Researchers are often intrigued by the reasons that result in a prison inmate's returning to custody after release to the community on parole supervision or discharge. While there are a variety of factors related to human behavior that are difficult to understand and control, corrections administrators are actively engaging and responding to policy reforms and practices intended to improve the lives of individuals with criminogenic tendencies.

Billions of dollars have been spent by states to build highly costly institutions and correctional camps intended to discipline and keep away individuals that commit unlawful acts, and the return on the investment is often measured by a system's ability to rehabilitate offenders and reducing their chances to return to custody.

In Nevada, from Fiscal Year 2012 to Fiscal Year 2021, actual annual inmate costs increased 82.81%. More specifically, the cost of incarcerating individuals in minimum security facilities increased 129.92% and for higher levels of security 83.59%. Larger prison populations require additional physical capacity and various resources are necessary to operate the system.

The Justice Reinvestment Initiative, a public-private partnership between the Bureau of Justice Assistance and Pew Charitable Trust, provides a data-driven approach to support states to improve outcomes in their criminal justice system by instituting sustainable and cost-effective practices that reduce recidivism and strategically improve and measure return on investment. Amid a nationwide movement towards holding individuals accountable for their actions, Nevada's law makers have undertaken several policy reforms to lower costs, reduce prison crowding, and improve life skills that will enable offenders to be successful. These policies include: reduction of the severity of select offenses from felony to misdemeanor, decriminalization or probation for non-violent acts, improvement of parole grant rates, shorter lengths of stay, increased availability of evidence-based rehabilitative programs, graduated sanctions for parolees that violate the terms of parole plans while on community supervision, and coordination with community service providers.

Controlling recidivism is one of various measures utilized to reduce the prison population and the entire length of stay for the offender, and the Nevada Department of Corrections is committed to improving and closely tracking this core measure. It is assumed, however, he ability to discern the

effect of prison reforms from changes in court case activity due the COVID-19 Pandemic has been obscured.

This report provides an analysis of the 2018 release cohort that provides empirical evidence of select characteristics of incarcerated persons that increase or decrease the probability of success post-incarceration and that confirm that specific criminogenic tendencies place them at more risk of failure to survive outside.

Newer Trends

During 2018, a total of 5,638 offenders sentenced under the laws of Nevada were released from correctional facilities in the State on parole, mandatory parole, or discharge that were matched against prison admissions following thirty-six months of their release date. Of these 5,638, 14.83% were females and 85.17% males; offenders were released on mandatory parole comprised 18.52%, on parole 48.97%, and discharge 32.51%; and in all, 26.46% returned to custody.

Release Cohort Basics

From 2018 to 2021, Nevada's prison population declined 17.04%, admissions 10.55%, and releases 6.50%, the proportion of offenders released during Calendar Year 2018 on parole and mandatory parole that returned increased 9.7% and decreased 5.2% for discharged offenders relative to the cohort released during Calendar Year 2017.

Release Statuses. The trend changes in the proportion of offenders that discharged their sentences and returned to prison is confirmed by the decline of 24.88% of offenders that

returned on new commitments. However, the proportion of mandatory parole violators and parole violators increased 28.83% and 20.54%, respectively, when compared to the most recent cohort.

2018 Releases by Release Status		
Release Status	Count	Percent (%)
Discharged	1,833	32.51
Mandatory Parole	1,044	18.52
Parole	2,761	48.97
Total	5,638	100.00

Release and Recidivism Statuses (%)			
Release Status	No	Yes	Total
Discharged	80.52	19.48	100.00
Mandatory Parole	78.74	21.26	100.00
Parole	66.93	33.07	100.00
Total	73.54	26.46	100.00

Assembly Bill 236 passed by the 2019 Nevada Legislature provides several stipulations of prison reform, one of them which is likely to deviate historical statistics on parole releases and parole violations. Beginning with Fiscal Year 2020, the Parole Board instituted a system of Graduated Sanctions for technical or other minor violations of the terms of community supervision.   The system allows offenders with parole violations to return to NDOC's custody in increments of 30 days, for up to 90 days. The number of parole offenders that were granted temporary sanctions through December 2021 was too insignificant to arrive at conclusions regarding its outcome and these observations weren't included to derive predictions. The expectation is that the length of stay will be reduced, and that sanctions will be less stringent for offenders on supervision versus those that are not.   NDOC's methodology, however, accounts only for the first release during the cohort year, and only the first re-admission within thirty-six months. Additional releases in future years and readmissions associated with incremental parole violator

returns could potentially augment the recidivism rate, and studies of future cohorts will carefully analyze their effect.

Percent Offenders that Returned

26.5%

73.5%

■ didn't return   ■ returned
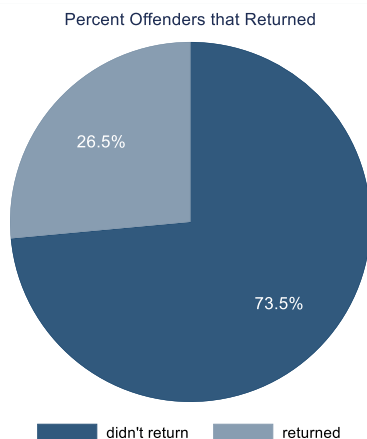
Gender. Males and females return at different rates. The mean rate for the 2018 cohort of females is 22.25% and for males 27.20%.

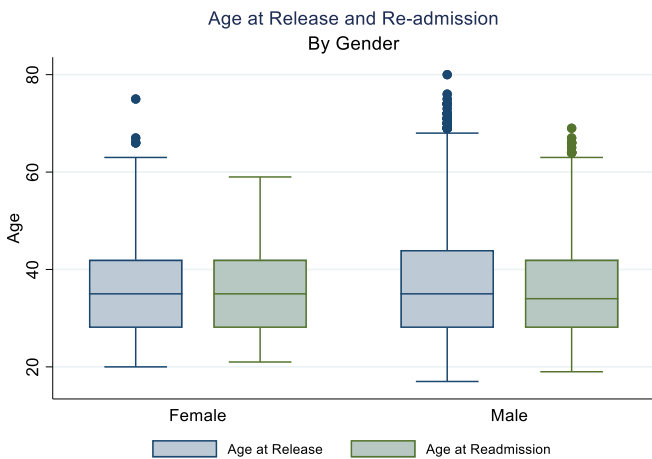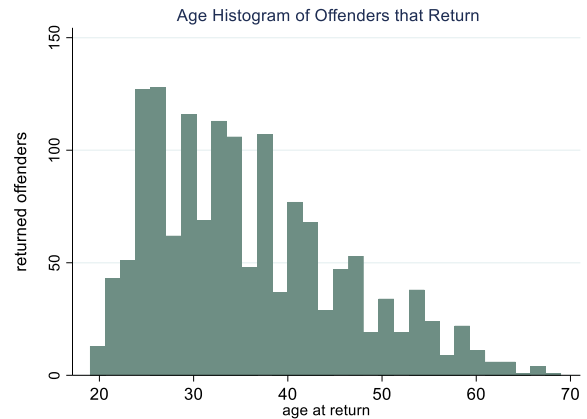| Recidivism Status by Gender (%)			
Gender	No	Yes	Total
Female	77.75	22.25	836
Males	72.80	27.20	4,802

Females have lower predictive probability of readmission to custody and age makes a difference. The difference in the predictive probability of readmission for males, however, is 8.32% greater than for their counterparts and the relationship is also dependent on age at time of release.

Age. Among the characteristics that stands out regarding offenders is their ages and the association to prison recidivism. The predictive margins plot in this section shows that for females released between the ages of 27 and 24, the chance of readmission is 27.70%, while for a male it's 37.90%; for ages 25 to 29, the predictive probability declines to 24.00% for females and for males 33.58%; for females ages 38 to 42, the probability drops to 14.53% and for males to 21.69%.

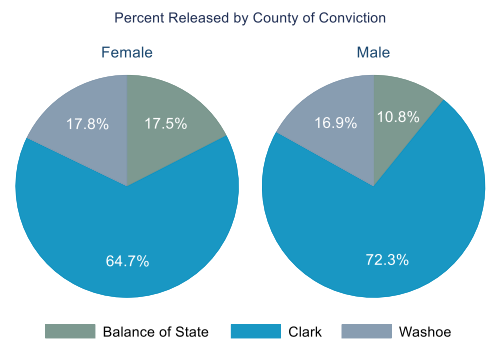Predictive Margins for Gender and Age Group
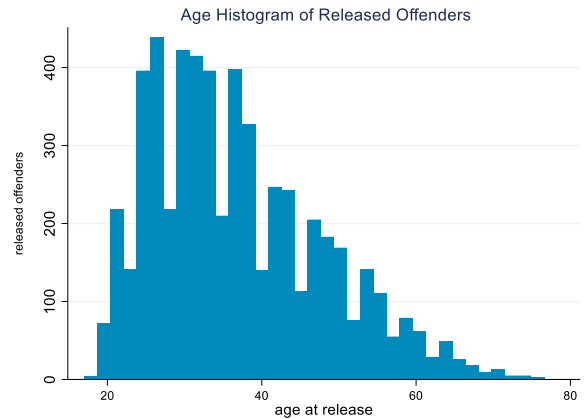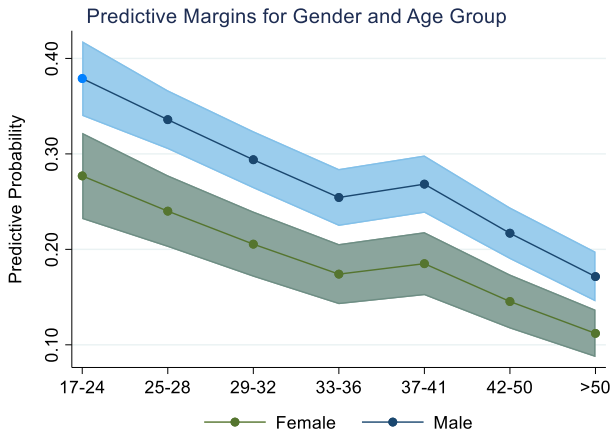
The box plot below demonstrates that the mean age of offenders at time of release and readmission is in the mid-thirties; specifically, the mean age at time of release for the cohort was 36.92 and at re-admission 35.78. The oldest released offender was 80 years old, and no offender older than 69 returned, the top 25th percentile for releases and readmissions was no more than 28, but the top 25th percentile for releases was 44 to 80 but 42 to 69 for readmissions.

Age at Release and Re-admission
By Gender

The two histograms exhibited below demonstrate that the age of offenders released is more positively skewed than for offenders that recidivate, and for both, there is a concentration of values for ages between 25 and 40. This is because, relative to an offender younger than 19 years of age at time of release, the predictive probability of readmission to custody decreases 4.4% for an offender that is 25, by 8.54% for one that is 29 years of age, and by 15.74% for a 38 to 42 year old.

Age Histogram of Released Offenders

Age Histogram of Offenders that Return

County of Commitment. Nevada has two out of 15 counties that are rural, and Clark is the most populous of the two urban counties and where 71.18% of the release cohort was committed. Washoe county is also urban and second in size and responsible for 17.03% of commitments released, and the balance of state comprises 11.79% of commitments released. Their distribution by gender is depicted below.

Percent Released by County of Conviction

Commitments from different counties have different chances of returning, with Washoe County having the largest proportion of recidivists across all release statuses. Offenders that discharge their sentences and that are Washoe County commitments have 20.53% probability of returning, Clark County commitments 16.23%, and commitments from the rest of the state 14.74%. The predictive probability of readmission for offenders released on parole that are Washoe County commitments is 39.12%, Clark County commitments 32.84%, and the rest of the state 30.51%. Clark County isn't necessarily more lenient than Washoe County, but it is a large system where there is considerably more crime and more challenging to manage. Overall, relative to the rural counties, Washoe County commitments have 7.4% and Clark County commitments 1.96% higher chances of returning, respectively.


Predicted Recidivism by County
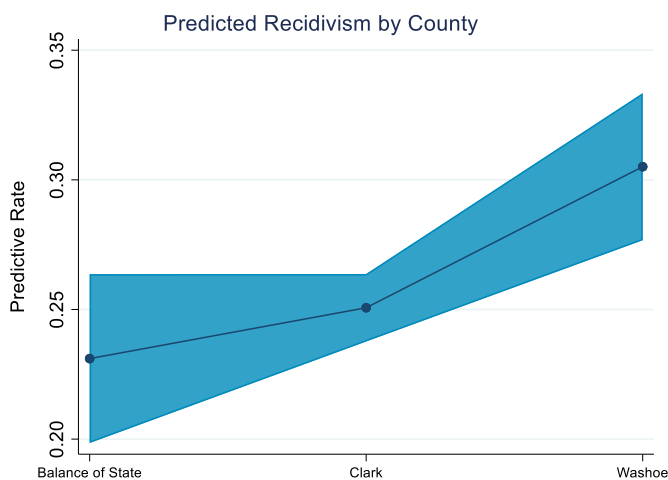
Offense Characteristics

Other criminogenic and demographic characteristics of importance include the offenders' offense group, category felony, mental health impairment, and habitual status. The relative sizes of these groups provide insight regarding the types of offenders that are commonly represented in Nevada's correctional system.

The most serious offense attributes of the crime for the sentence that is released is of importance in terms of defining the seriousness of the offense and the offender's criminogenic characteristics, and this information is of value for understanding their role in prison returns.

The 2018 cohort of offenders released from the NDOC was largely characterized by category B and category C felons who encompassed 72.88% of them; and drug, property and violent offenders comprised 81.71% of the cohort. Furthermore, 70.42% had no prior felony convictions and 96.84% were non habitual offenders.

Category Offenses. In Nevada, category C and D felons can be sentenced to serve up to four years in prison. With a few exceptions, courts must suspend the sentence of category E felons and grant them probation under community supervision, as these are convicted of illegal substance abuse activity and other lower felony crimes. The likelihood of failing in the community, however, is greatest among E and D felons. Category B felons, the largest group, is much less likely to fail and has a predictive probability of recidivism that is 2.93%, 4.78%, and 9.81% lower than for Category C-E felons, respectively. Category A felons cannot be compared to B felons because the differences are not statistically significant.

Recidivism Status by Offense Category
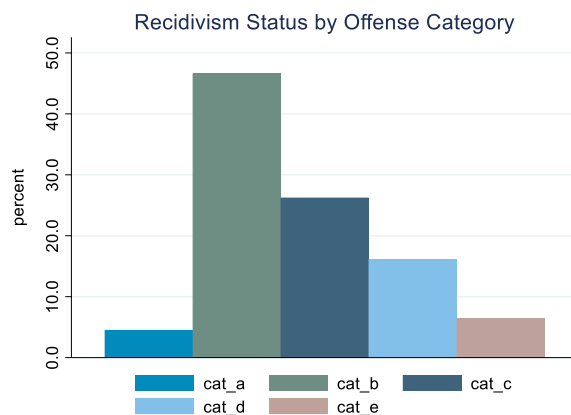
B felons serve longer time in prison, while D and E felons serve up to four years with credits being applied towards the minimum term, resulting in shorter lengths of stay. Probationers, like parolees, are supervised in the community, making them more prone to sanctioning for defaulting on requirements. Credits are applied towards the maximum term only for category A and B felons, thus, sentence reductions happen towards the end, allowing them more time than to rehabilitate. These probabilities suggest that there are points to ponder when evaluating sentence structures, because length of stay in prison and recidivism are directly related, but predictions become less precise as length increases.

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Predictive Margins by Offense Category

Recidivism Status by Offense Group
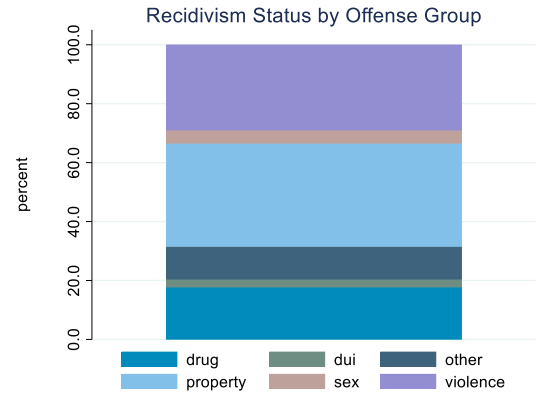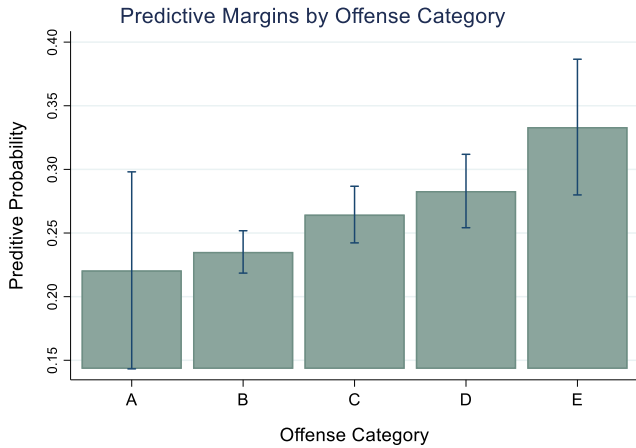
Sex offenders lead in best outcome for recidivism having the lowest probability of returning to custoy. Their predictive probability of recidivism is 26.08% lower than for property offenders and 27.73% lower than for other offenders.

Predictive Margins for Category Offenses
By Length of Stay

Predictive Margins by Offense Group
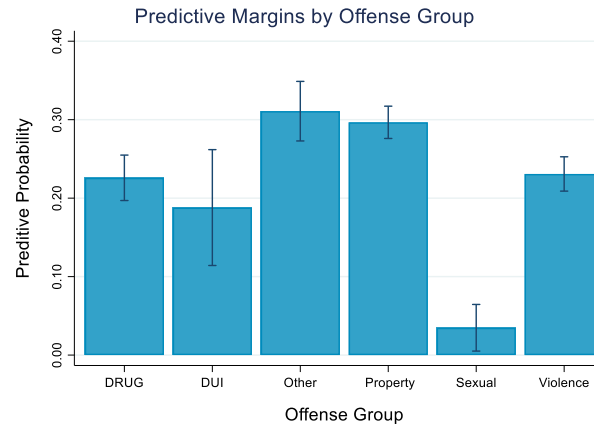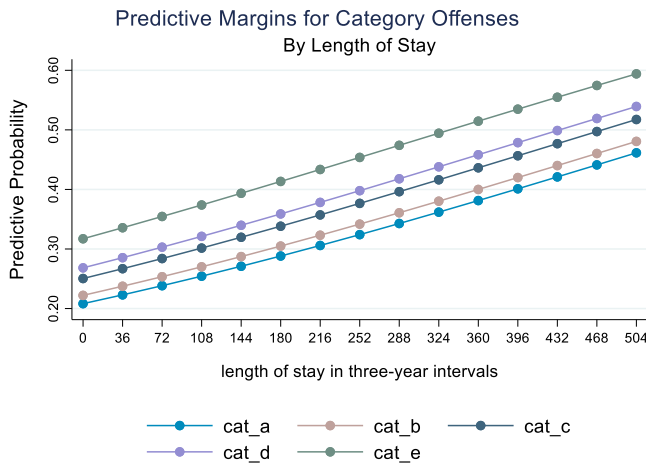
Offense Groups. Property offenders represent the largest group and the one with the largest chance of recivisim. Drug, DUI, sex, and violent offenders have predictive probabilities that are 7.07%, 10.86%, 26.18%, and 6.58% statistically lower, respectively. "Other" offense group is composed of offenders that committed miscellanous felony crimes, including financial fraud, public order, and other white-color crimes. Offenders in this category have no statistically larger chance of returning to custody than property offenders, but statistically larger than for the other four groups.

Prior Felonies. The distriution of offenders by the number of prior felony offenses, excluding the one that was released, is depicted in the foregoing pie chart; and the tendency to commit felony crimes by repeat offenders is naturally positively associated with the size of the probabilistic rate. The predictive probability of returning for offenders without prior convictions is 21.58% but 1.85 times larger for offenders with three or more priors or 39.95%, making this indicator a strong predictor of recidivism ($p < 0.0001$).

### Percent Offenders by Prior Felonies
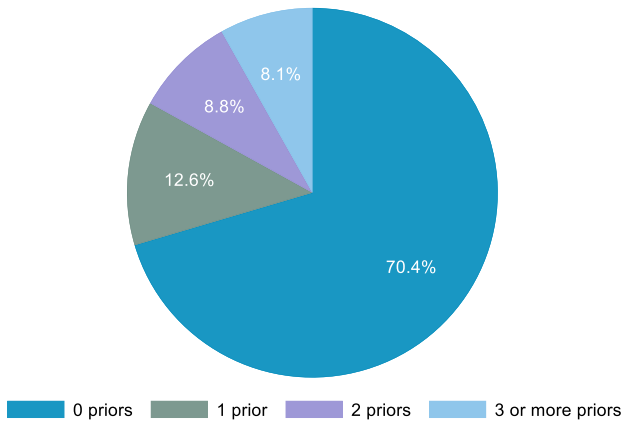
This is because, relative to an offender with zero prior convictions, the predictive probability of recidivating is 10.79%, 13.06%, and 18.01% greater when the offender has one, up to two, and at least three piors, respectively. These increases are depicted by the changing slopes of the lines in the margins plot, being steeper for greater numbers of prior conviction.

Recidivism and Prior Felony Convictions
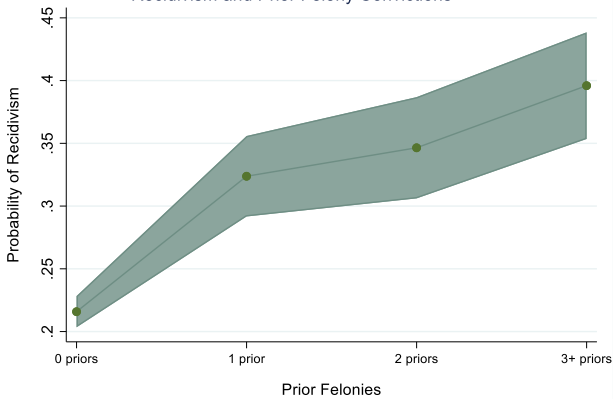
Habitual offenders, as their status suggests, are committed to a state prison multiple times; yet they represented less than 4% of offenders released during 2018. Although the proportion of habitual offenders is small, as their classification denotes, their tendency to return is larger than for non-habitual offenders. Habitual offenders have statistically larger recidivism rates (p<0.0001); when stratifying by gender, the difference is highly statistically different for males (p=0.0005) but not for females (p=0.616). Sample sizes are partially responsible for relationship, out of 14 females of habitual status, 6 returned, resulting in a large rate compared to their counterparts but their variances are equal. Recidivism rates for non-habitual offenders have statistically lower variance.

Recidivism and Habitual Offender Classification
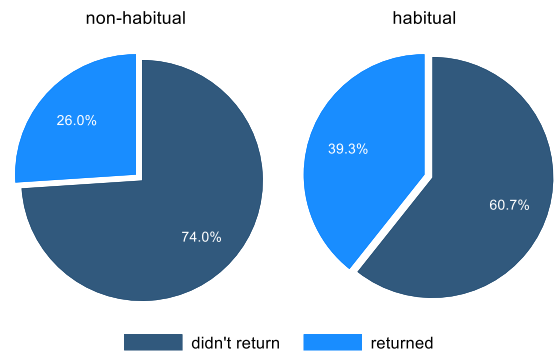
| Habitual	Females	% Returned	Males	% Return
Yes	14	42.86	164	39.02
No	822	21.89	4,638	26.78
Total	836	22.45	4,802	27.20

It is important to note that the predictive model designed for this research controls for several variables, leading to conclusions that can be surprising. The predictive probability of recidivism for habitual offenders in this cohort is 5.86% larger than for non-habitual ones, but it isn't significant; however, the prediction for male non-habitual offenders is 8.13% and for a habitual 9.21% larger than for females in these two groups.

### Predictive Margins Gender and Habitual Status
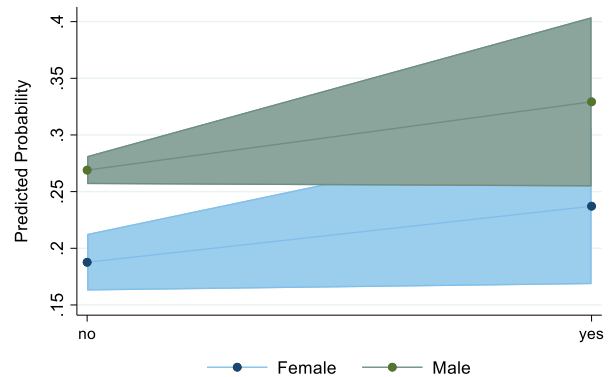
Assembly Bill 236 passed by the 2019 Nevada Legislature amended the habitual status criteria by increasing it from three to five prior felony convictions. Recrafting of the law is expected to result in some shifting of the classification of offenders into this group and may alter recidivism rates of future cohorts.

Mental Wellness. Although the tendency to stereotype criminal behavior with serious mental health conditions is common, less than half of a percent of offenders released in 2018 suffered from moderate to severe mental health impairments, and 15.31% suffered from none to mild mental health impairments. Off those with moderate to severe mental health classification, only 10.71% recidivated, while those classified as suffering from none to mild impairments recidivated at a rate of 26.54%, or 9 basis points above the mean rate of 26.46%.

Recidivism and Mental Health Classification
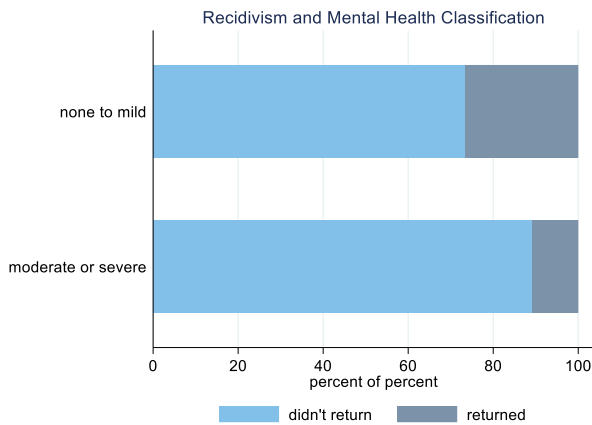
For offenders with moderate to severe mental classifications, the chance of recidivating cannot be predicted accurately due to a lack of significance for either gender as shown by the confidence levels extending below zero percent in the plot below; however, it can be concluded that their marginal effect is significantly lower by 19.44%.

Predicted Recidivism and Mental Health Classification
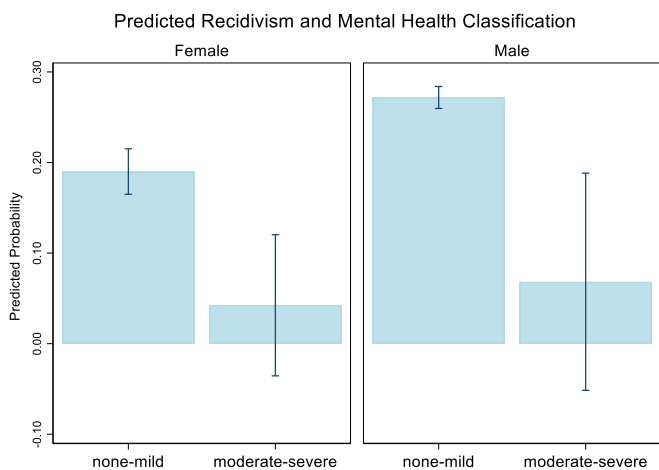
Length of Stay. Length of time in custody is a significant co-variate in the binary model designed to derive recidivism predictions. An analysis of time in confinement revealed that,

for the entirety of the booking, inclusive of parole releases and parole violations in previous years for the complete cohort of offenders was an average 36 months. For the upper 25th percentile length of stay ranged from 34 to 510 months, and for the 50th percentile of offenders it was 18 months. Wide variance in the data is due to small numbers of offenders serving time in prison for very short or very long time.

For the 2018 cohort, there was a 25.76% chance of readmission within 36 months (p<0.0001), and when the predictive probability is calculated with all covariates at their means, it is as a low 21.11% (p<0.0001). These predictions increase by 0.55% for each additional year in custody, and on the aggregate, the predictive probability of readmission increases from 24.97% after 12, to 26.06% after 36, and up to 51.12% after 510 months.
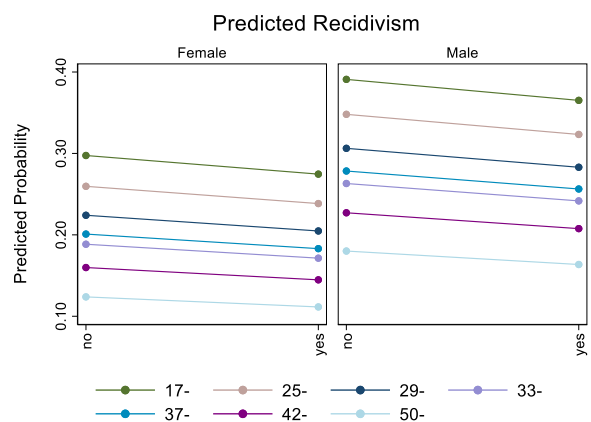
Overall Predictive Rate and Margin Effect of Three Years in Custody		
Predictive Margin	95% Confidence Interval	p-value
25.76%	24.69%	26.84%	0.000
Marginal Effect	95% Confidence Interval	p-value
1.64%	0.04%	2.85%	0.007

Predictive Probability of Recidivism

Overall Prediction 25.76%
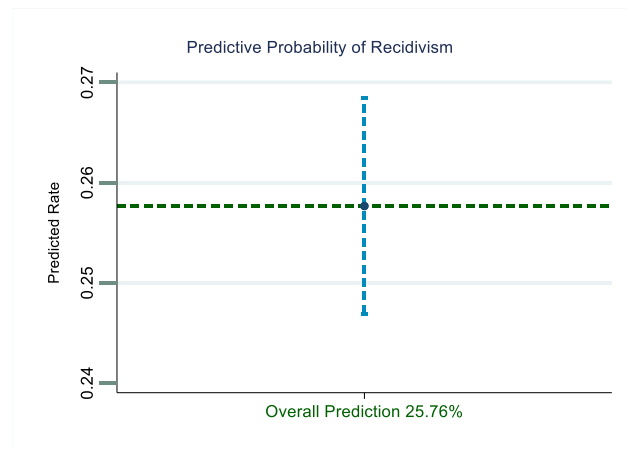
This relationship is exhibited in the plot below which depicts gradual increases in predictive probabilities for females and males as length of stay increases. While the predictive margins are statistically different between genders, the predictions increase for both as time in custody increases.

Predictive Margins for Gender
By Length of Stay

Recidivism by Program Completion Status
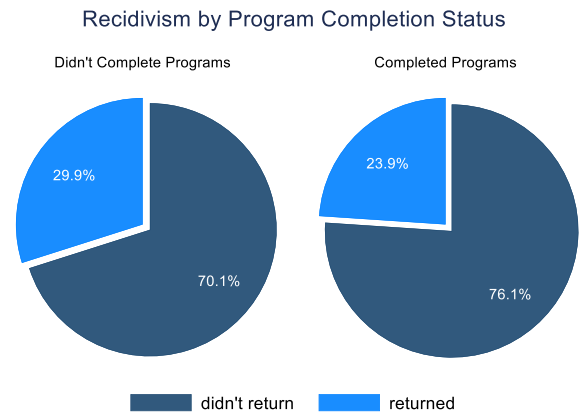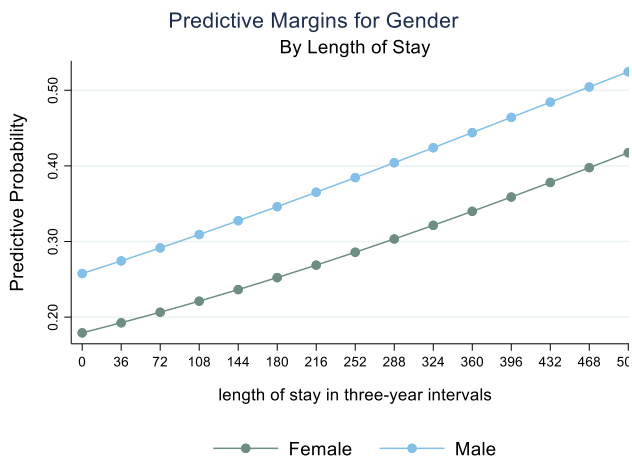
Programs of Rehabilitation. The effect of rehabilitation programs on an offender's success in the community is of great importance for law makers as well as for corrections administrators. Programming has many benefits: they instill discipline, goal setting, and work ethic; provide structure in offenders daily lives, which reduces negative incidents in facilities; provide life skills that can help them be successful during and after incarceration. In addition, work training and vocational programs prepare them to join the workforce

Predicted Recidivism

NDOC offers and extensive variety of programs. Dependent on qualifications, offenders often have the option to participate in a series of these programs, each having a purpose of its own. For simplicity and for recidivism research purposes, classes were grouped into addiction, correctional, educational, vocational, and work training programs. The effect of each program type, as well as the number of programs of each type for the cohort were analyzed regarding recidivism, and it was noted that the two program types that contributed the most toward recidivism reduction were education and vocational programs.

More specifically, declining marginal effects were noted for offenders that completed up to 2 education and up to 2 vocation programs. The other programs didn't have a significant marginal effects on recidivism reduction for this cohort. Treating program type as a dichotomous variable reveals that the marginal decline in recidivism for offenders that completed education programs was 6.21% (p=0.001), and for offenders that completed vocation programs the reduction was 5.14%, and predictive probabilities varied for males and females (p=0.008).


NDOC is pleased to conclude that select programs have resulted in lower likelihood of recidivism for the 2018 cohort. In fact, 57.79% of offenders in the 2018 release cohort that participated in programs, returned to custody within 36 months at a lower rate than the overall rate of 26.46% and at statistically significantly lower rate than the rate of 29.92% for the non-program completers (p-value<0.0001). The predictive margins derived for male and female offenders in all seven age groups validate that the predictive rates for each group declined when they completed programs.

Education Program	Predictive Rate %	95 % Confidence Interval		P-value
No, female	19.35	16.79	21.91	0.000
No, male	27.73	26.44	29.02	0.000
Yes, female	14.56	11.80	17.93	0.000
Yes, male	21.58	18.06	25.10	0.000

Predicted Recidivism for Education Program Completion
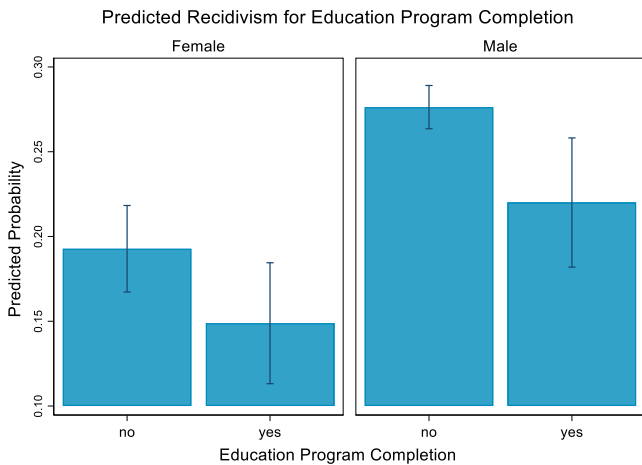
Vocation Program	Predictive Rate %	95 % Confidence Interval		P-value
No, female	19.27	16.73	21.83	0.000
No, male	27.73	26.36	28.91	0.000
Yes, female	14.88	11.31	18.45	0.000
Yes, male	22.00	18.19	25.81	0.000

Predicted Recidivism for Vocational Program Completion
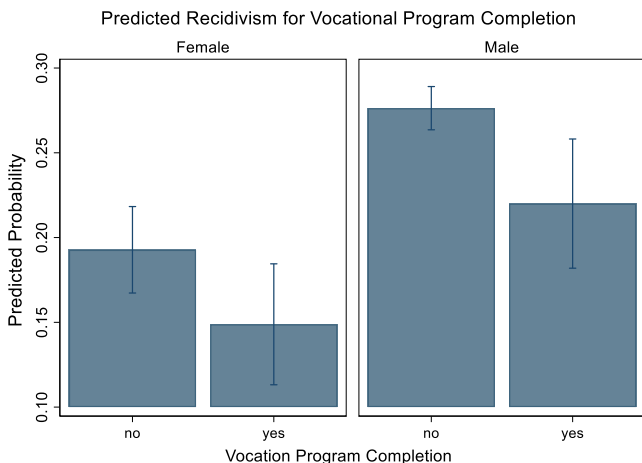
Government Benefits. With the collaboration of the Nevada Department of Health and Human Services (DHHS), NDOC was able to incorporate eligibility for public assistance from select federal programs in the recidivism analysis for the 2018 release cohort. Monthly eligibility data compiled by DHHS was matched to the 2018 release cohort that disclosed when the offender became eligible, which in all cases it concurred during the month when the offender was released, because offenders are screened for eligibility for programs during the pre-release process. The data included eligiblity for Medicaid, SNAP, and TANF, which are federally funded and state administered programs designed to assist low-income individuals and families. Medicaid provides health care coverage; SNAP is a nutrition program, formerly known as food stamps, that is intended to assist low-income individuals to increase their budgets for food; and TANF, also known as welfare, is intended to provide temporary financial assistance to familes to achieve independence after experiencing temporary difficulties. More than fifty percent of offenders released qualified for Medicaid and SNAP benefits, and 16.16% qualified for TANF.

| Benefit	No	Yes	% Eligible
Medicaid	2,655	2,983	52.91
SNAP	2,717	2,921	51.81
TANF	4,727	911	16.16
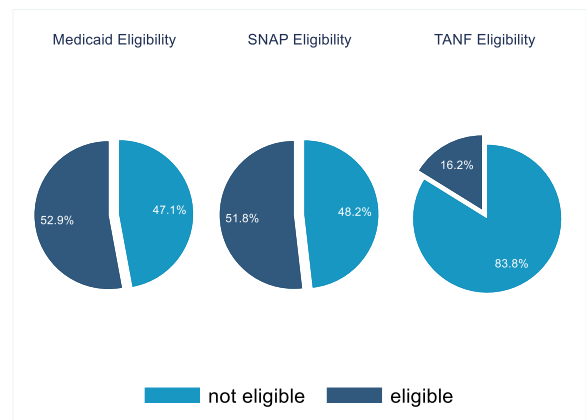
NDOC analyzed the caseload by the number of eligible benefits among the three listed above, cross tabulated them against recidivism, and derived predictive probabilites. The data was expected to shed light on the release offenders' bulnerativilty to a succesful path in the community; though, it doesn't identify benefit utilization after release to the community. The analysis disclosed

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that approximately 34.23% didn't qualify for benefits, 21% qualified for one type of benefit, 34.82% for two, and 10.15% for all three. Offenders that were eligible for three assistance programs returned at a lower rate of 25.87% than the going predictive rate of 26.46%.

Percent Released and Welfare Elibility
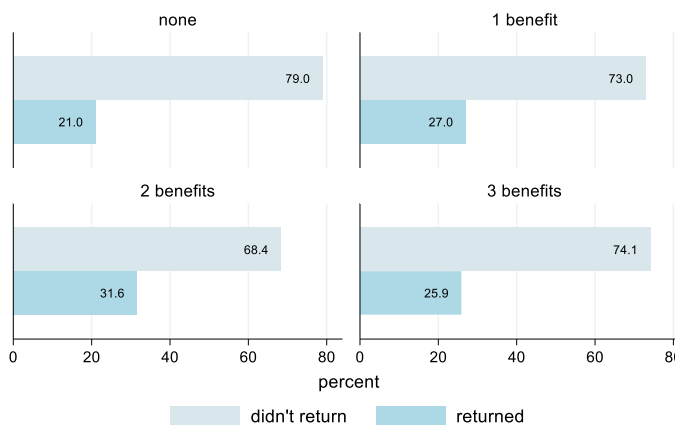### Medicaid, SNAP, and TANF Benefits
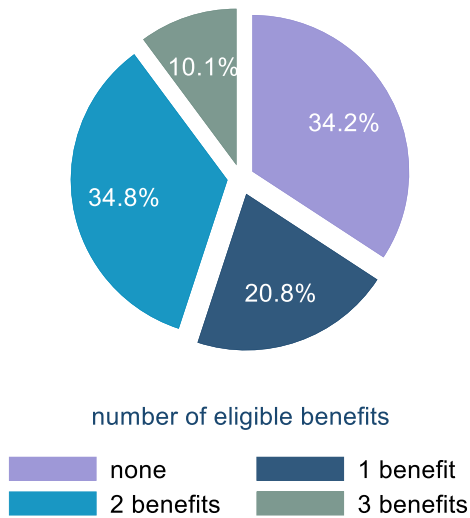
Released individuals that qualified for two benefits had 7.05% larger or 29.27% predictive probability of returning to custody than than the 22.22% probability for individuals that weren't eligible for either of the benefits; and those eligible for either one or all three benefits had 2.88% and 3.45% larger probabilities than non-eligible individuals, but their differences weren't significant.
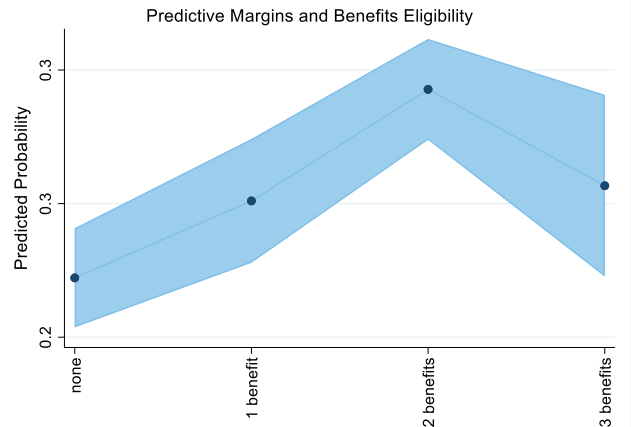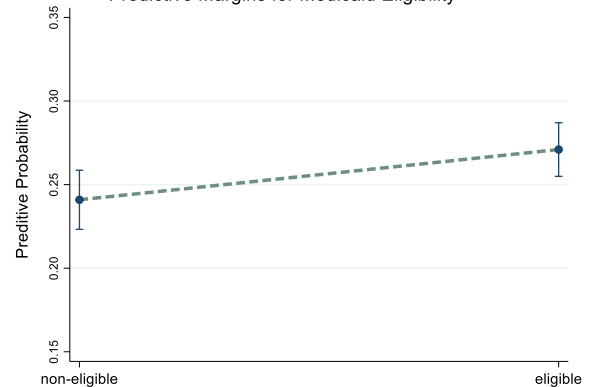

Eligibility for SNAP or TANF, singly, didn't influence recidivism outcome; however, offenders that qualified for Medicaid had 3.00% greater chance of returning to the community than those who did not (p-value=0.023). As noted earlier, it is unknown whether benefits were utilized, and eligibility for select benefits can provide insight regarding risk factors and lack of resources post-incarceration that can increases the chance of failure. The probability of re-admission for non-Medicaid eligibility is 24.9% and for eligibility 27.10%.

These margin plots demonstrate that offenders that were eligible for SNAP and TANF assistance programs had slightly larger probability of returning to prison; however, these probabilities aren't statistically different from non-eligible offenders' predictions or from the mean prediction for all offenders.

Predictive Margins for SNAP Eligibility

Predictive Margins for TANF Eligibility
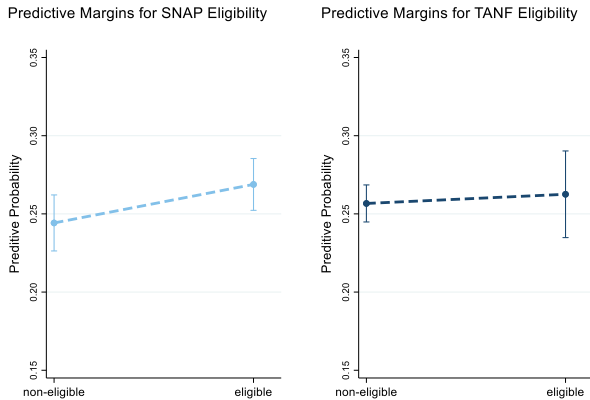
Pre-incarceration Educational Attainment. During the intake process, the correctional population is assessed for their reading, writing, and math skills. In addition, information regarding their educational attainment is collected and later verified. Educational accomplishments earned during incarceration were presented in previous paragraphs.

Approximately half of the offenders released had completed a General Education certificate or equivalency or a High School Diploma, 30.04% had completed between the 9th to the 12th grade, 17.4% had attended or completed a college degree or certificate, and 5.2% completed up to the 8th grade. The latter category includes 0.59% of offenders that had not attained any schooling or that were illiterate, 0.44% that attended up to 3rd grade, and 4.13% that completed between the 4th and 8th grades.

Educational Attainment Before Incarceration
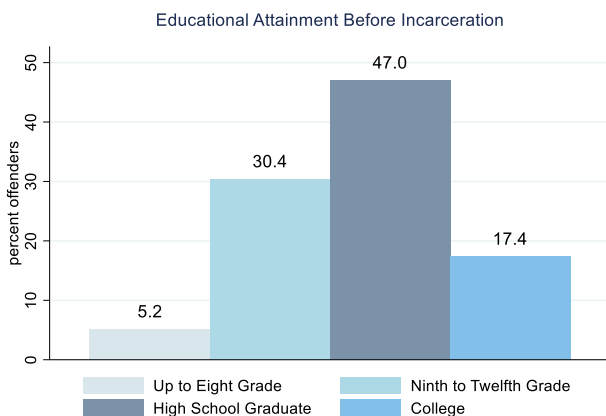
This specific cohort differed from former release cohorts in that the predicted rate for each category is not significantly different from the mean prediction of 25.76% as shown in the graph below, to the right, that contrasts the differences in margins for each educational attainment against the mean at y=0; nevertheless, the predicted probability for individuals that had attended college before incarceration was 24.12% or 1.51% lower. The predictive margins for the lower educational groups ranged between 20.58% and 31.71% and aren't significant.

Margins by Educational Attainment

Contrast to the Mean Prediction
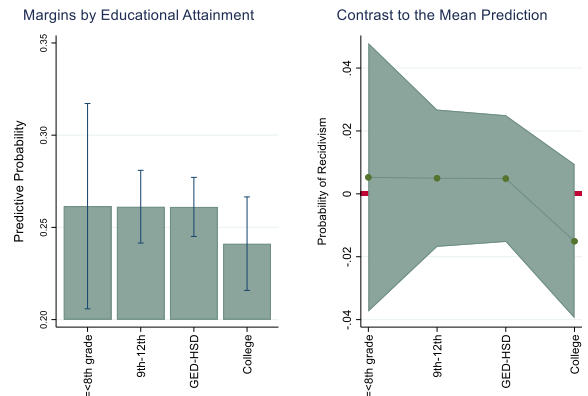
| Educational Attainment	Predicted Probability %	% Range	
Up to 8th Grade	26.15	20.58	31.72
9th – 12th Grade	26.12	24.15	28.09
GED or HSD	26.11	24.51	27.71
College	24.12	21.58	26.65

U.S. Citizenship Status. Legal residence status is often assumed to be associated with crime and with the proportion of sentenced individuals. It is worth noting that foreign born offenders without proper legal status are referred to the U.S. Immigration and Customs Enforcement (ICE), and this agency makes the ultimate decision as to deportation after the offender is released from prison. The proportion of offenders released from prison that were not U.S. Citizens was 7.80% of which only 9.32% returned versus 98.2% U.S. Citizens of which 27.91% returned. The predictive margin for U.S. Citizens that were released during Calendar Year 2018 was 19.49% larger than for a non- U.S. Citizen.

| U.S. Citizenship	Predicted Probability %	% Range	
No	7.51	4.49	10.53
Yes	27.00	25.85	28.16

Recidivism Rate by U.S. Citizenship
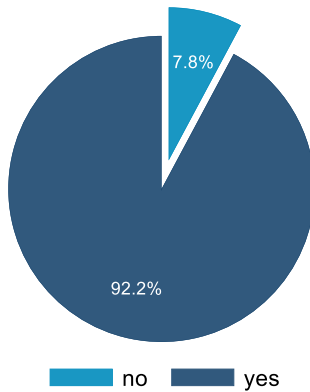
The margins plot below provides clear evidence of the difference in predictive margins for U.S. and non- U.S. Citizens released from NDOC.
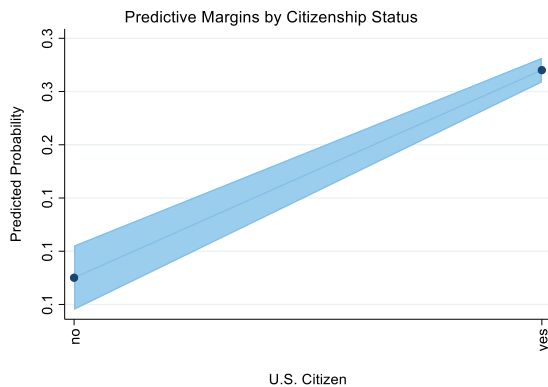

Time to Failure and Survival Time

Knowing how soon after release from prison the average recidivist is likely to return is fundamental for crafting policies of supervision, programming, and support services in the community. Becoming cognizant of time at risk, what offender groups are at most need of rehabilitation, and the types of support services they need provide for efficient planning and coordination. Knowledge of an offender's chances of survival at different time periods of release is constructive for the purpose of forecasting corrections caseloads. The study period of for the analysis was the same as

for the other analyses presented in this report, 36 months. Prison returns for this cohort were observed starting within 15 days or 0.49 months to 1087 days or 35.7 months of release. A histogram of time in the community after release from incarceration reveals that there was a concentration of returns within the first 11 $^{1/2}$ months or 357 days, which incites the desire to examine if this is the period when the average ex-prisoner is at most risk.
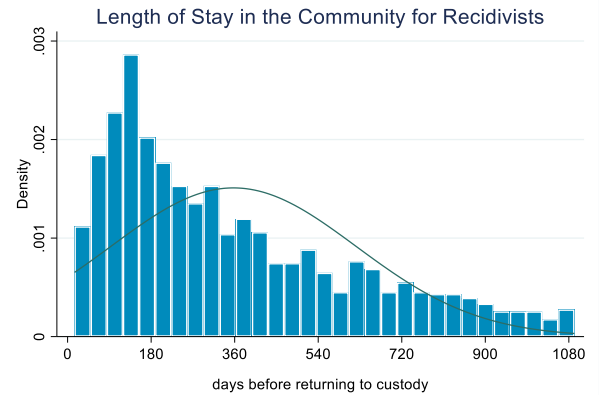
It can be observed from the graph above that time in the community is not normally distributed, it's skewed to the right; for all offenders released, mean survival time was 900.88 days or 29 months. Time at risk and survival in the community can be further analyzed with the use of the Kaplan-Meier survivorship function to derive the mean survival rate for ex-prisoners. This curve shows that time at risk begins when individuals exit the correctional system; with fewer of them remaining in the community as the study period progresses. For the 2018 cohort, the function has a mean survival rate of 77.03%, and a mean failure rate 26.466%.


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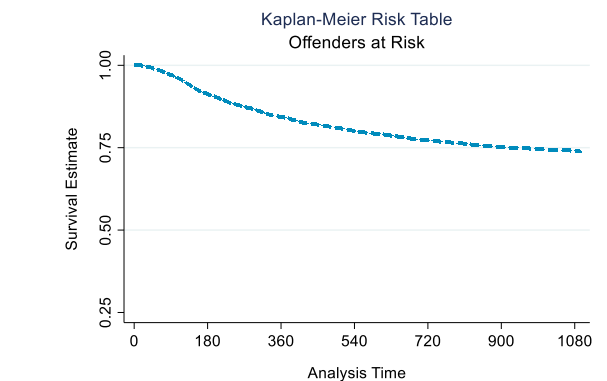
Survival analysis is a non-parametric statistical methodology that is applicable for investigating what happens as time elapses after release from prison. Below is a timetable of survival time for all offenders released that confirms the shape of the histogram above for returns only. Of the 1,492 individuals that were readmitted, 59.72% recidivated within the first 12 months and 75.67% within 18 months of release. The declining number of recidivists that tops out at 1,492 supports the theory that the longer the person is in the community, the greater the chances of survival. Slightly more than one fourth of the cohort went back to prison for parole violations or committing new crimes of which more than 50% percent returned in less than 12 months; then, it can be concluded that programming efforts need to be concentrated during this period.

| Time (days)	Offender Counts	Failures	Survival Rate %	Cumulative Returns %
180	5,153	488	91.34	32.71
365	4,748	403	84.24	59.72
547	4,510	238	79.98	75.67
729	4,353	158	77.17	86.26
911	4,237	115	75.13	93.97
1093	4,172	90	73.54	100.00
Total Failures		1,492		

Survival Rates by Offender Types

Data driven decision making is purposeful in arriving at findings with an educated approach to instituting policies and practices that are crafted to specific problems. Individuals sentenced to serve prison time have different tendencies, require customized rehabilitation programming, and their likelihood to survive in the community is also different. Just as predictive probabilities for returning to custody vary by gender, habitual offender status, or the number of prior felony convictions, offense or category offense groups, and release type, so do their survival rates.

The first recidivism event happened within 15 days for a male and within 24 days of release for a female. By the 12th month of release, the survival rate for males was 83.86% and for females 86.12%, as of the 900th 78.95% of females and 74.61% of males remained at risk, and in the end, 78.11% of males and 73.34% of females remained in the community after the first release in 2018. The declining curve and the associated risk table are depicted in the Kaplan-Meier Function in the graph below.


Survival Functions for Females and Males
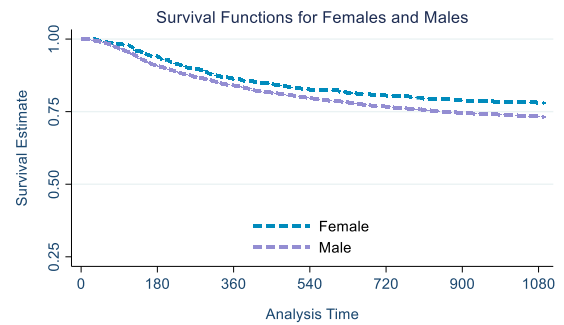
Number at risk						
Female	836	786	720	690	674	660	653
Male	4802	4367	4036	3825	3685	3583	3522

Habitual offenders had considerably differences in survival curves, with the function for habitual offenders being steeper and falling to 60.67% by the end of the study period, versus their counterparts who achieved a survival rate of 73.96%. By the 989th day, less than 25% had failed, and there were no failures after that. Furthermore, 25% of habitual offenders had already failed within the first 12 months, while it took 32 ½ months for 25% of non-habitual offenders to fail.


Habitual Offender Status
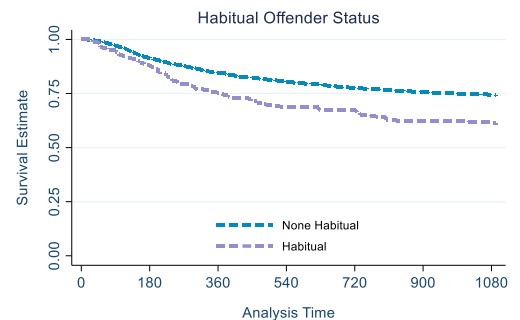
Number at risk						
None Habitual	5460	4996	4622	4393	4239	4132	4066
Habitual	178	157	134	122	120	111	109

Among offenders with other criminogenic characteristics, property and "other" (public order) offense groups; Category D and E felon; and offenders with one and two prior felony convictions made it to their first six months in the community with survival rates in the high 80th percentile and ended the study period in the upper 60th percentile. Offenders with 3 or more priors also made it to their first six months with a survival rate of 88.89% and ended the period with a rate of 59.91%, while offenders with no prior felonies made it through the first six months with a survival rate of 92.37%.

Survival Functions by Offense Group
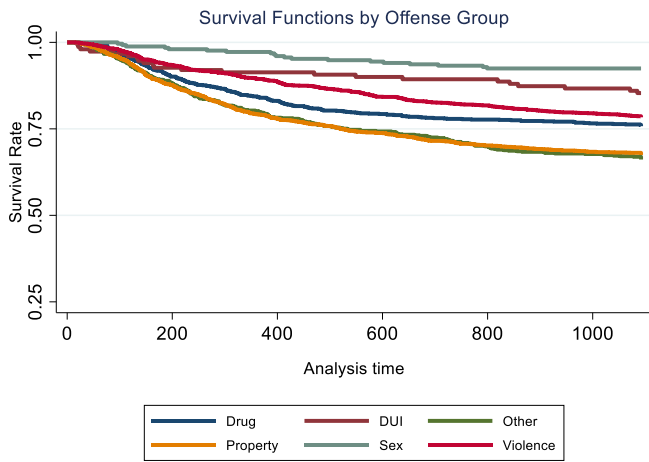
Offenders that committed different crime types a differed in recidivism failure timing. For all but property and other offense group offenders, before the end of the study period, more than 75% had not experienced failure; however, by the 523rd to the 533rd day, 25% of property and other offenders had failed. This is the reason why the orange and green curves above for these two groups are below the 75% mark for all the other ones.


Survival Functions by Category Offense
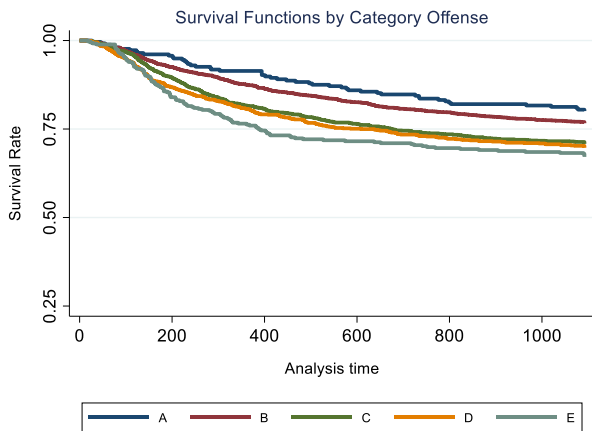
The curves for Category A and B felons can be seen plotted above the curves of Category C to E felons; the slope of the curve for E felons declines after 388 days in the community, which is when 25% of them has already failed; and the curves for Category C and D felons decline below 75% between the 609th and 674th day. By the end of the study period, more than 75% of Category A and B felons had still not experienced failure.

Offenders without prior convictions, surely have the best odds of survival compared to their counterparts, because before the end of the 36$^-$ month follow-up period, more than 75% had succeeded. At least 25% of offenders with prior


Survival Function by Prior Convictions
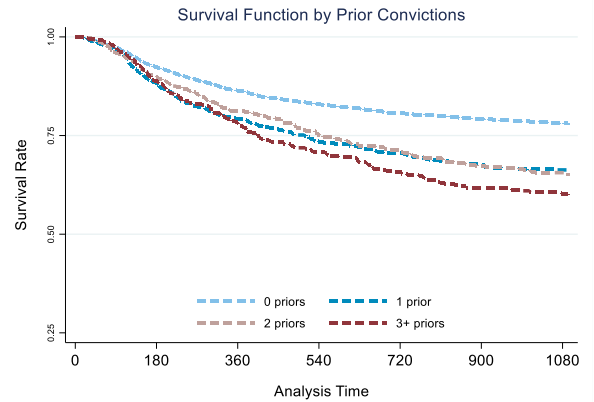
felony convictions had experienced failures between the 406th and 548th day, as seen by their survival curves below the curve for offenders with no priors in the graph above.

The success that education and vocational programs had for this cohort is evident in the foregoing survival exhibits. Offenders that completed vocational training and education programs had survival functions that are statistically different and well above the functions of individuals that had not completed these programs.


Survival Functions by Vocational Program Completion
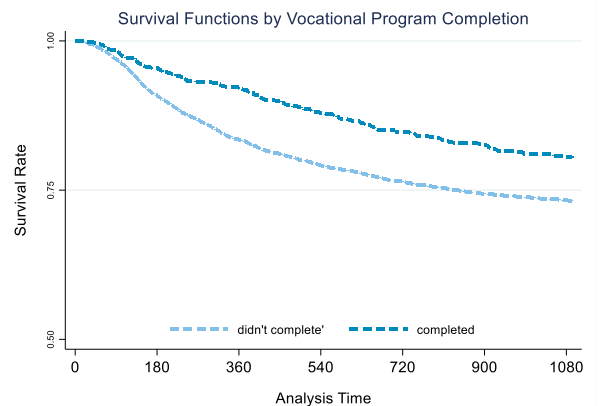
Education and vocational program completers made it to the end of the follow-up period with over 75% not experiencing failure; however, by the 840th to the 842nd day, at least 25% of their counterparts had failed.

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Survival Functions by Education Program Completion
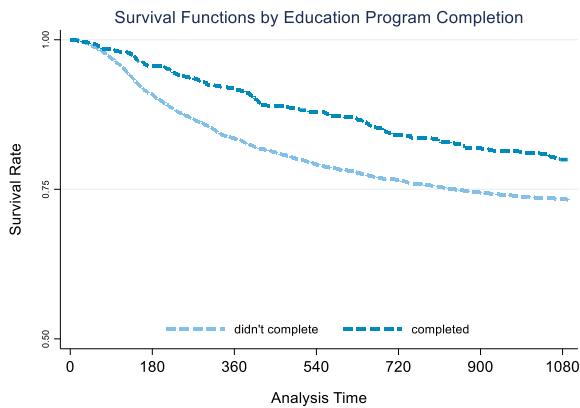
Time at Risk and Failure Rates

Every survival model has a survival and a hazard function. Hazard functions model which periods have the highest or lowest chances of failure events, and the cumulative hazard function is the total number of expected events. The hazard rate is the failure rate, and it can be constant, increase, or decrease. Now instead of calculating survival rates, it will be demonstrated with the Nelson-Aalen failure function how many remained in the community and how many failed in six-month intervals. The intent remains the same, to gain insight regarding time at risk for specific offender groups.


Nelson-Alen Cumulative Hazard Estimate
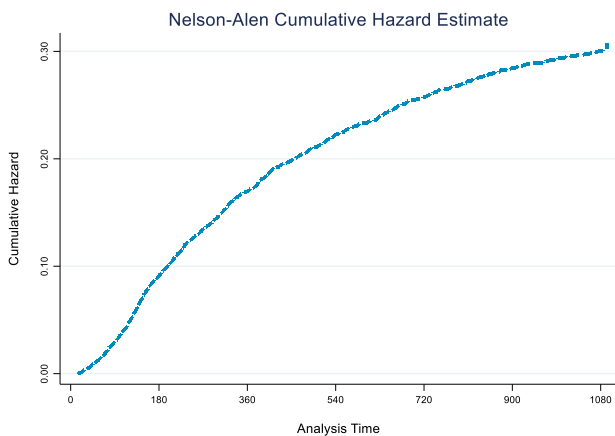
The tables below display the extent to which failure and cumulative hazard functions increase as time increases. The Kaplan-Meir failure and Nelson-Aalen cumulative hazard function show that, during the first 12 months of release, 839 or 56.23% of 1492 recidivists failed. Although failure rates continue to increase in each of the six-month intervals presented in this analysis, the rate of increase falls from 8.66%

to 7.11% between the seventh and the twelfth month post release, and the six-month average declines by 13.54% thereafter. Comparably, the cumulative hazard rate for the first six months in freedom is 9.05% and 7.98% for the following six months, and then it declines to a six-month average percentage change of 15.61% through the end of the study period. Thus, both types of functions confirm that the first 12 to 13 months are the most at risk for prison recidivism confirming that this is the period when support services are needed the most to help ex-prisoners to improve the chances of succeeding in society. Though, confounds such as parole supervision need to be taken into consideration.
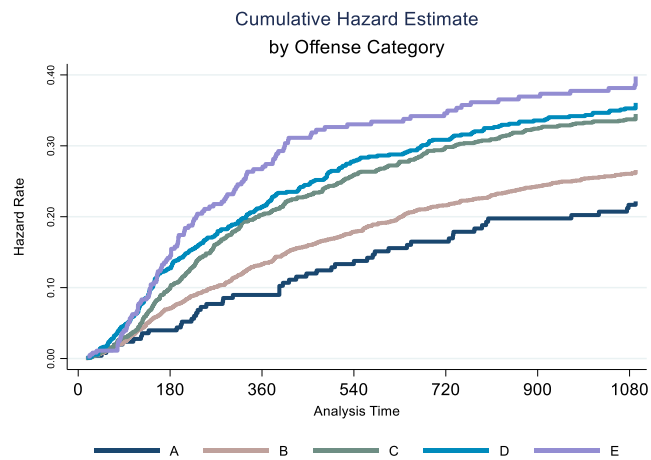
Kaplan-Meir Failure Function			
Time	Beginning Counts	Failures	Failure Function %
180	5,153	488	8.66
360	4,756	396	15.77
540	4,515	243	19.97
720	4,359	154	22.70
900	4,244	115	24.74
1080	4,176	68	25.95
1260	4,172	29	

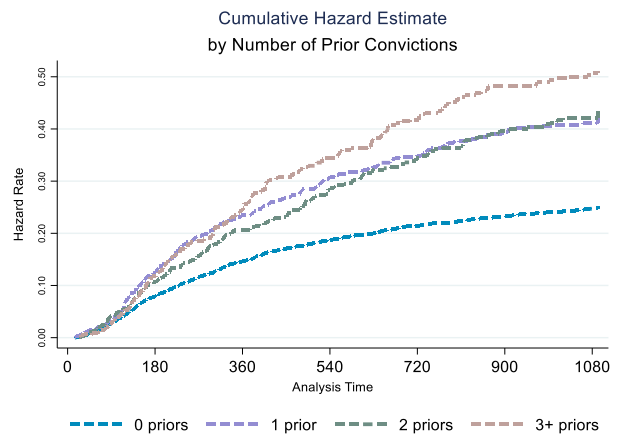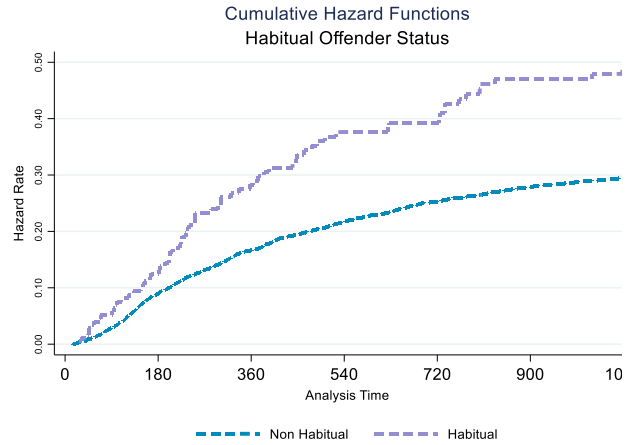| Nelson-Aalen Cumulative Hazard Function			
Time	Beginning Counts	Failures	Cumulative Hazard Function %
180	5,153	488	9.05
360	4,756	395	17.03
540	4,515	243	22.27
720	4,359	154	25.74
900	4,244	115	28.42
1080	4,176	68	30.03
1260	4,172	29	-

Cumulative hazard functions also vary by individual demographic and criminogenic offender characteristics and provide insight regarding hazard rates at specific time intervals as time increases. The cumulative hazard rate for DUI offenders, for example, is less than 1.00% the first 17 ½ months in the community until it maximizes at 15.03%; for drug offenders, the hazard rate before the 18th month post release is 16.96% and declines thereafter until it reaches a cumulative hazard rate of 27.06%. Other and property offenders stand out among the other four groups with hazard rates between 11.43% and 12.10% the first six months and reaching 40.10% and 38.44%, respectively at the end.

Cumulative Hazard Estimate
by Offense Group

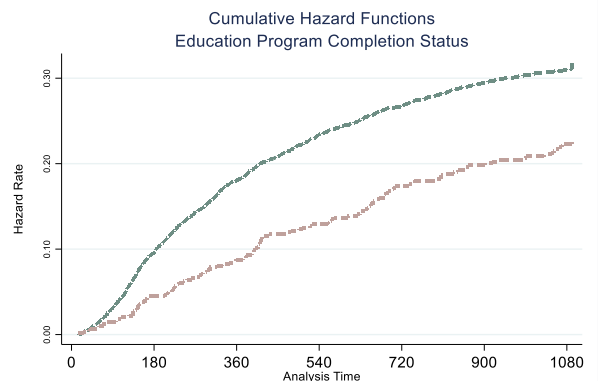Cumulative Hazard Functions
Habitual Offender Status
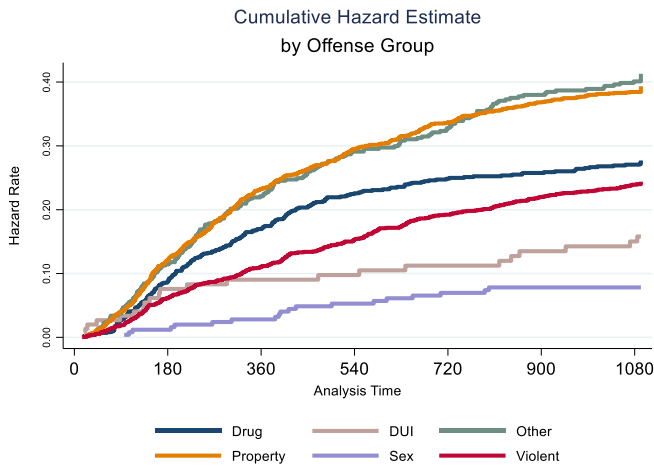
Cumulative hazard functions for Category A and B felons are below the functions for all the other categories, at six months of release they rates are 3.98% and 7.05% and by the end of the period, they reach a 21.68% and 26.04%. Category C to D felons end the first six months in the 10% range and end in the 30% reange at the end of the follow up period.

Cumulative Hazard Estimate
by Offense Category

Cumulative Hazard Estimate
by Number of Prior Convictions

After six months in the community, offenders that didn't complete programs had a hazard rate of 9.60% while its counterparts were 4.47%. At the end, non-completers had accumulated a hazard rate of 30.98% while completers reached only 22.33%.

Habitual offenders and offenders with more than one prior felony conviction stand out as having larger hazards from the start to the end of the study period as exhibited in the graphs below. Offenders that completed educational and vocational programs in this cohort also have lower cumulative hazard rates. Offenders with priors have cumulative hazards in the 10% range after six months that rize to the 40% to 50% range by the 1,080[th] day.

Cumulative Hazard Functions
Education Program Completion Status

Vocational program completers ended with cumulative hazards of 21.54$ and non-completers 31.08%

Cumulative Hazard Functions
Vocational Program Completion Status
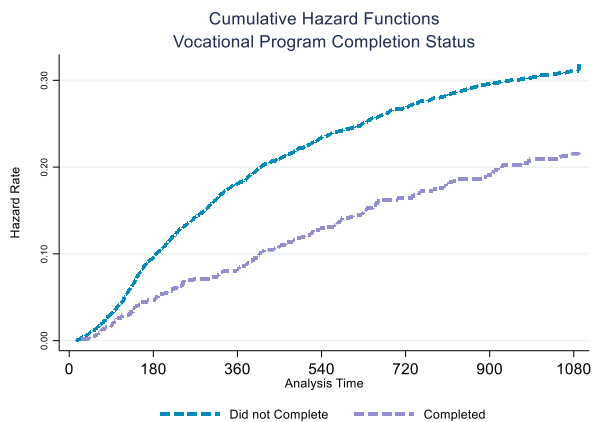
There's much about chriminogenic behavior that is unknown. statistical analysis and the understanding of patters are instrumental in delineating what types of offender characteristics are associated with their likelihood to be readmitted to prison, how soon after, and what rate. This type of knowledge helps policy makers and corrections administratiors to fine tune programming during and post-incarceration.

This report provided baseline information about NDOC's offender populaton of releases and shows its effort at collecting quality data that confirms select program types are providing results for its offender population and that recidivim rates are staying in a a healthy range. The mean recidivism rate for this corhort was 26.42%, the predictive rate 25.76%, and the rate at the means 21.13%. The Nevada Department o Corrections is proud for its achievement of controlling the size of its prison population and reducing cost to its taxpayers.

Alejandra Livingston, MS, MBA, PStat ®
Nevada Department of Corrections
Research, Planning, and Analysis

P.O. Box 7011
Carson City, NV 89702

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