0.20)	(0.20)
Alaskan native		1.65	1.66		0.05	0.05
		(0.33)	(0.33)		(0.20)	(0.19)
American indian		2.08*	3.24*		0.18	0.14
		(0.43)	(0.44)		(0.26)	(0.25)
Other race		3.04**	3.24**		0.62**	0.67**
		(0.48)	(0.49)		(0.27)	(0.27)
Number of prior convictions		1.03*	1.03**		0.03***	0.04***
		(0.02)	(0.02)		(0.01)	(0.01)
Intercept				-0.41***	1.23***	1.02**
				(0.12)	(0.41)	(0.41)
Log-Likelihood	-172.58	-158.55	-156.74	-247.94	-219.37	-214.34
N	277	277	277	277	277	277

Models for which the dependent variable is 'any re-conviction' are specified using logistic regression models. Odds ratios are reported. Models for which the dependent variable is 'number of re-convictions' are specified using a negative binomial specif

Table 15. Impact on Re-Conviction Outcomes - Weighted 48-month followup

	Any re-conviction			Number of re-convictions		
	(7)	(8)	(9)	(10)	(11)	(12)
Treatment Group	0.65*	0.60*	0.80	0.02	-0.10	-0.06
	(0.25)	(0.28)	(0.37)	(0.16)	(0.14)	(0.23)
Opt-In Group			0.63			-0.39
			(0.39)			(0.31)
Age		0.95***	0.96***		-0.06***	-0.06***
		(0.02)	(0.02)		(0.01)	(0.01)
Male		1.58	1.51		0.36**	0.21
		(0.32)	(0.32)		(0.17)	(0.27)
Alaskan native		1.81*	1.81*		0.25	0.19
		(0.33)	(0.33)		(0.16)	(0.24)
American indian		1.85	1.85		0.20	-0.16
		(0.42)	(0.43)		(0.21)	(0.38)
Other race		2.80**	2.90**		0.54**	0.67**
		(0.48)	(0.48)		(0.23)	(0.30)
Number of prior convictions		1.02	1.03		0.03***	0.03*
		(0.02)	(0.02)		(0.00)	(0.02)
Intercept				-0.18	1.28***	1.50**
				(0.11)	(0.33)	(0.62)
Log-Likelihood	-176.26	-164.16	-163.45	-248.67	-222.76	-299.63
N	277	277	277	277	277	277

Models for which the dependent variable is 'any re-conviction' are specified using logistic regression models. Odds ratios are reported. Models for which the dependent variable is 'number of re-convictions' are specified using a negative binomial specif

SURVIVAL ANALYSIS

The multivariate analysis described above suggests that AWC participation, particularly formal enrollment, is associated with a significant reduction in the odds of new arrests. Related to the question of whether AWC reduced the incidence and prevalence of crime is the question of whether crime was temporally displaced. That is, did participation in AWC reduce the time until a new arrest? Temporally displacing crime potentially has positive effects above and beyond those from short-term reductions in offending. Since it is generally accepted that on average crime levels decline with age, displacing crime during periods where an individual is at higher risk of offending into a period where that risk is declining may have important long-term consequences.

Multivariate Results

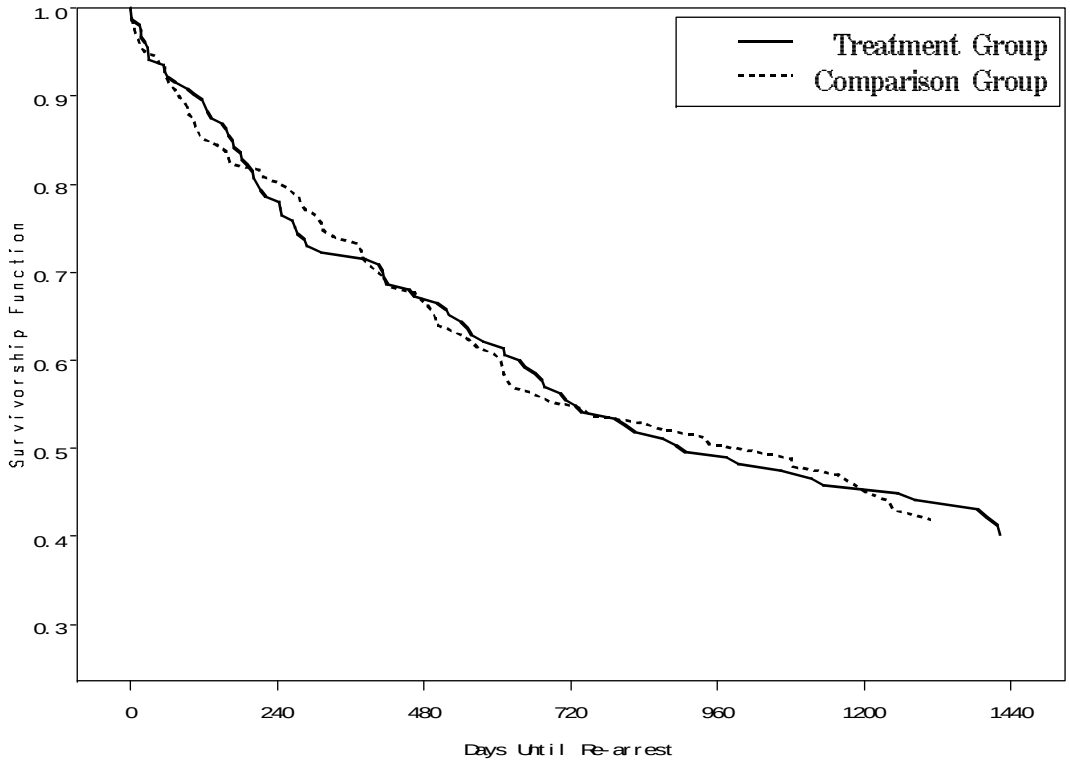
This section reports the results of eight Cox Proportional Hazards regression models.[10] The parameters reported in the tables that follow are hazard ratios that have positive values. The interpretation is similar to the interpretation of the odds ratios described above. If the ratio is below 1, then the odds of rearrest or reconviction for the Treatment Group are interpreted as being less than the odds for the Comparison Group. For instance, if the value is 0.75 then the Treatment Group has 75 percent as high odds as the Comparison Group that they will be rearrested on any given day. If the ratio is above 1, t then the odds of rearrest or reconviction for the Treatment Group are interpreted as being greater than the odds for the Comparison Group. For example, if the value is 1.25 then the Treatment Group has odds 25 percent greater than the Comparison Group that they will be rearrested on any given day.

The term "hazard" refers to each individual's odds of being rearrested/reconvicted at time point (days) considering the same odds for everyone else who has not been rearrested/reconvicted at that same point in time (hence the term "survivor"). This model uses the surviving members' hazard rates as well as the values of the covariates to calculate the likelihood of being rearrested/reconvicted at each point in time. If ten people begin in the survival analysis and two people are r-arrested/reconvicted after 15 days, then hazard rates for everyone from days 1 to 15 will be the same. If two more people are arrested on day 25, then the hazard rates from days 15 to 25 will be the same for those remaining eight people, and so on.

Before describing the multivariate results, the differences between the Treatment Group and the comparison on days until for rearrest can be shown graphically. Figure 1 displays the survival curve for the full Treatment Group and the Comparison Group. The Treatment Group is shown as the line with circles marked on days when a member of that group "failed" (was rearrested). As is clear from Figure 1, there is no difference between the groups. In Figure 2, the Opt-In Group are compared to the Comparison Group, and there is a significantly longer time to rearrest for each day, beginning about one and a half years from the date of entry (as is shown by the Opt-In Group being above the comparison, which indicates fewer failures at each point in time).

[10] While all of the other multivariate analyses report the results of regressions using the weighted sample, the survival analysis reports the results for the un-weighted sample. All analyses were run in SAS 9.0 which does not include a weighting option of PROC PHREG, which was used to model the effect of AWC on time to re-arrest and time to re-conviction.

Survivorship functions for days until re-arrest across treatment group and comparison group



Survivorship functions for days until re-arrest across opt-in group and comparison group

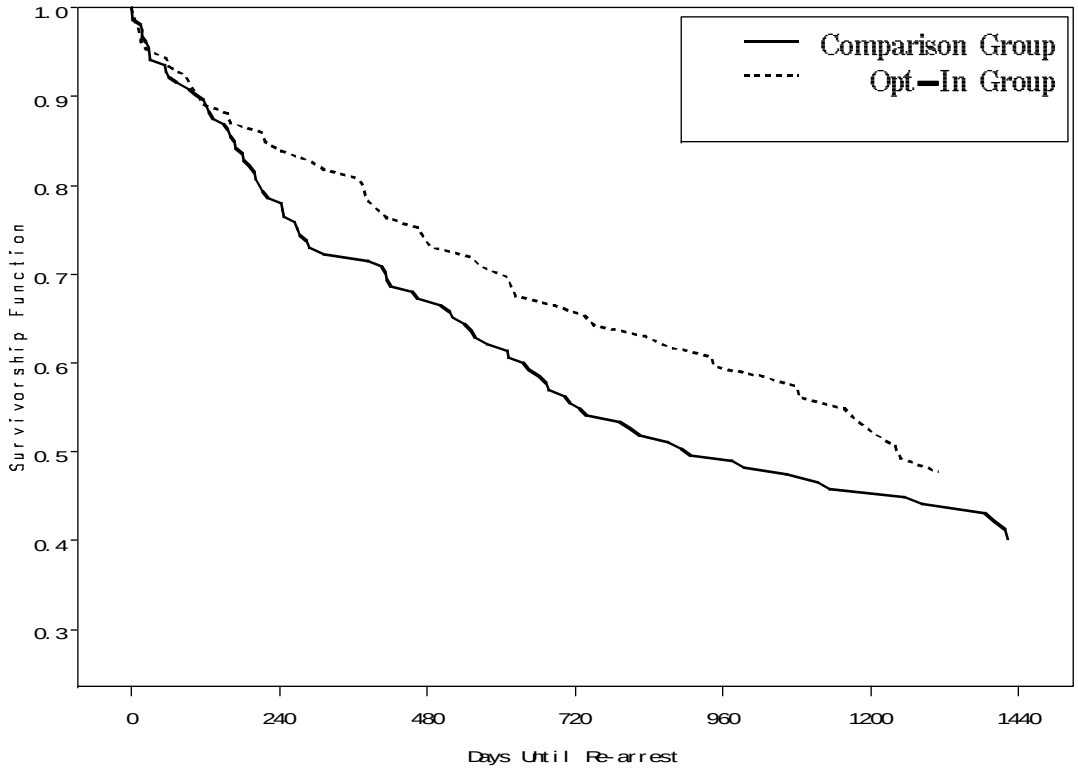


Table 16 contains two panels, one describing the results of regressions testing whether AWC reduced the number of days until rearrest and the second testing whether AWC reduced the number of days until reconviction. Each of the panels reports the results of four models. The first and third columns in each panel report the results for all referred to AWC, and the second and fourth columns in each panel report the results with a binary indicator for the Opt-In Group. The models are first run with the same vector of covariates used in testing other dependent variables. Additional models include covariates specific to survival analysis (reported in columns (3), (4), (7), and (8)). The interpretation of these interaction terms is reported below.

The first panel in Table 16 describes the results of the survival models on days until rearrest. In all four models, there is no effect of AWC on days until first rearrest. When the Opt-In Group are added in column (2) there is a significant reduction in the odds of a rearrest per day ($p<0.05$). Columns (3) and (4) add two interaction terms to the model, one interacting age with time, and one interacting gender with time. The idea behind these terms is that there is a lack of proportionality in the hazards for these two variables that may confound the interpretation of the treatment effect. However, including these terms does not meaningfully change the parameter on either average treatment effect or Opt-In Group effects.

Table 16. Survival Analysis - Unweighted Time until Re-arrest and Re-Conviction

	Days until Re-arrest				Days until Re-conviction			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment Group	0.8	1.2	0.78	1.17	0.91	1.15	0.39***	1.14
	-0.17	-0.23	-0.17	-0.23	-0.2	-0.26	-0.34	-0.26
Treatment x Time							3.47***	3.32**
							-0.41	-0.5
Opt-In Group		0.56**		0.55**		0.69		0.29***
		-0.24		-0.24		-0.27		-0.48
Age	0.96***	0.97***	0.90***	0.90***	0.97***	0.98**	0.97***	0.98**
	-0.01	-0.01	-0.04	-0.04	-0.01	-0.01	-0.01	-0.01
Age x Time			1.01**	1.01**				
			-0.01	-0.01				
Male	0.86	0.85	0.29**	0.28**	1.28	1.26	1.27	1.27
	-0.18	-0.18	-0.62	-0.63	-0.22	-0.22	-0.22	-0.22
Male x Time			1.21*	1.22*				
			-0.11	-0.11				
Alaskan native	1.29	1.35	1.26	1.33	1.45*	1.47*	1.43	1.46*
	-0.2	-0.2	-0.2	-0.2	-0.22	-0.22	-0.22	-0.22
American Indian	1.22	1.27	1.18	1.23	1.27	1.29	1.27	1.29
	-0.26	-0.26	-0.26	(0,26)	-0.29	-0.3	-0.29	-0.3
Other race	1.57	1.75**	1.60*	1.80**	1.58	1.64	1.58	1.61
	-0.28	-0.28	-0.28	-0.26	-0.32	-0.32	-0.32	-0.32
Number of prior arrests	1.02***	1.02***	1.02***	1.02***	1.01***	1.01	1.01***	1.01**
	0	0	0	0	0	0	0	0
Log-Likelihood	-825.49	-822.69	-821.6	843.57	-650.58	-632.84	-648.11	-629.49
N	277	277	277	277	277	277	277	277

Hazard ratios are reported from Cox Proportional Hazards regression models. Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

The second panel describes the effects of AWC on days until reconviction. Columns (5) and (6) describe similar results for time until reconviction as columns (1) and (2) demonstrated for time until

rearrest. That is, that there is no effect of AWC on days until reconviction. However, in these models there is no reduction in the hazard for reconviction for the Opt-In Group.

Columns (7) and (8) include interaction terms for covariates that violate the proportional hazards assumption. In the rearrest model, age and gender violated the proportional hazards assumption, and thus these variables were interacted with time. However, there was no similar violation of the proportional hazards assumption in the reconviction models, so these terms were not included in the model. However, the effect of treatment was found to violate this assumption in the reconviction models, meaning that the rate of change of the risk of reconviction was not equal for the treatment and Comparison Groups. This finding would be consistent with improvements in behavior within the Treatment Group during the period when they received treatment, but an attenuation of that finding after treatment. To account for this, we interact the median number of days in the Wellness Court (480) with the average treatment effect to distinguish the risk of reconviction for the average Treatment Group participant while in Wellness Court from the risk after completing Wellness Court.

Column (7) shows that the treatment effect significantly reduced the reconviction hazard ($p<0.01$). Overall, while he/she was in the drug court by 61 percent. Upon exit of the court, the odds of reconviction increased by more than 300 percent. These results indicate that participants in the Wellness Court had much lower odds of being reconvicted while they were attending hearings and receiving services but afterwards they became severely at risk to be reconvicted. Column (8) supports the interpretation of the results in column (7). There is no longer a significant effect for the average treatment effect but there is a similar significant decrease in the odds of reconviction for the Opt-In Group (71 percent lower odds of being reconvicted) while they were in the Wellness Court. Thus, the odds of reconviction significantly increased (by 330 percent) upon completion of the Wellness Court for this group as well.

One concern about the interpretation of columns (7) and (8) is that Wellness Court participants benefit from having their conviction nullified if they successfully meet the mandates of the court. Thus, the Comparison Group (and the opt-outs) may be more likely to be convicted (and convicted sooner) on their initial charge than were those who participated in the Wellness Court. Similarly, the significant increase in risk may be due to convictions linked to a Wellness Court failure. Thus, our findings in these two models could be an artifact of the structure of the Wellness Court and Comparison Group. The dissimilarity between the rearrest and reconviction findings further supports the need for caution in interpreting columns (7) and (8).

COST-BENEFIT ANALYSIS

In the language of cost-benefit analysis, costs have two components, prices and quantities. Prices usually refer to a unit price of a resource, such as an hour of staff time. Quantities usually refer to the amount of a resource that was consumed, such as the number of hours of staff work. The product of prices and quantities thus estimates the total cost. In the AWC evaluation, costs were those activities associated with the use of resources by either the Treatment Group or the

Comparison Group. Thus, if a service was used by both groups (such as probation or electronic monitoring) a cost is counted for both groups. Multivariate analysis is used to identify the average marginal cost of AWC.

Where possible, we estimate the opportunity cost of a resource rather than the actual expenditure. For the most part there is little difference between the two. However, where a resource is paid for by a party outside of the study, such as would be the case when an AWC client is referred to treatment but some nonjudiciary agency or private vendor pays for the service, costs estimated by expenditures alone will underestimate true costs. In order to generalize from the AWC findings, it is therefore important that opportunity costs are estimated, as they better reflect the costs that would be incurred if AWC was replicated elsewhere.

We estimate the costs of AWC based on the observed prices of goods and services used by AWC clients, in three domains: court costs, treatment costs and costs of victimization. The interpretation of court and treatment costs are straightforward—these estimates represent the costs incurred by these agencies in processing or treating AWC clients as they progressed through the court system. We regress those costs on attributes of eligibles that may have made them more or less expensive to process regardless of whether they were referred to AWC. From this, we calculate an average cost of participation, and report those estimates.

Benefits are calculated in a slightly different manner. For the most part, criminal justice interventions such as the AWC do not create additional productivity or otherwise yields gains to society in a strict sense. Rather, what these programs do is to reduce harms associated with alcohol use. Here, we are focused on the harms from alcohol use that are associated with criminal offending and the 'benefit' of AWC would be that they are fewer people victimized, and harms to society are therefore reduced. The benefits described here result from the change in harms from offending comparing the Treatment Group to the Comparison Group.

Benefits can accrue to a number of different parties involved in the evaluation. Police agencies that investigate and arrest suspects who commit new crimes will experience savings if new offending is reduced. Courts that process arrested offenders will also see savings from reduced offending as will community supervision agencies and corrections. Since the costs to each of these parties can vary with the severity of crimes that are prevented, it is important to consider the impact of AWC independently for each of these parties. Finally, benefits to private citizens are also considered. If a crime is prevented and a private citizen who would have been victimized is not, that citizen saves the cost of the harms of being victimized. Although these savings do not appear in any agency budget, they are nevertheless critical to understanding and evaluating the benefits from an effective intervention. We specify a series of multivariate models to estimate the benefits to each of these groups, and to society as a whole (which is the average net benefit of the AWC).

The results from the cost-benefit analysis are therefore reported in two separate sections. The first reports the costs of AWC, which are the average opportunity costs of resources used in the processing of those referred to AWC. The benefits section reports the results of multivariate models and includes estimates of the average net benefit of the AWC.

Costs

To estimate the costs of treatment, we compare the average cost of treatment to the average cost of 'business-as-usual' as represented by the Comparison Group to yield an estimate of the average cost of AWC. In order to estimate the average cost, costs are modeled as a function of treatment status and participant characteristics using multivariate models. In this framework, the cost of treating each individual is a function of

- treatment cost,
- the number of court hearings attended, and
- fees.

Costs are also a function of individual attributes that predict treatment needs and length and intensity of court processing. That is, the differences between the treatment and Comparison Groups may be in part due to differences in the attributes of those assigned to each condition. It is therefore possible that one group may have been more costly due to those attributes. This framework allows us to isolate the impact of treatment on costs, so that those differences in attributes do not confound the interpretation of program costs. Modeling cost in a multivariate framework allows us to estimate program cost as a function of treatment status, holding constant other factors that may independently predict the cost of treating clients. Moreover, by using multivariate cost models, we can construct a confidence interval around the average cost to test whether there is a significant difference in cost between treated and untreated individuals. Cost models are run using the same vector of covariates in the impact and benefits models.

In order to estimate cost in a multivariate framework, the costs of AWC must be aggregated for each individual i,…,n. For each individual, cost is aggregated according to equations (5) and (6):

$$\text{Hearing Cost}_i = P_t Q_{it} \quad (5)$$

$$\text{Treatment Cost}_i = P_j Q_{ij} \quad (6)$$

In (5), Hearing Cost_i is the total cost of court hearings for individual i, P_t is the price of each of hearing (a function of treatment status) and Q_{it} is the quantity of hearings for individual i in group t. In (6) Treatment Cost_i is the total cost treatment for individual i, P_j is the price of treatment j and Q_{ij} is the quantity of treatment j for individual i. For each individual, the total cost is given as the sum of (5) and (6).

Court Costs

Cost data for both groups were collected through an examination of administrative budgets and semi-structured interviews with AWC staff and contracted partners. Costs for AWC were estimated in two stages. In the first stage, the differential cost of court resources was estimated using a top down approach where unit costs were estimated as the total cost divided by the number of units. The per-unit hearing cost (HearingCost_i) for the Treatment Group was obtained by dividing the total cost of AWC by the number of units. The per-unit hearing cost (HearingCost_i) for the

Comparison Group was obtained by dividing the total cost to the remainder of the court system by the number of units in the system. Specifically, the cost of for the Treatment Group was estimated on a per-hearing basis by dividing the total cost of operating AWC over the average length of enrollment by the total number of hearings over that time period. This yielded an estimate of $133 per court hearing. The cost of the Comparison Group was estimated by dividing the annual cost of operating the Alaska Court System minus the cost of AWC ($65.8 million) by the total number of courtroom-minutes in a business year (8,611,200). This yielded an estimate of $7.63 per courtroom-minute. Finally, the cost per courtroom-minute was multiplied by five minutes, the average length of time of a hearing in Alaska to obtain a per-hearing cost of $38.19 for the Comparison Group. Since the per-hearing costs for AWC and regular court processing are estimated top-down using administrative budgets, hearing costs includes all fixed and variable costs involved in court processing, implicitly attributing costs to each client in proportion to the number of court hearings attended.

Treatment Costs

No data were available from AWC describing how much treatment was received for each individual participating in AWC. Estimates were generated from available data, which included information on costs from program stakeholders, expected amount of service received, and the number of days each individual participated in the AWC. To generate these estimates, we first associate the time period when a service was delivered, and the expected cost for that service (if it was delivered in full). Note that these costs are only those associated with the provision of services as the court costs are already accounted for in the previous section. Participants received a variety of services laid out in the following sequence:

Table 17. Sequence of Treatment Service Provision in the Anchorage Wellness Court

Service	Stakeholders' estimates of full program cost
Opting-in to AWC (Day 1)	$0
Intensive Outpatient Treatment (Days 1–70)	$1,700
Naltrexone Treatment (Days 1–120)	$130
Naltrexone Group Meetings (Duration of AWC)	$0
AA meetings (Duration of AWC)	$0
Weekly Outpatient Treatment (Days 71–210)	$1,125
Safe and Sober Housing (Days 1–30)	$0
Moral Reconation Therapy (Days 280–370)	$265
Employment/Education Training (Varies)	$0

Source: The schedule of service provision is developed from AWC program records. Costs of each stage were estimated from interviews with program stakeholders. We estimate $0 for treatment for opting into the program. We also estimate that there is no cost associated with AA meetings, since there is no fee for participation (there may be an opportunity cost for participant time but we do not develop an estimate for this.) There is a small cost for the facilitator of the Naltrexone group, but no reliable estimate was available. Similarly, no estimate was available for the amount or unit price for any employment or educational service. Finally, Safe and Sober Housing is likely to have a large cost associated with it, but few AWC participants received this service, and no data were available to generate cost estimates.

For each category, the full program cost was attributed to an individual if they participated in the AWC during the period when a service was expected to be delivered. For example, all AWC

participants in the program for more than seventy days were attributed a cost of $1700 for intensive outpatient treatment. If the individual did not participate for this length of time, then the cost was prorated where the per-day cost of the service was calculated (e.g. $1700/70 days = 24.28) and the cost per day was multiplied by the number of days the individual participated in the program. So, an individual in the program for fifty days would have a cost of intensive outpatient treatment of $1,214.

Services were also differentially attributed to those who opted out of the AWC versus those who participated in it. Opt-outs were attributed costs for Naltrexone treatment, Naltrexone group meetings, AA meetings and intensive outpatient treatment (and intensive outpatient treatment was deflated by 66 percent to reflect the limited exposure for this group). The Opt-In Group was assumed to have received all of the above services depending on the number of days spent in the AWC.

In contrast to the Treatment Group, costs for the Comparison Group were directly observable from the Alaska Alcohol Safety Action Program (ASAP) database. This database provided referrals to various treatment services. We follow Carey and Finigan (2003) and deflate the costs associated with the Comparison Group to reflect the likelihood that only some services were delivered following a referral.

Table 18. Costs of Treatment Services in the Anchorage Wellness Court

Service	Cost of completed program
Date of arrest/first court hearing	$0
Intensive Outpatient Treatment	$1,700
Mothers Against Drunk Driving	$40
Residential Treatment	$6,860
Treatment Evaluation	$90
Second Opinion Treatment Evaluation	$90
American Indian–specific Treatment	$180
Alcohol/Drugs Information School	$90
ASAP Fee	$200

Source: Program costs were estimated from the Alaska Alcohol Safety Action Program.

Estimated average marginal cost of AWC is shown in Table 19. The table includes three panels. The first panel estimates the cost of AWC to the justice system, the second panel estimates the costs of AWC to treatment providers and the final panel estimates the total costs of AWC. The models are specified in the same manner as was done for the recidivism estimates. The first column in each panel describes the cost for everyone in the Treatment Group. The second estimates cost for everyone in the Treatment Group, controlling for a vector of covariates. The third column includes an indicator for Treatment Group participants who formally enrolled in the program.

Table 19. Costs of AWC - Weighted Outcomes

	Cost of Judicial Oversight			Cost of Treatment			Total Cost of Wellness Court		
	(1)	(2)	(3)	(4)	(5)	(6)	(4)	(5)	(6)
Treatment Group	2105.96***	2054.67***	690.80***	1705.60***	1857.73***	588.78*	3381.93***	3375.64***	723.27**
	(170.33)	(179.03)	(200.73)	(252.21)	(258.62)	(316.26)	(299.27)	(315.55)	(365.60)
Opt-In Group			1892.26***			1929.64***			3896.89***
			(201.51)			(323.34)			(377.69)
Age		9.51	-3.10		16.23	-3.10		30.44*	6.23
		(9.70)	(8.12)		(14.12)	(13.47)		(17.48)	(14.84)
Male		-203.96	-170.17		-900.41***	-708.79***		-487.78	-419.11
		(192.81)	(159.03)		(285.47)	(265.93)		(344.03)	(288.31)
Alaskan native		316.32	217.37		-485.19	-469.37*		235.38	83.59
		(203.86)	(168.47)		(302.44)	(279.84)		(368.11)	(308.88)
American indian		267.99	211.94		-587.90	-564.50		342.99	282.44
		(277.38)	(227.85)		(392.81)	(363.72)		(495.11)	(414.73)
Other race		157.55	22.10		94.95	-36.57		96.53	-146.64
		(302.85)	(249.62)		(444.23)	(411.87)		(549.11)	(461.05)
Number of prior arrests		2.76	4.02		21.09	13.29		-0.69	1.69
		(5.89)	(4.86)		(15.54)	(14.49)		(10.92)	(9.16)
Intercept	-549.24***	-910.92**	-302.53	956.22***	942.01	1679.02***	1106.74***	168.36	1152.15*
	(128.68)	(428.43)	(356.44)	(187.71)	(612.03)	(579.02)	(212.01)	(766.43)	(648.67)
Log-Likelihood	-1705.84	-1702.92	-1666.08	-2047.29	-2040.63	-2024.14	-2389.06	-2386.23	-2341.83
N	277	277	277	277	277	277	277	277	277

All models are specified using ordinary least squares regression. The dependent variable is the cost of wellness court.
Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

Costs in each specification are significant ($p<0.01$). Not surprisingly, the models suggest that most of the costs are associated with those who formally enrolled in the program. Column (3) estimates that each individual who enrolled in AWC (Opt-In Group) cost the court system almost $1,900, while those who were referred to AWC but did not enroll cost almost $700. Column (6) estimates the costs to treatment at slightly more than $1,900 for the Opt-In Group and less than $600 for those referred to AWC (although the costs are only marginally significant for the latter group). Total costs of AWC are about $3,900 for the Opt-In Group, and $700 for those referred to AWC. In terms of the effect of covariates on cost, gender (female) is associated with significantly higher treatment costs.

Benefits

The purpose of the Wellness Court is to effect a change in behavior of clients, and, by doing so, to reduce the burden on the public from offending. As such, the appropriate benefits to consider are those associated with reduced offending.[11] There are two potential groups of beneficiaries of reduced offending: (1) potential victims whose welfare is enhanced as the number and severity of offending by drug court clients is reduced and (2) public agencies (and taxpayers) who consume fewer resources in investigating new crimes, and processing and supervising those arrested for new offenses.

[11] If successful, there are certainly other potential benefits from AWC, most notably reductions in morbidity and mortality. However, the only data available for this study comes from administrative sources, and only the criminal justice records were available to us. Thus, we are limited to benefits from changes in criminal behavior. To the extent that other behavioral improvements were highly correlated with reduced criminality, we will underestimate the benefits of the program.

Estimation of the benefits to public agencies is relatively straightforward. First, we estimate the average unit costs to three public agencies— police agencies, supervision agencies (probation) and departments of correction—of investigating, arresting, and incarcerating offenders. Data on the cost of arrest were drawn from estimates in Roman, Woodard, Harrell and Riggs (1998). Data on the cost of supervision come from the Alaska Law Review. Data on the cost of state prison comes from the Bureau of Justice Statistics (Stephan 2001). Benefits accrue when there are fewer treatment subjects who are arrested, processed and supervised by the criminal justice system. Calculation of these benefits is straightforward, where the change in the number of individuals who have contact with the criminal justice system at each step is multiplied by the costs of that stage of processing.

Benefits to private citizens occur when the number and/or severity of crimes are reduced. To estimate these benefits, we first estimate the unit cost of being victimized. The unit cost of victimization has two components: tangible and intangible costs. Tangible costs of crime include direct costs of victimization such as medical bills, rehabilitation costs, and lost wages from being unable to work. These costs are estimated from the extant literature, which primarily relies on data from civil jury awards. Intangible costs include psychological harm associated with victimization, including fear, pain, and suffering and are estimated using the sizes of jury awards made by civil juries. We use extant estimates of the costs of victimization to estimate the benefits of drug treatment delivered via drug court. The costs of harm to victims for murder, rape, and robbery are drawn from estimates by Cohen, Miller, and Rossman (1993). The costs of harm to victims for all other crimes are drawn from estimates by Rajkumar and French (1997). All costs have been expressed in 2007 dollars. Generally, as the seriousness of the crime decreases, the proportion of the social costs that fall on public agencies (as opposed to victims) decreases.

Table 20. Costs of Criminal Victimization (Benefits to Crime Victims from Prevented Offending)

Offense	Cost of Arrest	Cost to Crime to Victims
Murder/ Manslaughter/ Homicide	$12,089	$3,984,000
Rape/Sexual Assault	$4,464	$99,600
Aggravated Assault	$2,603	$73,691
Robbery	$2,563	$31,959
Arson	$675	$83,000
Motor Vehicle Theft	$675	$1,661
Burglary	$2,563	$1,904
Larceny/Theft	$675	$1,064
Stolen Property Offenses	$675	$1,064
Forgery and Counterfeiting	$675	$803
Drug Offenses	$675	$31
Assault (simple + aggravated)	$675	$36,520

Source: The costs of harm to victims for murder, rape, and robbery are drawn from estimates by Cohen, Miller and Rossman (1993). The costs of harm to victims for all other crimes are drawn from estimates by Rajkumar and French (1997). All costs have been expressed in 2007 dollars.

Most extant cost-benefit evaluations of criminal justice programs do not compute benefits in a multivariate framework. Instead, in the presence of significant program effects, monetized benefits to society are computed by aggregating the value of the crimes committed by the Treatment Group and the Comparison Group and taking the difference. This approach is problematic for two reasons. First, the direction and magnitude of cost-benefit results do not necessarily follow from the results of an impact analysis (Marsh, Chalfin, and Roman 2007). That is, since economic benefits are computed by weighting each type of averted crime by its associated social harms, it is entirely possible to observe a nonsignificant effect size but a significant cost-benefit ratio (or vice versa). Moreover, because the types of crimes committed by participants tend to exhibit a large degree of variation, it is important to have the ability to calculate confidence intervals around the estimated mean. Second, the covariates included in the impact model in order to control for potential confounding effects may have an independent effect on benefits to society. That is, just as differences in age between treatment and control conditions might confound bivariate differences in outcomes, differences in age can also impact the types of crimes that individuals commit, thus confounding differences in benefits to society.

In order to model economic benefits to society as a function of the treatment condition and a vector of covariates, we compute a dependent measure that is the sum of costs to society for each offender. These costs are calculated for four benefits domains: costs to police agencies, costs to supervision agencies, cost to prisons and jails and costs to crime victims. In addition, we estimate the costs to victims of crime and the total costs to society as dependent variables. As this dependent variable takes on a unique distribution—nonrecidivists have values of zero and recidivists have values above zero—tobit regression is employed to estimate the average marginal treatment effect.[12]

The coefficient on treatment (average treatment effect) is interpreted as the net change in social welfare. Thus, while the results are categorized under the heading of benefits to distinguish the method from the cost method, it is something of a misnomer. If the parameter is positive, then the Treatment Group overall had additional costs to society. If the parameter is negative, then treatment was associated with a benefit.

Tables 21 to 24 display results for multivariate models for all six dependent variable for each of the four follow-up periods (each of these models were also specified with just the treatment indicator, and with the treatment indicator and the vector of covariates—these results can be found in Appendix II). The same general pattern emerges in these tables that were found elsewhere in the report. Overall, AWC treatment is associated with a significantly higher cost to each of the six categories of potential beneficiaries, and the costs remain significant over time. However, if an indicator for the Opt-In Group is added to the model, it reveals that there are substantial—and significant—additional costs to society for referral to AWC, but there are also substantial—and significant—benefits to society from treatment. In particular, society saves about $13,000 per treated person in the first 24 months, compared to an additional cost to society of more than $17,000 per

[12] Because each of the cost domains are correlated with one another and since censored regression is employed in all models, the treatment coefficient on total cost to society is not simply the sum of the coefficients in each of the individual domain models.

person for referring, but not treating, individuals in AWC. The benefits decline over time, and there are no significant savings after 30 months.

	Table 21. Cost-Benefit Results - Weighted 24-month followup				
	Cost to police agencies	Cost to supervision agencies	Cost to prisons/jails	Cost to crime victims	Total cost to society
	(1)	(2)	(3)	(4)	(5)
Average treatment effect	1401.63**	3867.47***	7555.09***	11588.09**	16980.02***
	(616.97)	(882.10)	(1970.94)	(4965.49)	(4258.74)
Opt-In Group	-2797.82***	-72.51	-4840.71**	-23916.6***	-16618.10***
	(697.37)	(869.60)	(2003.40)	(5634.11)	(4418.07)
Age	-91.75***	28.62	-79.88	-587.70**	-351.52*
	(28.32)	(37.81)	(86.13)	(228.35)	(185.34)
Male	-475.05	657.81	-67.88	-2662.19	-153.15
	(540.73)	(750.11)	(1672.79)	(4376.69)	(3586.10)
Alaskan native	359.72	587.00	3353.98*	4520.76	7798.60**
	(559.50)	(793.51)	(1755.61)	(4530.81)	(3773.68)
American indian	-556.81	2533.50***	-565.03	443.84	4457.17
	(768.83)	-974.75	(2243.09)	(6163.24)	(4876.04)
Other race	2395.23***	-1277.08	8229.98***	23043.10***	21795.05***
	(825.28)	(1177.30)	(2559.89)	(6627.58)	(5599.79)
Number of prior arrests	91.88***	-30.38	406.12***	542.73**	493.71***
	(27.58)	(39.23)	(86.74)	(222.35)	(189.61)
Intercept	1983.88*	-3823.70**	-4674.80	7902.03	8505.22
	(1182.72)	(1665.47)	(3689.79)	(9562.52)	(7914.66)
Log-Likelihood	-1042.25	-1432.05	-1715.97	-1250.07	-2268.51
N	277	277	277	277	277

All models are specified using tobit regression, with values of the dependent variable left-censored at zero. The dependent variable is the cost to each set of stakeholders.
Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

	Table 22. Cost-Benefit Results -Weighted 30-month followup				
	Cost to police agencies	Cost to supervision agencies	Cost to prisons/jails	Cost to crime victims	Total cost to society
	(1)	(2)	(3)	(4)	(5)
Average treatment effect	1186.72*	4033.83***	7827.62***	9747.9**	17117.54***
	(643.81)	(1103.56)	(2349.84)	(4900.56)	(4736.77)
Opt-In Group	-2391.63***	-319.84	-6409.02***	-20171.10***	-18294.40
	(704.18)	(1103.34)	(2414.60)	(5382.76)	(4931.08)
Age	-109.61***	-16.21	-179.17*	-733.49***	-605.53***
	(29.51)	(47.71)	(103.20)	(223.27)	(206.27)
Male	-48.47	1144.97	389.42	881.60	3022.03
	(560.67)	(942.65)	(1981.10)	(4294.97)	(3991.10)
Alaskan native	552.71	932.07	5366.42	5546.10***	10570.18**
	(581.10)	(990.89)	(2072.98)	(4447.98)	(4183.57)
American indian	329.73	3432.22***	-1581.80	7116.42	6143.93
	(753.93)	(1232.40)	(2696.11)	(5736.05)	(5428.34)
Other race	2617.10***	-1432.51	10119.43***	23186.13***	24765.91***
	(851.43)	(1488.18)	(3082.83)	(6478.54)	(6220.89)
Number of prior arrests	87.47***	-39.87	514.14***	488.56**	590.81***
	(28.26)	(49.18)	(102.82)	(215.50)	(209.89)
Intercept	2495.75**	-2579.74	-1101.68	12832.32	17333.59**
	(1227.96)	(2087.10)	(4383.35)	(9388.85)	(8788.99)
Log-Likelihood	-1155.98	-1500.90	-1876.31	-1381.28	-2375.30
N	277	277	277	277	277

All models are specified using tobit regression, with values of the dependent variable left-censored at zero. The dependent variable is the cost to each set of stakeholders.
Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

	Table 23. Cost-Benefit Results -Weighted 36-month followup				
	Cost to police agencies	Cost to supervision agencies	Cost to prisons/jails	Cost to crime victims	Total cost to society
	(1)	(2)	(3)	(4)	(5)
Average treatment effect	925.33	3218.12***	8429.76***	7991.05	16758.18***
	(670.18)	(1178.92)	(2528.69)	(5075.86)	(5231.65)
Opt-In Group	-2169.65***	-441.15	-5873.98**	-18035.30***	-18069.00***
	(724.31)	(1202.82)	(2603.75)	(5497.69)	(5458.41)
Age	-138.08***	-62.08	-243.23**	-928.83***	-862.51***
	(30.46)	(51.19)	(111.02)	(231.15)	(227.80)
Male	-69.31	587.80	562.24**	1407.66	3131.70
	(578.39)	(991.57)	(2137.39)	(4408.14)	(4410.02)
Alaskan native	265.64	1848.24*	4698.51	4775.81	10231.28**
	(596.15)	(1043.10)	(2239.73)	(4528.79)	(4606.02)
American indian	-350.25	3362.23**	-2099.68	3117.62	3188.98
	(782.19)	(1330.64)	(2900.79)	(5912.91)	(5982.08)
Other race	2691.69***	-349.57	10719.51***	23733.64***	26151.51***
	(872.70)	(1577.08)	(3291.18)	(6607.06)	(6855.59)
Number of prior arrests	121.00***	30.39	568.04***	676.20***	879.43***
	(29.19)	(51.73)	(110.89)	(221.28)	(230.77)
Intercept	3911.50***	19.94	951.43	21720.35**	28101.27***
	(1268.82)	(2188.50)	(4699.04)	(9644.16)	(9686.37)
Log-Likelihood	-1273.01	-1674.26	-1928.26	-1522.42	-2478.45
N	277	277	277	277	277

All models are specified using tobit regression, with values of the dependent variable left-censored at zero. The dependent variable is the cost to each set of stakeholders.
Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

	Table 24. Cost-Benefit Results -Weighted 48-month followup				
	Cost to police agencies	Cost to supervision agencies	Cost to prisons/jails	Cost to crime victims	Total cost to society
	(1)	(2)	(3)	(4)	(5)
Average treatment effect	596.74	2530.30*	9477.41**	5845.17	16504.22**
	(731.38)	(1378.72)	(4648.77)	(5712.45)	(6896.67)
Opt-In Group	-1669.68**	493.72	-4369.02	-14494.90**	-14311.60**
	(782.31)	(1415.69)	(4804.68)	(6119.07)	(7186.99)
Age	-173.27***	-111.41*	-123.96	-1228.86***	-987.52***
	(32.99)	(60.13)	(203.03)	(258.17)	(299.91)
Male	185.10	1663.17	3336.01	2640.93	8458.11
	(622.26)	(1161.12)	(3909.54)	(4878.64)	(5791.49)
Alaskan native	586.31	2789.79**	10806.46***	7068.07	16311.81***
	(641.69)	(1218.37)	(4070.55)	(5022.51)	(6050.33)
American indian	-791.86	4016.59**	1671.01	-371.78	2833.46
	(855.84)	(1567.58)	(5246.20)	(6672.86)	(7867.81)
Other race	2803.89***	373.18	10847.25*	24165.71***	24644.06***
	(939.94)	(1827.49)	(6109.78)	(7346.93)	(9049.16)
Number of prior arrests	126.73***	22.03	1477.98***	737.58***	1778.27***
	(31.62)	(60.74)	(201.83)	(247.29)	(302.66)
Intercept	5389.63***	1515.62	-13873.40	34060.88***	26160.48**
	(1367.29)	(2564.22)	(8575.96)	(10704.40)	(12744.17)
Log-Likelihood	-1399.20	-1800.51	-2240.93	-1677.67	-2604.21
N	277	277	277	277	277

All models are specified using tobit regression, with values of the dependent variable left-censored at zero. The dependent variable is the cost to each set of stakeholders.
Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

Examining each panel individually suggests important variation in who benefits and who does not from AWC. The police receive significant benefits in each of the four periods from the Opt-In Group, ranging from $1,600 to $2,700 per treated participant. On the other hand, police have added costs at 24 months (though not in other time periods) from the group referred to AWC (averaging about $1,400). By comparison, supervision agencies have significantly higher costs from the referred group in every period (from ($2,500 to more than $4,000), but receive no benefits from the Opt-In Group. Courts and prisons/jails exhibit still another pattern. For both categories, there are significantly higher costs from the referred group and significant benefits from the Opt-In Group in almost every period.

The largest costs and benefits accrue to victims of crime. The Opt-In Group returns almost $24,000 per participant in benefits to crime victims after 24 months. This declines in every subsequent period, but retains a significant benefit of about $14,500 per treated participant at 48 months. On the other hand, referral to, but not participation in AWC is associated with more than $11,500 in additional costs to crime victims at 24 months. This cost attenuates as well, and by 36 months the cost is still large, but is not significant.

Net Benefits

Costs and benefits can be compared in order to estimate the net benefits (the benefits minus the costs) to society accruing from treatment. Table 25 presents per-participant net benefits of programming for both the entire treatment group and for the Opt-In Group only, for each of four follow-up periods.

Table 25. Net Benefits to Society

	24-month	30-month	36-month	40-month
Average treatment effect	$12,241***	$11,779***	$15,158***	$15,014***
Treatment on the treated	$9,539***	$7,979***	$2,284	$4,861

All models are specified using tobit regression, with values of the dependent variable left-censored at zero. The dependent variable is the cost to each set of stakeholders. Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

For the entire treatment group, per capita net benefits were $12,241 after 24 months and persisted for the entirety of the follow-up period, reaching $15,014 after 40 months. Multiplied across 136 individuals in the treatment group, AWC resulted in net costs to society in excess of $1.6 million. However, the magnitude and direction of net benefits for the treatment group is driven by the Opt-Out Group that enrolled in the AWC but did not formerly enroll, and therefore received very limited treatment. When individuals in the Opt-In Group were compared to individuals in the comparison group, per capita net benefits are positive and significant at 24- and 30-month follow-up, but attenuate thereafter. Multiplied across 91 Opt-Ins, those individuals in the treatment group receiving treatment returned over $700,000 to society in net benefits. Had all individuals referred to treatment opted to formally enroll, the expected net benefits would have risen to nearly $1.1 million.

OUTCOME ANALYSIS

In order to understand who is best served by a program such as AWC, we ran a series of analyses to investigate whether any sub-group within the Treatment Group had better outcomes. That is, we reran all of the models described above but only included those in the Treatment Group. We then included all available covariates to identify attributes that were significantly related to better outcomes. We were severely limited by available data, and only tested a few variables: age, gender, number of priors, and ethnicity. We report the results below, and report each attribute as a main effect controlling for the other attributes in turn.

In general, we found support for the predictors most commonly identified in the treatment literature as key predictors of outcomes: age and number of prior arrests. Age was a significant predictor of virtually every outcome across virtually every time period. Age was significantly association with a lower incidence of rearrest and reconviction, and a lower prevalence of rearrest and reconviction. That is, each additional year of each made individuals less likely to commit a new crime and to be convicted for that crime, and to commit fewer crimes and have fewer convictions. Each additional year of age is also associated with significant decreases in costs to most criminal justice agencies (although not to supervision agencies and courts). The only category where older age was associated with negative outcomes was that each additional year of age was associated with greater treatment costs.

Number of prior arrests is also a consistent predictor of most outcomes, although the effects are the opposite of the effects of age. That is, the greater the number of prior arrests, the worse the outcomes for an individual will be. More prior arrests were associated with higher incidence and prevalence of both rearrests and reconviction, and those effects persist across all four follow-up periods. More prior arrests were also associated with higher costs to criminal justice agencies for all categories but courts and supervision, and greater costs to society.

Gender is generally not associated with outcomes. In a few model specifications, males have higher costs to society, and there are a few significant findings of higher costs in some of the cost categories, but these appear in a single category for a single period, and do not suggest a generally pattern. A similar pattern emerges with respect to ethnicity, where there is no consistent pattern for any of the ethnicity categories. A complete set of regression results is available in Appendix III.

DISCUSSION

In general, we find that the AWC was effective in reducing recidivism and associated harms among the group that formally enrolled into the program. Among those who were referred to the program, but who did not enter the program, there was no effect, or even a negative effect. Thus, if the AWC is evaluated only on the effectiveness of serving those who were sufficiently motivated to enroll, the results are an unqualified success. If a more expansive lens is used, and the effectiveness of the program considers whether the program was effective in enrolling eligible arrestee's, than the effectiveness of the program is much more limited.

There are several notable implications of the data discussed here. First, the program is most effective in the initial period up to 24 months from arrest, which includes the time when individuals were enrolled in the program. Program effects attenuate, and there are few remaining significant effects by 48 months. In fact, the prevalence of rearrest is about the same among those who were treated and those who opt-out by 48 months.

That said, the cost-benefit results paint a different picture. Although these effects also attenuate, there are still substantial and significant benefits of the program in many areas at 48 months. This suggests that there may be a declining impact over time on the number of participants who commit crimes, but the effectiveness of the program in preventing former participants from committing as many crimes persists.

It is also worth noting that the impact and cost-benefit analyses diverge in important ways with respect to criminal prevalence. Measures of any recidivism suggest that the full Treatment Group was significantly less likely to recidivate as compared to those in the Comparison Group who had no exposure to the program. However, even though there were fewer in the full Treatment Group who were rearrested, the harms from their offending were as large—or larger—than the Comparison Groups. Thus, while there were fewer Treatment Group members committing new crimes, those who did committed crimes that were more serious than average.

Overall, the evaluation demonstrates the importance of looking at the data from multiple angles. If the cost-benefit analysis is viewed in isolation, the effectiveness of the program is quite mixed. If the impact analysis is viewed in isolation, the program is generally an across-the board success. If the Treatment Group is looked at in isolation, it appears that the programs effectiveness persists over the entire four year period. However, if the Opt-In Group is examined separately from the drop-outs, it becomes clear that this average finding of persistence is a mirage—the Opt-In Group members regress to the mean over time, as their positive outcomes decrease is size and significance. Alternatively, the opt-outs also regress to the mean, and their bad outcomes become less bad over time.

A few important caveats to these findings should be noted. First, it's not totally clear what to make of these results. If including those who opt-out sets too high a bar, we should discount some of the negative findings in that segment of the evaluation. If, however, we focus only on those more motivated people who actually enroll in the program who are included in the Opt-In Group, then perhaps we are setting too low a bar, for surely those individuals are more likely to do better no matter what based on attributes that are not observable.

The data for this evaluation were incomplete in important ways. No program data were available describing how much service individuals received, and thus we were forced to estimate the costs of the program. We believe we have done so in ways that would lead to an underestimate of the costs of the program (if, for instance, people actually received services close to the required amount). Unfortunately, there is no way to know if we have been successful. It is clearer that if we have erred in our benefits estimation, we have done so in ways that would tend to underestimate the effects of the program. If other important benefits of the program, such as morbidity and mortality, are highly correlated with the criminal outcomes we have observed, than it is likely that the true benefits of the program are greater. However, the substantial variation in benefits depending on who is included in the Treatment Group suggests that there may well be important within group variation is other measures as well.

Finally, the time period observed for the two groups varied in a small, but perhaps important way. We began counting rearrests for the Treatment Group at the time they were referred to AWC. We did not count any new arrests that occurred before then, because the program could not have affected those events so they were outside our scope. In fact, anecdotal evidence suggests that a new arrest while there was a pending charge may in fact have motivated individuals to enroll into the AWC. However, we did begin counting new arrests for the comparison at the time they were arrested. Thus, some arrests were counted for the comparison that were not counted for the treatment. The number appears to be very small, about a dozen, but is worth noting nonetheless.

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APPENDIX I—UNWEIGHTED RESULTS

Table A1.1 Unweighted bivariate outcome analyses of treatment groups versus comparison groups - 24 month follow-up

	Treatment	Opt-In Group	Treatment Successes	Treatment Failures	Opt-Out Group	Comparison	Entire Sample
Any re-arrest (%)	0.46	0.35	0.09***	0.60	0.67**	0.46	0.46
	(0.50)	(0.48)	(0.29)	(0.50)	(0.48)	(0.50)	(0.50)
Any re-conviction (%)	0.34	0.24*	0.07***	0.40	0.53**	0.35	0.34
	(0.47)	(0.43)	(0.26)	(0.50)	(0.50)	(0.48)	(0.48)
Number of rearrests	1.24*	1	0.14***	1.81**	1.71***	0.82	1.02
	(2.21)	(2.33)	(0.46)	(3.00)	(1.89)	(1.17)	(1.77)
Number of reconvictions	0.63	0.45	0.07***	0.81	1**	0.51	0.57
	(1.26)	(1.22)	(0.26)	(1.61)	(1.28)	(0.88)	(1.08)
Cost to police agencies	1224.9*	836.84	66.64***	1557.9*	2009.6***	841.88	1029.93
	(2191.1)	(2045.2)	(213.16)	(2653.9)	(2287.7)	(1586.5)	(1913.62)
Cost to supervsison agencies	2864.6***	2953***	1574	4244***	2685.9***	819.47	1823.59
	(3917)	(4266.9)	(3079.1)	(4820.5)	(3128.1)	(1729)	(3173.35)
Cost to jails/prisons	5568.8***	4426.6*	185***	8397.4***	7878.4***	2347.4	3929.03
	(10333)	(9363.8)	(371.91)	(11752)	(11837)	(8442.3)	(9538.60)
Cost to crime victims	7579.5	4661.4	433.99	8618.9	13481**	6298	6927.20
	(14770)	(11051)	(1806.9)	(14241)	(19139)	(20378)	(17825.95)
Cost to society	21953***	17867**	7863.6	27232***	30216***	11642	16704.58
	(23748)	(19888)	(3956.6)	(23956)	(28582)	(27742)	(26322.76)
N	136	91	44	47	45	141	277

Significance testing is based on independent sample t-tests comparing each treatment group to the comparison group.
Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

Table A1.2. Bivariate outcome analyses of treatment groups versus comparison groups - Unweighted 30 month follow-up

	Treatment	Opt-In Group	Treatment Successes	Treatment Failures	Opt-Out Group	Comparison	Entire Sample
Any re-arrest (%)	0.49	0.40*	0.16	0.62	0.67*	0.51	0.50
	(0.50)	(0.49)	(0.37)	(0.49)	(0.48)	(0.50)	(0.50)
Any re-conviction (%)	0.38	0.29	0.11	0.45	0.56**	0.38	0.38
	(0.49)	(0.45)	(0.32)	(0.50)	(0.50)	(0.49)	(0.49)
Number of rearrests	1.45**	1.23	0.25	2.15***	1.91***	0.94	1.19
	(2.52)	(2.65)	(0.65)	(3.39)	(2.20)	(1.26)	(2.00)
Number of reconvictions	0.74	0.54	0.11	0.94*	1.16***	0.58	0.66
	(1.41)	(1.32)	(0.32)	(1.72)	(1.51)	(0.93)	(1.19)
Cost to police agencies	1465.80*	1093.90	189.79	1940.30***	2217.90***	987.25	1222.21
	(2557.10)	(2442.20)	(530.94)	(3145.10)	(2645.30)	(1714.90)	(2178.86)
Cost to supervision agencies	3266.40***	3343.20***	1582.50	4991.50***	3111.00***	1216.30	2222.83
	(4607.30)	(5102.30)	(3075.20)	(6029.50)	(3440.90)	(4607.30)	(4110.22)
Cost to jails/prisons	6826.50***	5295.70*	367.50	9909.40***	9922.00***	2967.70	4862.24
	(12297.00)	(11097.00)	(1066.20)	(13960.00)	(14052.00)	(9554.40)	(11135.88)
Cost to crime victims	9089.00	6374.30	7179.90	11370.00	14579.00**	7179.90	8117.19
	(17094.00)	(14192.00)	(20608.00)	(18137.00)	(20942.00)	(20608)	(18954.40)
Cost to society	25136.00***	21894.00**	10033.00	32998.00***	31693.00***	13687.00	19308.12
	(28081.00)	(25410.00)	(4861.80)	(31315.00)	(32141.00)	(29078.00)	(29111.41)
N	91	136	44	47	45	141	

Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

Table A1.3. Bivariate outcome analyses of treatment groups versus comparison groups - Unweighted 36 month follow-up

	Treatment	Opt-In Group	Treatment Successes	Treatment Failures	Opt-Out Group	Comparison	Entire Sample
Any re-arrest (%)	0.52	0.45	0.23***	0.66	0.53	0.53	0.53
	(0.50)	(0.50)	(0.42)	(0.48)	(0.50)	(0.50)	(0.50)
Any re-conviction (%)	0.41	0.33	0.16***	0.49	0.58**	0.40	0.41
	(0.49)	(0.47)	(0.37)	(0.51)	(0.50)	(0.49)	(0.49)
Number of rearrests	1.74**	1.44	0.34***	2.47***	2.36***	1.12	1.43
	(2.85)	(2.84)	(0.71)	(3.62)	(2.80)	(1.60)	(2.32)
Number of reconvictions	0.85	0.59	0.16***	1.00	1.36***	0.67	0.76
	(1.53)	(1.33)	(0.37)	(1.73)	(1.79)	(1.09)	(1.33)
Cost to police agencies	1796.30*	1362.60	376.01***	2286.20**	2673.40***	1209.50	1497.59
	(3114.60)	(2880.80)	(951.69)	(3686.20)	(3407.70)	(2023.50)	(2628.35)
Cost to supervision agencies	3642.60***	3630.70***	1744.70	5396.40***	3666.80***	1611.00	2608.50
	(4924.80)	(5336.90)	(3118.70)	(6328.30)	(4019.30)	(3824.10)	(4507.39)
Cost to jails/prisons	9056.40***	7997.40	750	14782.00***	11198.00***	3300.00	6126.25
	(15711.00)	(15284.00)	(3237.10)	(18708.00)	(16509.00)	(11235.00)	(13895.36)
Cost to crime victims	11173.00	8171.60	2497.00*	13484.00	17242.00**	8465.30	9794.67
	(21172.00)	(17992.00)	(7770.20)	(22743.00)	(25631.00)	(22857.00)	(22047.80)
Cost to society	30157.00***	26949.00***	12223.00	40735.00***	36644.00***	15921.00	22910.66
	(35538.00)	(33485.00)	(10082.00)	(41195.00)	(38950.00)	(34081.00)	(35464.33)
N	91	136	44	47	45	141	

Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

Table A1.4. Bivariate outcome analyses of treatment groups versus comparison groups - Unweighted 48 month follow-up

	Treatment	Opt-In Group	Treatment Successes	Treatment Failures	Opt-Out Group	Comparison	Entire Sample
Any re-arrest (%)	0.57	0.52	0.34***	0.68	0.67	0.60	0.58
	(0.50)	(0.50)	(0.48)	(0.47)	(0.48)	(0.49)	(0.49)
Any re-conviction (%)	0.46	0.40	0.30*	0.49	0.58	0.46	0.46
	(0.50)	(0.49)	(0.46)	(0.51)	(0.73)	(0.50)	(0.50)
Number of rearrests	2.09**	1.79	0.70	2.81***	2.69***	1.40	1.74
	(3.21)	(3.14)	(1.17)	(3.98)	(3.31)	(1.74)	(2.59)
Number of reconvictions	1.02	0.77	0.39**	1.13	1.53***	0.85	0.94
	(1.73)	(1.48)	(0.69)	(1.88)	(2.08)	(1.21)	(1.49)
Cost to police agencies	2267.70*	1780.80	825.20*	2675.50**	3252.20***	1530.30	1892.34
	(3834.20)	(3417.70)	(1659.50)	(4311.40)	(4442.00)	(2302.70)	(3164.90)
Cost to supervision agencies	4556.00***	4788.40***	2451.40	6976.30***	4086.10**	2182.30	3347.74
	(6417.20)	(7200.30)	(3891.60)	(8784.30)	(4468.10)	(4432.90)	(5614.59)
Cost to jails/prisons	12251.00	11299.00**	2237.50	19781.00***	14178.00**	5808.90	8971.95
	(21491.00)	(20807.00)	(8729.50)	(24975.00)	(22933.00)	(18716.00)	(20347.49)
Cost to crime victims	14427.00	10920.00	5354.10	16131.00	21518.00**	10642.00	12500.51
	(27619.00)	(23416.00)	(13240.00)	(29180.00)	(33795.00)	(24499.00)	(26098.99)
Cost to society	37990.00***	34575.00**	17723.00	50351.00***	44897.00***	21500.00	29596.20
	(46908.00)	(42702.00)	(18764.00)	(52083.00)	(54299.00)	(39276.00)	(43897.04)
N	91	136	44	47	45	141	

Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

APPENDIX II—UNWEIGHTED COST-BENEFIT RESULTS

Table A2.1. Costs of Program Inputs - Unweighted

	Cost of Judicial Oversight			Cost of Treatment			Total Cost of Wellness Court		
	(1)	(2)	(3)	(4)	(5)	(6)	(4)	(5)	(6)
Average treatment effect	1905.34***	1960.17***	798.42***	1917.21***	1949.14***	510.88	2930.30***	3172.84***	877.45**
	(170.98)	(173.98)	(187.01)	(236.68)	(249.76)	(315.13)	(308.66)	(314.81)	(353.82)
Opt-In Group			1667.02***			2095.60***			3528.17***
			(185.74)			(323.57)			(364.77)
Age		15.91*	-1.69		19.61	6.45		32.67*	-2.14
		(9.21)	(7.85)		(13.81)	(12.84)		(17.30)	(15.09)
Male		-338.96*	-172.24		-378.24	-331.28		-1130.38***	-803.77***
		(191.36)	(159.01)		(270.74)	(248.47)		(350.45)	(298.34)
Alaskan native		221.78	219.50		45.80	-37.80		-406.02	-374.71
		(202.47)	(168.90)		(290.10)	(266.51)		(369.98)	(312.94)
American indian		44.23	59.86		175.27	206.53		-717.26	-675.60*
		(256.89)	(210.99)		(432.38)	(361.80)		(481.34)	(407.42)
Other race		24.93	-79.78		230.30	39.32		-16.82	-248.07
		(289.88)	(238.14)		(394.68)	(397.46)		(545.44)	(462.24)
Number of prior arrests		4.56	-1.63		-2.94	-1.62		31.38	18.24
		(10.88)	(9.10)		(8.56)	(7.86)		(19.08)	(16.25)
Intercept	-611.86***	-1103.26***	-351.53	930.27***	397.66	936.96*	1117.48***	514.24	1825.92***
	(134.90)	(405.21)	(341.16)	(169.86)	(604.68)	(560.35)	(227.12)	(750.70)	(648.95)
Log-Likelihood	-1560.03	-1556.38	-1522.96	-2163.67	-2161.45	-2142.22	-2232.03	-2224.46	-2184.97
N	277	277	277	277	277	277	277	277	277

All models are specified using ordinary least squares regression. The dependent variable is the cost of wellness court.
Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

Table A2.2. Cost Benefit Outcomes - Unweighted 24-month followup

	Cost to police agencies			Cost to supervision agencies			Cost to prisons/jails			Cost to crime victims			Total cost to society		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Average treatment effect	603.38	-0.90	1360.93**	3688.18***	3942.97***	4047.33***	6413.13***	4479.62***	7358.87***	2633.84	-139.93	11922.56*	10314.87***	7982.08**	18059.28***
	(506.51)	(505.15)	(650.87)	(626.22)	(661.25)	(886.82)	(1726.32)	(1723.91)	(2314.00)	(4536.12)	(4701.93)	(6069.07)	(3957.71)	(4040.40)	(5449.50)
Opt-In Group			-2175.09***			-156.51			-4405.41*			-19853.2***			-15356.40***
			(693.55)			(884.22)			(2363.58)			(6485.81)			(5643.24)
Age		-125.94***	-109.40***		32.25	33.34		-220.88**	-191.30**		-897.37***	-747.24***		-645.60***	-544.94**
		(29.05)	(28.73)		(36.42)	(36.96)		(96.45)	(97.08)		(269.39)	(267.61)		(226.31)	(226.42)
Male		33.89	2.69		941.99	938.71		2001.83	1914.79		1396.46	1117.79		5209.99	5014.57
		(546.93)	(537.43)		(707.79)	(708.31)		(1859.03)	(1847.75)		(5092.45)	(5023.73)		(4373.17)	(4319.96)
Alaskan native		128.28	218.34		191.89	198.78		1631.01	1789.86		2200.43	3017.46		4364.29	4976.26
		(577.20)	(567.80)		(752.58)	(753.87)		(1981.18)	(1970.41)		(5384.90)	(5319.18)		(4662.34)	(4611.86)
American indian		-209.75	-203.23		852.02	853.98		1515.25	1532.43		5694.77	5806.02		8070.82	8293.42
		(792.71)	(778.86)		(1032.22)	(1032.73)		(2737.75)	(2722.62)		(7282.10)	(7177.83)		(6331.41)	(6252.66)
Other race		1606.92*	1669.53**		-1152.25	-1142.52		3925.55	4175.87		15744.15**	16313.23**		11970.35*	12904.24*
		(857.44)	(845.87)		(1158.28)	(1160.00)		(2998.91)	(2982.32)		(7970.09)	(7896.04)		(7080.13)	(6997.09)
Number of prior arrests		53.00***	50.45***		-16.81	-16.92		177.03***	173.47***		307.46**	283.67*		238.88*	226.29*
		(16.39)	(16.06)		(21.46)	(21.47)		(56.97)	(56.62)		(151.96)	(149.52)		(137.95)	(136.32)
Intercept	-1179.09***	3359.55***	2783.96**	-1822.17***	-3746.51**	-3789.77**	-3640.71***	1998.06	920.37	-12072.30**	17523.68	12222.57	2765.52	19918.99**	16089.40
	(603.38)	(1235.06)	(1225.53)	(492.01)	(1628.24)	(1647.68)	(1302.59)	(4217.30)	(4235.20)	(3530.25)	(11492.87)	(11456.03)	(2844.70)	(9863.47)	(9848.71)
Log-Likelihood	-1203.43	-1189.81	-1184.84	-1551.45	-1549.60	-1549.58	-1881.77	-1872.38	-1870.65	-1448.23	-1440.28	-1435.54	-2481.29	-2473.00	-2469.33
N	277	277	277	277	277	277	277	277	277	277	277	277	277	277	277

All models are specified using tobit regression, with values of the dependent variable left-censored at zero. The dependent variable is the cost to each set of stakeholders.
Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

Table A2.3. Cost Benefit Outcomes - Unweighted 30-month followup

	Cost to police agencies			Cost to supervision agencies			Cost to prisons/jails			Cost to crime victims			Total cost to society		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Average treatment e	680.81	42.25	1203.02*	3827.80***	4007.78***	4090.73***	6865.40***	4210.48**	7850.89***	3091.24	31.62	10012.31*	11259.25***	7656.40*	17211.88***
	(527.94)	(518.49)	(680.88)	(794.05)	(836.97)	(1129.23)	(1915.02)	(1891.50)	(2539.40)	(4468.17)	(4557.81)	(5986.89)	(4272.57)	(4282.73)	(5804.65)
Opt-In Group			-1820.97**			-124.65			-5577.78**			-15726.40**			-14518.20**
			(718.14)			(1137.91)			(2611.47)			(6329.49)			(6021.25)
Age		-137.20***	-123.43***		-0.31	0.55		-295.53***	-258.48**		-967.30***	-848.96***		-858.40***	-763.87***
		(29.78)	(29.71)		(46.52)	(47.20)		(106.60)	(107.03)		(260.87)	(260.91)		(239.94)	(240.64)
Male		336.84	312.58		1431.26	1428.78		2425.53	2332.40		4050.84	3850.32		7970.91*	7795.20*
		(563.37)	(557.04)		(902.91)	(903.42)		(2044.81)	(2027.99)		(4955.20)	(4910.13)		(4643.57)	(4599.22)
Alaskan native		403.49	490.11		448.76	454.27		2758.35	2942.86		4277.75	5032.80		6565.81	7160.10
		(595.09)	(589.38)		(953.91)	(955.47)		(2172.60)	(2156.24)		(5239.61)	(5201.11)		(4945.45)	(4904.69)
American indian		431.74	451.59		529.86	531.23		636.09	658.63		10717.07	10918.23		9199.51	9416.17
		(795.19)	(785.61)		(1325.60)	(1326.03)		(3036.30)	(3013.26)		(6926.86)	(6856.23)		(6723.78)	(6657.90)
Other race		1833.85**	1898.80**		-1645.55	-1637.89		4262.42	4580.04		16078.28**	16633.83**		13015.83*	13931.75*
		(882.15)	(874.82)		(1485.68)	(1487.66)		(3325.30)	(3299.41)		(7750.31)	(7704.16)		(7502.13)	(7433.17)
Number of prior arrests		61.07***	58.94***		-17.58	-17.66		223.29***	219.59***		340.86**	322.09**		349.02**	338.24**
		(16.94)	(16.72)		(27.52)	(27.53)		(62.89)	(62.34)		(148.46)	(146.91)		(146.32)	(144.90)
Intercept	-928.55**	3604.54***	3107.80**	-1855.14***	-2807.55	-2841.58	-2876.16**	5008.37	3647.31	-9265.74***	19707.05*	15395.80	5490.41*	27660.95***	24026.50**
	(404.22)	(1265.33)	(1264.88)	(612.92)	(2069.46)	(2093.55)	(1422.61)	(4641.41)	(4650.18)	(3400.60)	(11118.45)	(11142.70)	(3051.65)	(10439.88)	(10449.08)
Log-Likelihood	-1315.59	-1298.46	-1295.24	-1647.30	-1645.50	-1645.49	-2008.14	-1995.34	-1993.07	-1578.80	-1566.83	-1563.73	-2600.26	-2587.01	-2584.12
N	277	277	277	277	277	277	277	277	277	277	277	277	277	277	277

All models are specified using tobit regression, with values of the dependent variable left-censored at zero. The dependent variable is the cost to each set of stakeholders.
Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

Table A2.4. Cost Benefit Outcomes - Unweighted 36-month followup

	Cost to police agencies			Cost to supervision agencies			Cost to prisons/jails			Cost to crime victims			Total cost to society		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Average treatment e	774.16	-4.31	1153.33	3501.63***	3498.92***	3717.84***	9130.02***	5877.98***	8059.21***	3803.2	-104.36	9152.30	13468.87***	8736.48*	17477.67**
	(586.74)	(570.04)	(756.32)	(814.24)	(854.36)	(1161.36)	(2280.34)	(2242.77)	(3042.21)	(4818.32)	(4863.06)	(6464.20)	(5034.99)	(5001.79)	(6822.65)
Opt-In Group			-1790.04**			-330.23			-3319.04			-14355.10**			-13250.90*
			(792.99)			(1184.76)			(3128.07)			(6786.10)			(7086.93)
Age		-164.14***	-150.94***		-22.28	-20.06		-420.08***	-398.15***		-1155.68***	-1050.72***		-1188.20***	-1102.02***
		(557.68)	(32.69)		(47.82)	(48.49)		(126.12)	(127.54)		(278.16)	(279.00)		(280.59)	(282.65)
Male		557.68	541.00		1244.17	1238.20		2500.47	2445.10		6012.61	5892.15		9516.20*	9353.92*
		(621.50)	(615.31)		(924.36)	(924.91)		(2427.01)	(2424.16)		(5308.51)	(5269.92)		(5432.90)	(5404.90)
Alaskan native		703.27	783.90		1058.20	1071.63		1436.23	1546.29		7271.95	7929.93		7888.00	8419.77
		(653.99)	(648.44)		(979.18)	(980.66)		(2584.22)	(2582.66)		(5585.55)	(5553.60)		(5781.80)	(5758.46)
American indian		577.09	595.99		798.62	801.56		906.75	915.58		11995.34	12168.88*		11378.32	11564.63
		(876.85)	(867.63)		(1361.97)	(1362.53)		(3567.02)	(3563.35)		(7429.47)	(7370.13)		(7822.90)	(7780.70)
Other race		2092.35**	2156.77**		-1089.81	-1068.47		4646.61	4837.68		18030.18**	18551.50**		14468.65*	15275.51*
		(967.18)	(959.53)		(1512.00)	(1514.27)		(3891.16)	(3889.03)		(8243.16)	(8200.23)		(8715.82)	(8676.33)
Number of prior arrests		71.46***	69.43***		-8.24	-8.45		321.95***	319.93***		384.15**	367.85**		500.61***	491.38***
		(18.73)	(18.52)		(28.55)	(28.56)		(74.83)	(74.72)		(159.31)	(157.98)		(171.07)	(170.15)
Intercept	-717.78	4543.18***	4058.58***	-1057.83*	-1276.85	-1361.31	-3112.36*	9195.49*	8372.01	-7635.17**	26039.91**	22137.55*	7839.49**	39930.80***	36599.92***
	(440.06)	(1395.27)	(1396.49)	(612.84)	(2102.85)	(2126.87)	(1680.23)	(5463.96)	(5512.04)	(3598.51)	(11903.29)	(11949.76)	(3575.08)	(12178.39)	(12241.73)
Log-Likelihood	-1436.02	-1415.20	-1412.66	-1783.12	-1781.21	-1781.18	-2125.89	-2110.46	-2109.90	-1718.99	-1703.85	-1701.62	-2716.25	-2699.09	-2697.35
N	277	277	277	277	277	277	277	277	277	277	277	277	277	277	277

All models are specified using tobit regression, with values of the dependent variable left-censored at zero. The dependent variable is the cost to each set of stakeholders.
Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

Table A2.5. Cost Benefit Outcomes - Unweighted 48-month followup

	Cost to police agencies			Cost to supervision agencies			Cost to prisons/jails			Cost to crime victims			Total cost to society		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Average treatment e	871.42	-18.40	1025.63	3864.97***	3611.02***	3128.02**	9762.24***	5949.77**	7314.94*	4487.53	-76.32	8283.75	15474.40***	9651.18*	17158.72**
	(645.29)	(621.14)	(834.96)	(960.11)	(1003.13)	(1370.44)	(3100.04)	(3026.86)	(4140.12)	(5241.73)	(5244.43)	(7055.33)	(6007.88)	(5856.45)	(8032.75)
Opt-In Group			-1594.48*			724.31			-2065.11			-12796.00*			-11335.90
			(872.28)			(1404.41)			(4273.30)			(7378.84)			(8339.16)
Age		-197.99***	-186.14***		-54.45	-59.26		-542.08***	-528.32***		-1415.86***	-1321.16***		-1561.42***	-1488.08***
		(35.56)	(35.73)		(56.52)	(57.21)		(170.68)	(172.95)		(299.65)	(301.57)		(329.14)	(332.42)
Male		841.49	821.38		1945.05*	1959.54*		6602.91**	6571.04**		7926.63	7770.69		16250.58**	16087.48**
		(677.31)	(672.28)		(1093.33)	(1092.16)		(3276.08)	(3275.95)		(5722.08)	(5687.62)		(6355.04)	(6337.54)
Alaskan native		1185.26*	1261.64*		1668.50	1637.44		5573.82	5652.12		11183.98*	11811.74**		13846.60**	14316.85**
		(711.92)	(707.94)		(1154.43)	(1154.39)		(3490.15)	(3493.20)		(6015.83)	(5991.38)		(6771.63)	(6761.09)
American indian		469.07	487.34		261.99	257.52		8868.19*	8889.06*		11208.69	11367.04		17554.58*	17709.35*
		(965.36)	(958.22)		(1620.23)	(1617.66)		(4712.06)	(4711.28)		(8107.57)	(8058.43)		(9141.13)	(9115.01)
Other race		2207.84**	2271.33**		-187.44	-233.97		2463.65	2581.18		18266.68**	18776.96**		11144.60	11833.77
		(1054.36)	(1048.44)		(1751.37)	(1751.41)		(5335.81)	(5339.89)		(8899.85)	(8862.94)		(10248.62)	(10229.09)
Number of prior arrests		75.86***	74.07***		2.74	3.15		427.38***	426.12***		387.71	373.37**		604.87***	597.35***
		(20.52)	(20.36)		(33.72)	(33.70)		(101.79)	(101.78)		(172.81)	(171.69)		(2105.28)	(199.84)
Intercept	-299.19	5939.55***	5501.12***	-568.35	-217.39	-28.09	-820.60	10552.42	10025.78	-4507.46	37092.61***	33565.63***	13832.96***	53001.55***	50167.87***
	(473.80)	(1515.94)	(1522.19)	(711.37)	(2479.43)	(2501.87)	(2240.79)	(7359.38)	(7437.94)	(3838.07)	(12797.19)	(12871.39)	(4247.87)	(14272.41)	(14380.91)
Log-Likelihood	-1586.36	-1561.82	-1560.16	-1922.11	-1918.86	-1918.73	-2394.62	-2374.06	-2373.95	-1897.67	-1879.62	-1878.13	-2872.46	-2849.56	-2848.64
N	277	277	277	277	277	277	277	277	277	277	277	277	277	277	277

All models are specified using tobit regression, with values of the dependent variable left-censored at zero. The dependent variable is the cost to each set of stakeholders.
Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

APPENDIX III—OUTCOME ANALYSIS

Table A3.1. Impact on Re-Arrest Outcomes - Unweighted

	24-month followup		30-month followup		36-month followup		48-month followup	
	arrest	Number of re-arrests	Any Re-arrest	Number of re-arrests	Any Re-arrest	Number of re-arrests	Any Re-arrest	Number of re-arrests
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Age	0.93***	-0.09***	0.93***	-0.08***	0.92***	-0.08***	0.76***	-0.07***
	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)
Male	0.71	-0.03	0.70	0.13	0.84	0.13	0.76	0.19
	(0.43)	(0.29)	(0.43)	(0.29)	(0.44)	(0.29)	(0.44)	(0.27)
Alaskan native	0.80	-0.20	0.95	-0.10	0.97	-0.08	1.24	0.04
	(0.42)	(0.27)	(0.42)	(0.0.28)	(0.43)	(0.27)	(0.44)	(0.26)
American indian	1.34	-0.30	2.38	-0.11	2.04	-0.31	1.81	-0.44
	(0.81)	(0.58)	(0.83)	(0.56)	(0.83)	(0.56)	(0.83)	(0.55)
Other race	1.15	0.32	1.61	0.48	1.95	0.38	2.65	0.36
	(0.67)	(0.49)	(0.66)	(0.46)	(0.66)	(0.45)	(0.68)	(0.43)
Number of prior arrests	1.05***	0.03***	1.05***	0.03	1.06***	0.03***	1.81***	0.03***
	(0.02)	(0.01)	(0.0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)
Intercept		3.02***		2.66***		2.75***		2.73***
		(0.59)		(0.58)		(0.58)		(0.55)
Log-Likelihood	-84.25	-52.03	-84.59	-28.67	-82.58	7.69	-79.93	55.38
N	136	136	136	136	136	136	136	136

Models for which the dependent variable is 'any re-arrest' are specified using logistic regression models. Odds ratios are reported. Models for which the dependent variable is 'number of re-arrests' are specified using a negative binomial specification.

Table A3.2. Impact on Re-Conviction Outcomes - Unweighted

	24-month followup		30-month followup		36-month followup		48-month followup	
	Any Re-conviction	Number of re-convictions	Any Re-conviction	Number of re-convictions	Any Re-conviction	Number of re-convictions	Any Re-conviction	Number of re-convictions
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Age	0.93***	-0.09***	0.93***	-0.08***	0.93***	-0.09***	0.94***	-0.08***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Male	1.07	0.15	1.09	0.32	1.09	0.49	1.30	0.48
	(0.46)	(0.34)	(0.45)	(0.32)	(0.45)	(0.31)	(0.43)	(0.90)
Alaskan native	1.05	0.04	1.05	0.12	1.05	0.08	1.25	0.25
	(0.44)	(0.32)	(0.44)	(0.30)	(0.44)	(0.28)	(0.43)	(0.27)
American indian	1.45	0.11	2.15	0.25	2.15	0.13	1.55	-0.03
	(0.37)	(0.63)	(0.80)	(0.57)	(0.80)	(0.56)	(0.79)	(0.56)
Other race	1.42	0.20	1.20	-0.02	1.20	0.14	1.70	0.08
	(0.35)	(0.59)	(0.69)	(0.57)	(0.69)	(0.50)	(0.65)	(0.48)
Number of prior arr	1.04**	0.03***	1.05**	0.03***	1.05***	0.03***	1.05***	0.02***
	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
Intercept		2.04***		1.92***		1.99***		1.89***
		(0.67)		(0.62)		(0.59)		(0.57)
Log-Likelihood	-77.87	-85.82	-80.00	-85.61	-80	-83.11	-83.30	-78.79
N	136	136	136	136	136	136	136	136

Models for which the dependent variable is 'any re-conviction' are specified using logistic regression models. Odds ratios are reported. Models for which the dependent variable is 'number of re-convictions' are specified using a negative binomial speci