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Racial Inequities in the Navy's Criminal Justice System: An Empirical Analysis of Racial Disparities at Non-Judicial Punishment

March 2022

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ACQUISITION RESEARCH PROGRAM
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ABSTRACT

While there has been a lot of research on Navy diversity across the sailor's life cycle, from recruiting to retirement, there has been limited research on the fairness of the military's criminal justice system during their career. Mostly this is due to lack of systematic data. Beginning in fiscal year 2021, the Office of the Judge Advocate General collected detailed data on all Navy non-judicial punishment (NJP) proceedings, including the demographics of the offender, type of offense, judgement, and punishment. Using these data, I compare the demographic profile of sailors taken to NJP relative to overall Navy demographics on race and gender. Second, I assess the variation in punishments for the same offense and whether these differences in punishment for the same offense vary by race of the offender. Documenting the impact of race on the military's informal criminal justice system is important for two reasons. First, all sailors and officers should have no doubt that they will be treated without prejudice. Second, if there is unequal treatment by race or gender, the service can take steps to rectify it and improve the Navy's criminal justice system to avoid negative impacts. If the data show no systematic evidence of prejudice, then this should be publicized as a point of pride. Finally, this study offers data guidance to the Office of the Judge Advocate General that can be shared across commands to facilitate uniform reporting and generate consistent data on NJPs.

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LIST OF ACRONYMS AND ABBREVIATIONS

ADSEP	Administrative Separation
CO	Commanding Officer
CPO	Chief Petty Officer
DOD	Department of Defense
DRB	Disciplinary Review Board
EDIPI	Electronic Data Interchange Personal Identifier
LPM	Linear Probability Model
MCM	Manual for Courts Martial
NJP	Non-Judicial Punishment
OJAG	Office of the Judge Advocate General's Corps
OLS	Ordinary Least Squares Regression
PO	Petty Officer
QCAR	Quarterly Criminal Activity Report
UCMJ	Uniform Code of Military Justice
XO	Executive Officer
XOI	Executive Officer's Inquiry

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I.   INTRODUCTION

This thesis studies if racial bias exists in the Navy's non-judicial punishment (NJP) process by examining newly acquired data on fleetwide NJP proceedings. The prevalence of racial disparities in the civilian criminal justice system is well-documented in the academic literature, but similar analyses for the military have been limited in the past due to a lack of data. However, given that the Navy is a microcosm of the broader U.S. population it is possible that the Navy's criminal justice system faces similar systemic issues. To assess if there are racial disparities in the NJP process, I examine newly collected data that includes over 7,000 observations of fleet wide NJP hearings from fiscal year 2021. Using these data, I address the following questions:

- Do minority sailors represent a disproportionate share of the population of sailors taken to NJP?

- Are there demographic differences in the charges brought against sailors?

- Are there demographic differences in punishments for similar offenses?

- What can these data tell us about bias in the broader context of the Navy's military justice system?

I employed a quantitative approach using econometric tools to determine if there were statistically significant differences in the demographic makeup of the data. More specifically, I used linear probability models (LPM) and ordinary least squares regression (OLS) models to examine my research questions. My main outcome variables of interest were an indicator for the charged offense, the total number of punishments given, and the type of punishment given. To study these outcomes, I first separated the data into two subsets, one with offenders who were charged with a single UCMJ violation and a second set with offenders who received multiple charges. For each subset of data, I examined the distribution of charges levied against the sailors relative to the complete data set. Then I estimated several LPMs using an indicator variable for each of the five most common offenses as my outcome variable. Next, I examined the distribution of punishments for

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each offense type separately. I then used OLS models to examine the differences in the number of punishments given to the various demographic groups, conditional on the charged offense.

In my analysis I found that Black sailors are overrepresented as a proportion of the population of sailors taken to NJP. Moreover, I found that they were more likely than White sailors to be charged with violating Article 112a: wrongful use or possession of a controlled substance. Furthermore, I found significant differences in the likelihood that Black and Hispanic sailors received restriction or pay forfeiture as a punishment, which were two of the more severe punishment categories under study. My findings indicate that there are racial disparities in the demographic makeup of sailors that are taken to NJP. However, the disparities are less clear among the offenses. For example, Black sailors are more likely to be charged with a violation of article 112a: wrongful use of a controlled substance violation, but less likely to be charged with a violation of article 92: failure to obey an order or regulation. Additionally, my results suggest that the distribution of punishments is relatively consistent. Nonetheless, the apparent disparities warrant further investigation into NJPs.

The subsequent chapters of this thesis describe my approach. Chapter II is background on NJP followed by the literature review in Chapter III that summarizes some of the academic work about racial bias in the criminal justice system. It is broken up into five sections: implicit bias in the civilian criminal justice system, over-policing in civilian communities, racial bias in juries, disproportionate sentencing, and racial bias in the military criminal justice system. Chapter IV offers a detailed summary of my data including the data source, an explanation of how I organized it, descriptions of the variables of interest, and a more thorough explanation of my methodology. Chapter V includes all my regression results and my interpretations of the findings. Finally, Chapter VI summarizes my conclusions and recommendations for further study.

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II. BACKGROUND

A. THE UNIFORM CODE OF MILITARY JUSTICE AND NON-JUDICIAL PUNISHMENT

The Uniform Code of Military Justice (UCMJ) serves as the military's criminal justice framework that governs all service members. Article 15 of the UCMJ affords unit commanding officers (CO) the authority to hold disciplinary hearings for members under their command who are accused of having violated the UCMJ. Known as non-judicial punishment (NJP), these proceedings occur outside of a formal legal setting, such as Courts Martial, because they are generally reserved for less significant violations. These proceedings serve as a tool to help maintain good order and discipline at commands by allowing them to execute swift disciplinary action as needed. A service member can receive NJP for violating any of the punitive articles listed in the UCMJ, but per Navy guidance, NJP is generally limited to minor offenses (Department of the Navy [DN], 2021) Punishments for violators who are found guilty include demotion, forfeiture of pay, physical restriction of movement as defined by the commander, and more.

NJP proceedings begin with an accusation that a member of a CO's command violated a UCMJ article. This notification can come from various sources including the member's chain of command, police reports, command investigations, etc. Once a commander is made aware that a member is suspected of having committed an offense, she or he shall initiate a preliminary inquiry (DOD, 2019). A preliminary inquiry is "an analytical tool to help a commander determine whether an investigation is warranted" (Office of the Judge Advocate General [OJAG], 2012, p. 2-7). They are generally limited to three calendar days from the day that the commander was made aware of the incident, but the commander may offer an extension on a case-by-case basis (OJAG, 2012). Beyond a preliminary inquiry, the Navy also allows for commanders to hold informal disciplinary hearings known Disciplinary Review Boards (DRB) and Executive Officer's Inquiry (XOI). Neither proceeding is required, and they neither determine guilt nor impose punishments (DN, 2021). DRB is generally used for enlisted servicemembers who are required to appear before a panel of the command's senior enlisted leadership to determine

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disciplinary recommendations (DN, 2021). The DRB then forwards their recommendations to the Executive Officer (XO) who then conducts XOI, wherein the XO may dismiss the charges or forward them to the CO for disposition at NJP (DN, 2021). Servicemembers may not refuse these proceedings, though they are not required by the Navy's military justice guidance (DN, 2021).

If after having reviewed the results of the preliminary inquiry—and DRB and XOI results as applicable—a commanding officer determines that disposition of the offense at NJP is warranted, then the NJP authority (the CO) must notify the member of their intent to execute NJP (Department of Defense [DOD], 2019). This notification must include a statement from the CO notifying the member that they are considering NJP, a description of the alleged offenses, a summary of the evidence of the allegations and a statement notifying the member that they may examine the evidence upon request, a statement of the accused's rights, and finally a statement notifying the member of their right to a trial by court marital, if authorized (DOD, 2019). The member must also be notified of the maximum punishments that the NJP authority may impose on the member (DOD, 2019). The servicemember may then demand trial by court-martial in lieu of NJP, unless they are embarked on or attached to a vessel, in which case they do not have the right to refuse NJP (DOD, 2019). If the member does not refuse NJP, then the NJP authority may continue with the proceedings (DOD, 2019).

If the servicemember accepts NJP, then they are afforded some rights before, during, and after the hearing. First, the servicemember may request a personal appearance before the NJP authority at the NJP hearing (DOD, 2019). In this case, the member must be informed of their Article 31(b) rights, which are similar to the Miranda rights for civilians. The member is also authorized to have a spokesperson present at the NJP hearing, unless the punishment imposed will not exceed 14 days of restriction or extra duties, and an oral reprimand (DOD, 2019). The spokesperson may speak on behalf of the accused, but they are not allowed to question witnesses unless authorized by the NJP authority (DOD, 2019). Although a spokesperson is authorized, there is no right to counsel at NJP. However, the servicemember may seek legal guidance from a counselor prior to the hearing to determine if they should refuse NJP (DN, 2021). Even still, the NJP authority may deny

a service member's request to speak with counsel and continue with the NJP; however, that proceeding will not be admissible in any subsequent court martial proceedings (DN, 2021). The servicemember must also be informed of the evidence brought against them and they must be allowed to examine that evidence (MC, 2019). During the proceedings, the member has the right to present matters in their defense either orally or in writing; they are authorized witnesses either in their defense or adversely; and they have the right to request a proceeding that is open to the public, which may be waived by the NJP authority if there is good cause (DOD, 2019).

The servicemember is also authorized to request to not appear at the NJP proceeding, but this is subject to the approval of the NJP authority (DOD, 2019). The servicemember may still offer evidence in their defense in writing to the NJP authority before the authority decides the imposition of the case (DOD, 2019). In this event, the servicemember must also be informed of their right to remain silent and that the evidence that they provide may be used against them (MCM, 2019).

At the end of the proceeding, the NJP authority determines the guilt or innocence of the servicemember. The NJP authority may dismiss all or some of the charges brought against the member (DN, 2021). However, even if the charges are dismissed, the NJP authority may still impose administrative or non-punitive measures on the member (DN, 2021). Conversely, the NJP authority may find the member guilty of some or all the charges. In this case, the NJP authority may impose punishments on the member, and they must inform the member of their right to appeal the decision (DOD, 2019). If the member believes that the punishment was unjust or disproportionate, then the member may appeal the decision to the next superior authority (DOD, 2019). The appeal must be submitted within five days of the NJP.

B.   MAJOR AND MINOR OFFENSES

As previously noted, COs are authorized to hold NJP for minor offenses. However, the UCMJ does not provide a clear definition for a minor offense. Rather, this decision is left to unit commanders who determine if an offense is major or minor based on the facts of the case (Office of the Judge Advocate General [OJAG], 2012). Generally, if an offense

can result in a punitive discharge or if the member can receive more than one year of confinement if found guilty at a court martial, then the offense is considered major (DN, 2021). A punitive discharge is one that is awarded after a sentence at a trial by court martial and can be either a bad conduct discharge or dishonorable discharge (Punitive Discharge, 2013). Even still, this is a "guiding principle" and not a firm rule, therefore COs can still hold NJP for a case that may otherwise be considered a major offense (DN, p. 37). This allows for some ambiguity in executing punishment for certain violations, particularly when one considers that all offenses, both major and minor fall under one of the 61 punitive articles. For example, two sailors, one who was late for muster and one who committed a war crime could both be punished under Article 92, failure to obey an order or regulation. This example, while somewhat simplistic shows how the ambiguity may contribute to confusion in a situation where the differences in the violations are more nuanced.

C. PUNISHMENTS

Unique to the NJP process, COs not only determine guilt or innocence, but they also sentence the member immediately following a guilty verdict. The punishment options that are available to a CO depend on the COs rank and the rank of the member receiving NJP. Most of the data that I used in this analysis was for COs who are of the rank of O4 (Lieutenant Commander) and above imposing punishment on the enlisted members under their command. Figure 1 displays the maximum available punishments to COs based on their rank and the rank of the member upon whom they are imposing punishment. This study primarily focuses on the middle section of the chart; officers imposing NJP who are O4–O6.

ARTICLE 15 PUNISHMENT LIMITATIONS
Navy and Marine Corps

Imposed By	Imposed On	Confinement 3 days (1)	Correctional Custody (2)	Arrest in Quarters (3)	Forfeitures (4 & 5)	Reduction (4 & 6)	Extra Duties (7)	Restriction (7)	Reprimand or Admonition (4)
Flags/Generals in Command	Officers	No	No	30 Days	1/2 of 1 Mo. for 2 Mos.	No	No	60 Days	Yes
	E-4 to E-9	No	No	No	1/2 of 1 Mo. for 2 Mos.	1 Grade	45 Days	60 Days	Yes
	E-1 to E-3	Yes	30 Days	No	1/2 of 1 Mo. for 2 Mos.	1 Grade	45 Days	60 Days	Yes
O-4 to O-6	Officers	No	No	No	No	No	No	30 Days	Yes
	E-4 to E-9	No	No	No	1/2 of 1 Mo. for 2 Mos.	1 Grade	45 Days	60 Days	Yes
	E-1 to E-3	Yes	30 Days	No	1/2 of 1 Mo. for 2 Mos.	1 Grade	45 Days	60 Days	Yes
O-3 / Below & OICs (8)	Officers	No	No	No	No	No	No	15 Days	Yes
	E-4 to E-9	No	No	No	7 Days	1 Grade	14 Days	14 Days	Yes
	E-1 to E-3	Yes	7 Days	No	7 Days	1 Grade	14 Days	14 Days	Yes

(1) May be awarded only if attached to or embarked in a vessel and may not be imposed with correctional custody, restriction, or extra duties (JAGMAN 0111(c), MCM, Part V, para. 5(d)(2))

(2) May not be combined with restriction or extra duties (MCM, Part V, para. 5(d)(3))

(3) May not be combined with restriction (MCM, Part V, para. 5(d)(1))

(4) May be imposed in addition to or in lieu of all other punishments

(5) Shall be expressed in whole dollar amounts only (MCM, Part V, para. 5(c)(8))

(6) Navy CPOs (E-7 to E-9) may not be reduced at NJP; Marine Corps NCOs (E-6 to E-9) may not be reduced at NJP (Check directives relating to promotion) (JAGMAN 0111(e))

(7) Restriction and extra duties may be combined to run concurrently, but the combination may not exceed the maximum possible for extra duties (MCM, Part V, para. 5(d)(4))

(8) Regardless of rank, OICs have NJP authority over enlisted personnel only. (JAGMAN 0106(b)) A nonjudicial punishment authority serving in the grade of W-1 through CWO-5 may not reduce enlisted personnel under any circumstances. (JAGMAN 0111(e))

Figure 1.   Maximum Available Punishments at NJP. Source: Department of the Navy (2021).

It is also important to note that COs may suspend any punishment that they impose on a member (DOD, 2019). This means that the member does not have to serve the punishment unless they are found guilty of another violation within the time frame of the suspension. For example, a member may be awarded a reduction in rank with a two-month suspension. In this instance, the member would not lose their rank unless they are found guilty of another UCMJ violation within the two months following the original NJP.

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III. LITERATURE REVIEW

A. IMPLICIT BIAS IN THE CIVILIAN CRIMINAL JUSTICE SYSTEM

This study aims to assess if there is disparate treatment of minorities in the navy's criminal justice system. Unlike the civilian literature, the literature on racial bias in the military criminal justice system is sparse, particularly for NJP, as the data did not exist prior to 2021. Therefore, we must turn to the civilian literature on the subject to help shape our understanding of how bias manifests in the criminal justice system. Much of the research on the subject points to over-policing of minority communities, racial bias injuries and therefore convictions, and sentencing disparities for non-White defendants.

Spohn (2014) documented that Black Americans were over-represented in the U.S. criminal justice system between 1918 and 2012 and implicated the role of bias at different points of the system in contributing to this pattern. Her paper synthesizes different works on the subject reaching as far back as the 1970s and in her analysis she notes that for imprisonable offenses, the disparity in arrest rates between Whites and minorities that can be attributed to differences in incarceration rates is closing (Spohn, 2014). The implications drawn from this fact form the basis for Spohn's argument that the racial disparities in incarceration rates may be attributable to implicit bias at various stages of the criminal justice system (Spohn, 2014).

Spohn's findings are important because they reinforce her assertion that improvements must be made in various parts of the criminal justice system. She noted criminal justice initiatives that impact the early stages of the criminal justice process, like the war on drugs, have disproportionately targeted minorities and are in part to blame for the growing racial disparity in the criminal justice system. In the latter stages of the criminal justice process, she argued that sentencing disparities between Whites and minorities are also key factors driving these numbers. Her work provides a strong overview of the research conducted over the past decades that highlights the biases of the individual parts of the criminal justice system.

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B.   OVER-POLICING

Gelman, Fagan, and Kiss (2007) conducted a study on the disproportionate impact that New York's controversial stop and frisk policy had on minorities. The researchers used administrative forms, known as the UF-250, to analyze disparities in the program. These forms were used to document the details of the stops that officers made. The information contained in the forms included the demographic information of the person who was stopped, the purpose of the stop, and the result of the officer's investigation. The researchers reviewed 15,869 of these documents across eight of New York's 75 police precincts that occurred between January of 1998 and March of 1999. The authors used this data to perform Poisson regression models to determine if there were any significant differences in the frequency of stops for minorities and if there were differences in the arrest rates for minorities.

The authors found that Blacks and Hispanics were stopped more frequently than White citizens, relative to their population share in each precinct under study and relative to their crime rates (Gelman et al., 2007). Interestingly, the authors found that stops of Hispanic and Black New Yorkers were less likely to result in arrest (Gelman et al., 2007). They attributed this difference to more relaxed standards for stopping minorities than Whites. Overall, the researchers found that Black citizens comprised 51 percent of the stops that they studied, even though Black citizens made up only 26 percent of New York's population (Gelman et al., 2007). Additionally, Hispanic citizens represented 33 percent of the stops while only comprising 24 percent of New York's population.

New York's stop and frisk program has received heavy criticism in recent years due to its disproportionate impact on minority communities and this study reinforces that view. It suggests that increased police presence may have a counterproductive impact on minority communities by increasing the rate at which minorities interact with law enforcement. This further suggests that racial disparities in policing can lead to more racial disparities further along in the criminal justice process.

The ideas posited in Gelman et al. (2007) reinforce a common narrative that over-policing does not lower crime, but rather leads to disparate treatment of minorities.

However, Chalfin et al. (2020) offered a counter argument to that narrative. The authors used crime data from 242 cities with populations of more than 50,000 between 1981 and 2018 to estimate racial differences in the impact of increasing the size of police forces. The authors used these data to run ordinary least squares regression models to determine the marginal returns to an increased police force.

They found that a one percent increase in police manpower led to a 1.1–2.5 percent decrease in Black homicide victimization (Chalfin et al., 2020). Additionally, the authors found a 1.1–4.4 percent decrease for the White population (Chalfin et al., 2020). The authors also noted that index crime arrests decreased, suggesting that increasing a police force can act as an effective deterrent against crime (Chalfin et al., 2020). However, the authors recognized that increasing the size of a police force does lead to an increase in "quality of life" arrests, which are arrests for low-level offenses (Chalfin et al., 2020). Furthermore, the authors noted that the "quality of life" arrest rates for Black civilians is 70 percent greater than White civilians (Chalfin et al., 2020, p. 4). So, while an increased police force can act as an effective deterrent against violent crimes, it increases the rate at which minorities interact with police for lower-level crimes. Therein, this study fails to acknowledge that while more police can help lower crime, the negative burden of an increased police presence often falls disproportionately on the shoulder of minority communities.

These studies offer critical insight into the impacts of over-policing on minority communities. This idea is important to my study because it implies that minorities may face discriminatory behavior early in the criminal justice system. Unfortunately, the data that I have can only enable an ex-post perspective of the NJP system because the data only includes cases that have already been adjudicated. These studies show that there is reason to look further back beyond the criminal proceedings at the events that occurred leading up to the proceedings.

C.   RACIAL BIAS IN JURIES

While these studies provide insight regarding disproportionate policing, others have looked at racial bias in juries. Levinson and Young (2010) introduced a theory that they

call the Biased Evidence Hypothesis theory, which posits that "when racial stereotypes are activated, jurors automatically and unintentionally evaluate ambiguous trial evidence in racially biased ways" (Levinson et al., 2010, p. 2-3). Their hypothesis finds its roots in the sociological theory of priming which states that when people—jurors—are presented with information about someone's—defendant—race they begin to make assumptions about that person, at times unintentionally. To test this hypothesis, the authors presented jury eligible people with the description of a crime and a photo of the perpetrator. Some of the participants were given a photo of a lighter-skinned person, and others a darker-skinned person. The potential jurors were then presented with pieces of evidence from the case. The evidence fell into one of three categories: something that made it appear as if the defendant were guilty; something that would guide one to believe that the defendant was innocent; and pieces of evidence that were ambiguous (Levinson et al., 2010). The participants were then asked to state whether they believed the person was guilty or innocent and they also rated the degree of guilt on a scale of 1–100 (Levinson et al., 2010).

To determine whether their participants displayed any racial bias, the researchers ran a multivariate analysis of a variance test and a logistic regression. They found that the participants who were shown a picture of a darker-skinned person tended to judge ambiguous evidence to be significantly more indicative of guilt when compared to the lighter skinned defendants (Levinson et al., 2010). The researchers also tested the participants for explicit bias by having them complete the Modern Racism Scale, "feeling thermometer" measures, and two implicit association tests (IAT) (Levinson et al., 2010, p. 27). An IAT is a timed test that "pairs an attitude object (such as a racial group) with an evaluative dimension (good or bad) and tests how response accuracy and speed indicate implicit and automatic attitudes" (Levinson, 2007). With this information, the researchers found no correlation between these measures of explicit racism and the differences in outcomes, thereby implying that the outcomes of their study were a result of implicit bias (Levinson et al., 2010). This study provides a framework for best practices on empirically studying racial bias. Furthermore, the study shows that identifying implicit bias can be incredibly difficult. Unfortunately, our data are likely not detailed enough to definitively

identify implicit bias if it exists, but rather gives us a starting point to assess the presence of disparate treatments by race in NJP proceedings.

Further studies on the topic of racial bias in juries have found that racially homogenous jury pools significantly increase the probability that Black defendants are convicted of a crime. Anwar, Bayer, and Hjalmarsson (2010) studied the impact of the racial makeup of jury pools on the conviction probabilities for Black and White defendants using data from Sarasota and Lake counties in Florida. The researchers chose these two counties because they were the only two circuit courts in Florida that, at the time, maintained information on the race of jurors and members of the jury pool (Anwar et al., 2010). The data the researchers received from Sarasota County included information on all felony charges wherein jury selection began between 1 January 2004 and June 2009 (Anwar et al., 2010). The data included demographic information about the defendant, the jury pool, and the final jury. The researchers received similar data from Lake County, but the dates spanned from 1 March 2000 to 2 April 2010.

The researchers used Linear Probability Models (LPM) to determine whether there was a statistically significant difference in the conviction rates for Black defendants when the jury pool included at least one Black person. To do this, the researchers used the indicator (yes/no) variable "any guilty conviction" as their outcome variable regressed against the defendant's race, an indicator variable for whether there was a Black person in the jury pool, and an interaction term for a Black defendant and whether there was a Black person in the jury pool (Anwar et al., 2010). The authors found that Black defendants were 16 percentage points more likely to be convicted of any crime than White defendants when there was no Black person in the jury pool (Anwar et al., 2010).

While these results are significant, there are two shortfalls to this study. One is the limitation of the broader applicability of the study. Since the data only draws from two counties in one state, it cannot be easily extrapolated to the broader population. Two, the authors do not explain why racial diversity in the jury pool matters. It seems that any impact that the racial diversity of juries has on trial outcomes would be most prevalent in the final jury that hears the case, not the jury pool. This thereby raises the question of why racial diversity in the jury pool vice the final jury matters. With that said, this study does build

on the lessons learned from Levinson and Young (2010) regarding best practices for studying the questions that I pose in this paper.

D. DISPROPORTIONATE SENTENCING

Beyond jury convictions, researchers have also found evidence of racial bias in sentencing hearings. Spohn (2000) examined 49 studies on sentencing disparities and found that there was significant evidence of racially biased sentencing, particularly when examining indirect racial effects, as opposed to overt racism (Spohn 2000). Furthermore, her analysis found that the racial bias in sentencing was most pronounced when looking at the interaction between the defendant's race and other demographic markers like gender, age, and employment (Spohn, 2000). In all, she found that the disparities were the most prominent in young, non-White men who were unemployed.

Spohn (2000) explained that these disparities are likely due to stereotyping by judges who believe that non-White defendants are more dangerous to society than their White counterparts. She also noted that the sentencing disparities were most pronounced for drug related offenses. She went on to note that Black and Hispanic defendants faced markedly longer sentences for drug related crimes than White defendants, which she linked to the moral panic that drove the war on drugs and the racialization of anti-drug policies (Spohn 2000).

Spohn's findings and conclusions on sentencing reform were enhanced by Yang (2015) who conducted an empirical study of the impact of the strike down of federal sentencing guidelines in the Supreme Court case U.S. v. Booker. Yang employed an event study framework to analyze the impacts of the court's decision by collecting data on case outcomes from before and after the guidelines were removed. Her main specification was an ordinary least squares model with sentencing length measured in months with various fixed effects. Yang found that when the sentencing guidelines were struck down, sentences for White defendants decreased while the sentences for Black defendants increased. She specifically found that Black defendants received 2 more months in prison, which marked a 4 percent increase in the average sentence length for Black defendants (Yang, 2015).

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For the purposes of my analysis, Yang's work provides two key takeaways. One, is the distinct gap between the sentencing lengths of Black and White defendants overall. For offenses with no statutory minimum sentence, there is a noticeable difference in the sentence lengths of White and Black defendants reaching as far back as 1994. Also, as previously noted, this gap only becomes more pronounced after the sentencing guidelines were rescinded. Secondly, her study offers a sample analytical framework for studying how the absence of sentencing standardization adversely impacts minorities. This is pertinent for my study because the Navy does not have standardized sentencing guidelines for NJP. Therefore, I study if punishments are consistent across the fleet for the same offenses.

E.   RACIAL INEQUITIES IN THE MILITARY CRIMINAL JUSTICE SYSTEM

Though there is limited data on racial disparities in the military's criminal justice system, there has recently been a concerted effort to study the topic. For example, Christensen and Tsilker (2017) analyzed data that they received on disciplinary hearings for the Air Force, Army, Marine Corps, and Navy. The researchers used the data to compare the disciplinary rate per thousand individuals to determine if racial minorities represented a disproportionate number of legal cases in each of the armed services (Christensen et al., 2017). Overall the researchers found that "Black service members were substantially more likely than White service members to face military justice or disciplinary action" (Christensen et al., 2017, p. 1). For the Navy specifically, they found that Black sailors were roughly 40 percent more likely to have their cases referred to a military justice proceeding than their White counterparts (Christensen et al., 2017). Furthermore, Black sailors were 1.52 times more likely to have their cases referred to a military justice proceeding and 1.29 times more likely in 2016 (Christensen et al., 2017). However, a weakness of this study is that the authors did not employ econometric tools to verify their results, but rather they used their rate per thousand approach to determine the proportionality of punishments. This does not allow for proper controls of other demographic factors, nor does it allow for an assessment of the statistical significance of the results. It should also be noted that the data that the Navy provided was sparce, which is why the authors were only able to analyze two years of cases.

However, the researchers also found that after being referred, the disparities virtually disappeared as a similar proportion of cases for White and non-White sailors were dismissed to a different venue for adjudication (Christensen et al., 2017). The researchers also discovered that there was no disparity in the conviction rates at court martial (Christensen et al., 2017). This suggests that the bias may be concentrated at the command level, which may have implications for this study.

A subsequent 2019 Government Accountability Office (GAO) report also found several problems with the tracking and reporting of legal cases across the services. As with Christensen and Tsilker (2017), the GAO collected and analyzed the available NJP and courts martial data from each service branch. Broadly, they found that minority service members were more likely to be subjects of legal investigations than non-minorities. For example, as seen in Figure 2, Black sailors were 2.06 times as likely as their White counterparts to face legal investigations (GAO, 2019). The study also found that Black sailors were twice as likely as White sailors to face a trial by court marital and Hispanic sailors were 1.4 times as likely as White sailors (GAO, 2019). A limitation of this finding was that the GAO did not offer an interaction term for officer and race, thereby they cannot assess any differences by race and rank.

Navy » 552,388 total servicemembers; 7,293 investigated

	Percentage of total population	Percentage investigated	Times as likely
Black	16	25	2.06
Hispanic	15	18	1.47
Other	15	15	1.27
Male	80	92	3.03
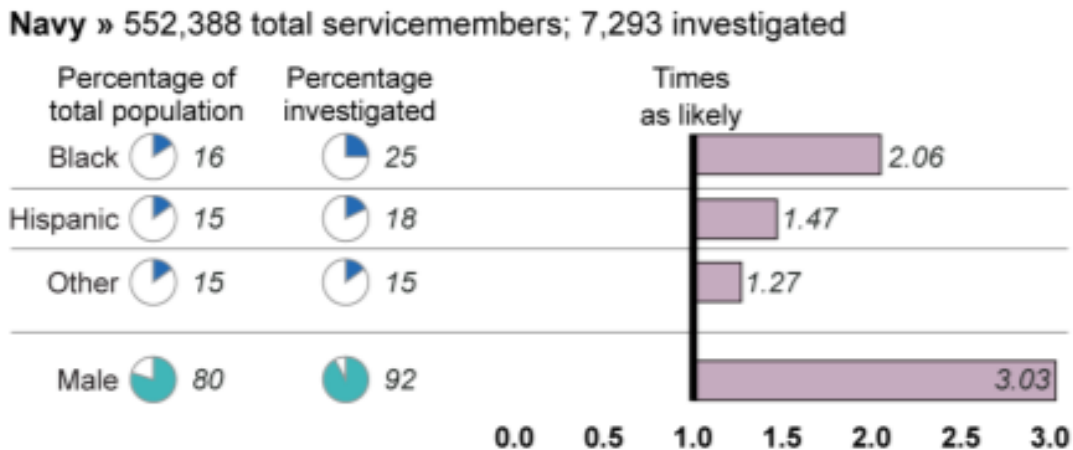
Figure 2. Likelihood of Recorded Investigations for Alleged UCMJ Violations by Race and Gender. Source: GAO (2019).

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Like Christensen and Tsilker (2017), this study lacked sufficient information on navy NJPs such that the authors could not provide any analysis for the demographics of sailors facing NJP. But the study does reinforce Chirstensen and Tsilker (2017) findings in that it found that there was no statistically significant difference in conviction probability for minorities at special and general courts martial. Nor did the authors find any significant difference in the severity of punishment for minority and White sailors. Again, this suggests that the sources of bias may be closer to the command level. Perhaps the most important contribution of the GAO (2019) report is that it led to the collection of the data that I use in this study.

In conclusion the research synthesized above can help to shape our understanding of how racial bias manifests in different parts of the criminal justice system and how in the aggregate this can result in disparate treatment.

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IV. DATA AND METHODOLOGY

This chapter offers a brief discussion of the data that I used for the study and the methodology that I used to analyze the data. I begin with a discussion on the data itself and then lead into descriptions of the key variables that I used in the study. I then conclude with a discussion on the statistical methodology.

A. DATA

For my analysis, I used observational data on NJP proceedings from FY2021that was collected by OJAG from all Navy commands. Each command reported to OJAG their Quarterly Criminal Activity Report (QCAR) data, which included detailed information about the NJP proceedings that occurred at the command for each quarter. The reports included the date of NJP, the charged offense, the demographic data of the accused, the result, and the punishments given. The demographic information included the accused's race, ethnicity, gender, rank, and years of service. The raw data included 7,519 observations. Service members' Electronic Data Interchange Personal Identifiers (EDIPI) were used in the data to identify each unique person.

My first step in data processing was to drop observations for which there was no EDIPI, because without the EDIPI it was impossible to verify if a given observation described a unique individual. After dropping missing EDIPIs, the number of observations fell to 5,363. Next, I dropped duplicate observations and observations that were missing a significant number of variables, like race, gender, offense, result, etc. I then dropped observations that were not heard at NJP and observations for Marine Corps Service members.

Next, I sorted the data into two data sets, one with observations of NJPs wherein each observation was one sailor charged with a single violation at a single NJP proceeding and a second data set wherein each observation represented one sailor charged with more than one violation at a single NJP proceeding. The single offense data set included 3,772 observations and the multiple offenses data set included 1,420 observations. Finally, 141 (2.7 percent) of the NJP cases were found not guilty, which left 5,051 (97 percent) cases

that resulted in a guilty verdict. Table 1 displays the demographic information, gender, rank, and offenses for each of the three data sets.

Table 1.   Summary Statistics

	(1) Full sample	(2) Single Offense	(3) Multiple Offenses
Black	0.29 (0.456)	0.29 (0.452)	0.32 (0.465)
White	0.56 (0.496)	0.57 (0.495)	0.54 (0.499)
Asian	0.03 (0.171)	0.03 (0.173)	0.03 (0.166)
Other Race	0.11 (0.319)	0.11 (0.318)	0.12 (0.321)
Hispanic	0.17 (0.372)	0.16 (0.368)	0.18 (0.383)
Male	0.82 (0.386)	0.82 (0.387)	0.82 (0.382)
E1-E3	0.59 (0.492)	0.58 (0.494)	0.61 (0.487)
Petty Officers	0.37 (0.484)	0.38 (0.487)	0.35 (0.476)
Chief Petty Officer	0.02 (0.143)	0.02 (0.150)	0.02 (0.124)
Officer	0.02 (0.133)	0.02 (0.122)	0.03 (0.159)
Article 86	0.13 (0.339)	0.13 (0.334)	0.14 (0.351)
Article 92	0.47 (0.499)	0.51 (0.500)	0.37 (0.484)

	(1) Full sample	(2) Single Offense	(3) Multiple Offenses
Article 107	0.05 (0.215)	0.02 (0.153)	0.11 (0.318)
Article 112a	0.12 (0.320)	0.13 (0.339)	0.07 (0.257)
Article 113	0.05 (0.208)	0.04 (0.206)	0.05 (0.214)
Other Violation	0.18 (0.387)	0.16 (0.365)	0.25 (0.434)
Reprimand	0.10 (0.303)	0.10 (0.303)	0.10 (0.301)
Restriction	0.66 (0.475)	0.64 (0.479)	0.69 (0.462)
Extra Duties	0.64 (0.479)	0.63 (0.483)	0.68 (0.467)
Pay Forfeiture	0.61 (0.487)	0.61 (0.488)	0.62 (0.485)
Reduction in Rank	0.59 (0.492)	0.57 (0.495)	0.63 (0.482)
Total Punishments	2.61 (1.128)	2.56 (1.125)	2.72 (1.129)
Observations	5192	3772	1420

Mean coefficients; sd in parentheses

B.   KEY VARIABLES

I used two of the variable groups as the primary outcome variables for my analysis: offenses, and punishments. I created indicator variables for each of the five most common observations in each variable category. I begin with offenses first because that is the order of the results. For punishments, I created indicator variables for restriction, extra duties, pay forfeiture, reduction in rank, and reprimand. Then, using the indicators for

punishments, I created a total punishments variable that was equal to the total number of punishments given to each defendant in the data.

1. Offenses

The "offense" variable indicated the UCMJ violation for which the individual was taken to NJP. The data included all the punitive articles in the UCMJ except articles 77–79, the general offenses. Most of the accused were charged with violation of Article 92: failure to obey an order or regulation. This held true for both subsets of the data as well. Since some of the observations were missing EDIPIs, it is possible that some sailors were taken to NJP with multiple violations at the same time, but since I could not accurately identify those sailors, they were dropped from the data set.

The five most common offenses in the data were Article 92, which accounted for 47 percent of the offenses in the full data set; Article 86: Absence without leave, which accounted for 13 percent of the offenses in the full data set; Article 112a: wrongful use or possession of a controlled substance, which accounted for 12 percent of the offenses in the full data set; Article 107: false official statement, which accounted for 5 percent of the offenses in the full data set; and Article 113: drunken operation of a vehicle, aircraft, or vessel, which accounted for 5 percent of offenses in the full data set. The rest of the observed offenses each comprised less than 3 percent of the data set, so I grouped them all into the "other offense" category.

The proportion of offenses was consistent throughout the data subsets for articles 86 and 113. However, 51 percent of the single offense data set received an article 92 violation, while only 37 percent of the multiple offenses data set received one. Similarly, only 2 percent of the single offense data set was charged with an article 107 violation, while 11 percent of the multiple offenses data set was charged with a 107 violation. Finally, while 13 percent of the single offenses data set was charged with a 112a violation, only 7 percent of the multiple offenses data set was charged with it.

2. Punishments

The data set included nine punishment categories: confinement, hard labor without confinement, restriction, arrest in quarters, correctional custody, extra duties, pay forfeiture, reduction in rank, and reprimand. No one received hard labor without confinement nor correctional custody, so I dropped those variables. I used the following five punishment variables in my analysis to narrow the scope of the study. Each of the punishments was given to at least 10 percent of the observations in the full data set.

a. Restriction

The Manual for Courts Marital (MCM) states that restriction is the "least severe form of deprivation of liberty" because it "involves moral rather than physical restraint" (DOD, 2019, p. V-5). However, the severity of restriction can vary based on its duration and the geographical limits placed on the individual who receives the punishment (DOD, 2019).

In my data, restriction was the most common punishment. Of the 5,050 sailors who were found guilty of any violation, 66 percent received restriction. To analyze the distribution of restriction as a punishment, I grouped the number of days of restriction into three categories: no restriction, 15–30 days, 31–45 days, and 45–60 days. All the incidences of restriction fell somewhere in the range of these categories. Of those who received restriction, 33 percent did not receive restriction, 30 percent received 15–30 days, 31 percent received between 31 and 45 days, and 6 percent received 45–60 days as displayed in Figure 3. Additionally, I created an indicator variable that was coded as 1 if the person received any restriction regardless of length and 0 otherwise to analyze the probability that a sailor received restriction, conditional on offense.
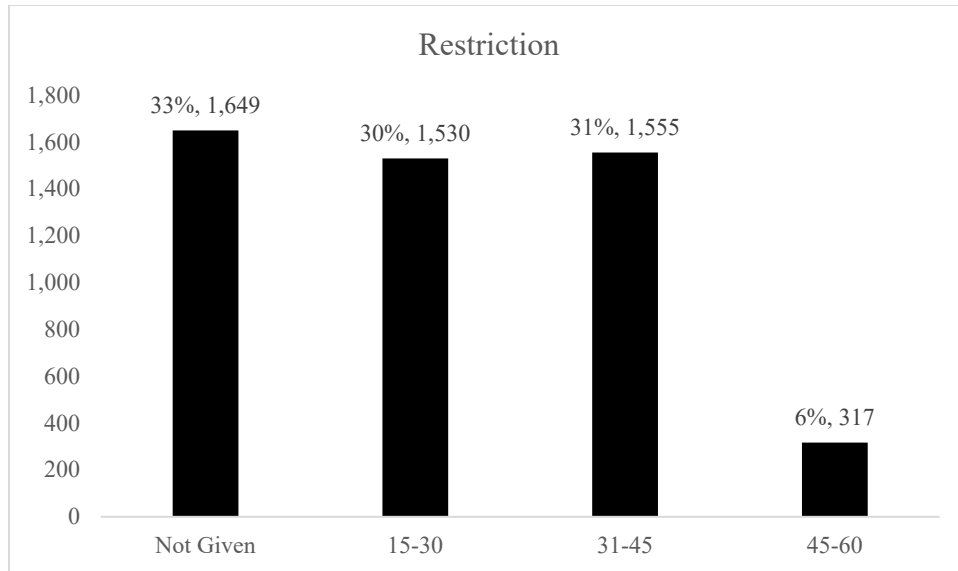
Figure 3.   Distribution of Days of Restriction Given for Entire Data Set.

b.   *Extra Duties*

According to the MCM, "extra duties involve the performance of duties in addition to those normally assigned to the person" (DOD, 2019). Military duties of any kind can be assigned, but they may not constitute a known health hazard, cruel or unusual punishment, nor duties that are not sanctioned by the customs of the service (DOD, 2019).

Extra duties was the second most common punishment category and was measured in days. As with restriction, I grouped the number of days into no extra duties, 0–15 days, 16–30 days, and 31–45 days. Of the sailors found guilty at NJP, 64 percent received extra duties as a punishment. As shown in Figure 4, 7 percent of the full data set received up to 15 days of extra duties, 25 percent received between 16 and 30 days, and 35 percent received between 31 and 45 days. I also created an indicator variable that was coded as 1 if the person received any extra duties, regardless of length, and 0 otherwise.

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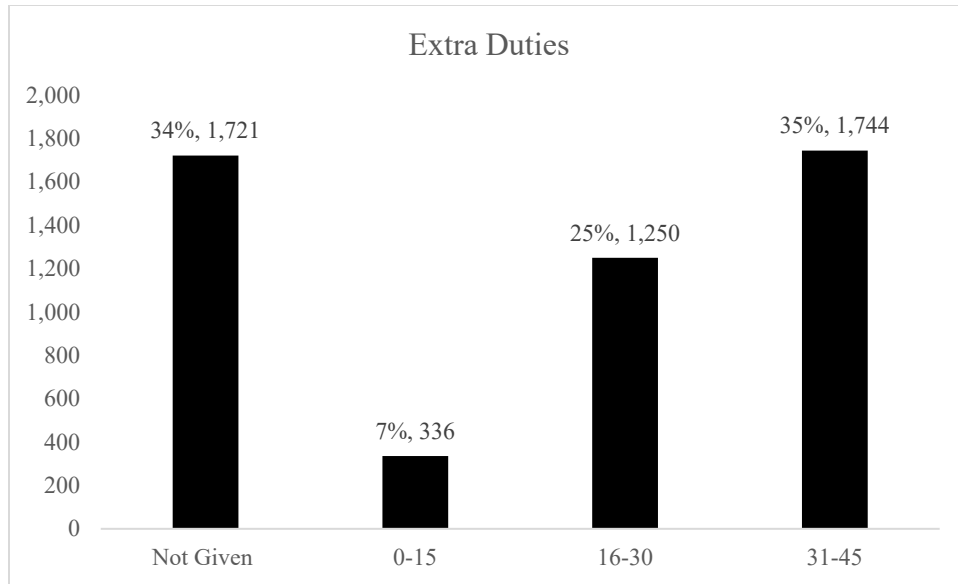
Figure 4.   Distribution of Days of Extra Duties Given for Entire Sample.

c.   *Forfeiture of Pay*

The MCM defines the words "forfeit" and "pay" separately in its explanation of what forfeiture of pay means. Pay refers to the person's basic pay and forfeiture means permanent loss of the entitlement to the forfeited pay and (DOD, 2019). Therefore, forfeiture of pay is the loss of up to one-half of an individual's basic pay for up to two months (DOD, 2019).

I created an indicator variable to indicate whether the individual received a pay forfeiture as a punishment. Of those found guilty at NJP, 61 percent received pay forfeiture as a punishment. The data contained the amounts of forfeited pay, but the data included over 800 unique variations for coding the forfeited amount, so determining the distribution of amount of lost pay was nearly impossible.

d.   *Reduction in Rank (Grade)*

The fourth major punishment category was reduction in rank, which the MCM recognizes as one of the most severe forms of punishment. An officer may reduce the individual in rank down to the lowest or any intermediate paygrade (DOD, 2019). Of the sailors found guilty at NJP, 59 percent were reduced in rank. The data did not consistently

track the amount of the reduction so I generated an indicator variable, which was coded 1 if the person was reduced in rank and 0 otherwise.

e. *Reprimand or Admonition*

The final punishment category that I analyzed for this study was reprimand or admonition. According to the MCM, reprimands and admonitions are two forms of censure used to express adverse reflection or criticism of someone's actions (DOD, 2019). In the context of the MCM, a reprimand is considered more severe than an admonition, but the data that I was provided treated them as if they were the same, so for this study I treated them as such. As with the other punishment variables, I created an indicator variable for whether the individual received a reprimand or admonition. Of those found guilty, 10 percent received a reprimand or admonition. I created an indicator variable for this variable that indicated if the person received a reprimand.

3. Demographic Variables

a. *Race*

Race was a key demographic variable in my analysis, as the goal of my study was to determine if there are racial differences in the adjudication of NJPs across the fleet. The data included race categories for Black, White, American Indian/Alaskan native, Asian, native Hawaiian or other Pacific islander, and other. For my analysis, I grouped races that comprised less than 2 percent of the data with other. As displayed in Table 1, I found that 56 percent of the data set were White, 29 percent were Black, 3 percent were Asian, and 11 percent were another race. I also found that these proportions were relatively the same after splitting the data into single and multiple offenses. Most notably, the proportion of White sailors decreased to 54 percent for offenders with multiple charges, while the proportion of Black offenders increased to 31 percent.

Ethnicity in the data set was coded as either Hispanic or not. I found that sailors who identify as Hispanic or Latino comprised 17 percent of the entire data set, which is consistent with the Navy's total force (DOD, 2020). This proportion was consistent in the single and multiple offender data sets at 16 percent and 18 percent, respectively.

b. Gender

The gender variable was coded as either male or female. I found that the entire data set was 82 percent male, which held true for both the single and multiple offender data subsets. The proportion of males in the data set is indicative of a slight overrepresentation of men, as the Navy's total force was 79 percent male as of 2020 (DOD, 2020).

c. Rank

Apprentice-level sailors (E1–E3) and Petty Officers (PO) (E4–E6) made up 59 percent and 37 percent of the full data set, respectively. For apprentice-level sailors, this proportion increased to 61 percent for the multiple offenses data set, and for POs, the proportion decreased to 35 percent. Chief Petty Officers (CPO; rank E-7 to E-9) and officers (O-1 and above) each made up two percent of the full data set, which was consistent throughout the data subsets.

C. METHODOLOGY

I used a quantitative approach to estimate linear probability models (LPM) to assess whether race is correlated with being charged with certain offenses. Additionally, I used LPMs to determine if there was a statistically significant difference in the punishment outcomes for offenders charged with the same offense. This analysis was important for determining if there were demographic disparities in the charged offenses and in the punishments given, which may indicate bias in the NJP process.

The outcomes in the first set of models were the various indicators that I generated for the offenses. That is, for each data subset, I estimated five LPMs to determine if there was a difference in the likelihood that a given demographic group was charged with the given offense, relative to another group. The equation for the model is as follows:

$$\text{Violation}_i = \beta_0 + \beta_1 * \text{Black}_i + \beta_2 * \text{Asian}_i + \beta_3 * \text{OtherRace}_i + \beta_4 * \text{Hispanic}_i + \beta_5 * \text{Male}_i + \beta_6 * \text{ApprenticeSailor} + \beta_7 * \text{CPO}_i + \beta_8 * \text{Officer}_{i} + \varepsilon_i,$$

where the indicator Violation_i is equal to one for the particular violation in question and zero otherwise. The subscript i denotes the individual.

Next, for each data subset, I estimated five ordinary least squares regression models using the total number of punishments as the outcome regressed against the various demographic indicators, conditional on being charged with a given offense, using the equation:

$$NumberPunishments_i = \beta_0 + \beta_1*Black_i + \beta_2*Asian_i + \beta_3*OtherRace_i + \beta_4*Hispanic_i + \beta_5*Male_i + \beta_6*ApprenticeSailor + \beta_7*CPO_i + \beta_8*Officer_{i} + \varepsilon_i$$

Finally, for each of the five offenses, I estimated five LPMs with an indicator for the punishment type as the outcome regressed against the various demographic indicators. I did this for each of the five major punishment categories, totaling 25 additional regressions per data set. The equation I used was:

$$(Punishment_i \mid offense_i=1) = \beta_0 + \beta_1*Black_i + \beta_2*Asian_i + \beta_3*OtherRace_i + \beta_4*Hispanic_i + \beta_5*Male_i + \beta_6*ApprenticeSailor + \beta_7*CPO_i + \beta_8*Officer_{i} + \varepsilon_i$$

For the regressions, I omitted "White" as a race variable so that all the race results are relative to White sailors. Additionally, I omitted POs (E4–E6) as a rank variable so that all the rank coefficients are relative to them. Finally, each series of regressions includes fixed effects for fiscal year quarters. I created fiscal year indicators by using the dates provided in the data.

Though the data was extensive, there were some problems with it that limited the strength of my analysis. First, there were several observations that were missing EDIPIs, which made it difficult to determine if a person had in fact only been charged with one violation or many. This means that there were likely too many observations categorized as "single offense" and conversely too few as "multiple offenses." Additionally, my analysis of the number and severity of punishments for offenses was hindered by the lack of specificity regarding the charged offenses. Specifically, I was unable to measure the severity of the offense, which therefore limited my ability to interpret discrepancies in punishments for similar offenses. This was likely most acute for the article 92 violators because that article tends to act as a "catch all." Therefore, there were likely substantial differences in the details of those cases that would justify punishment discrepancies. Furthermore, it would be useful to include more detailed information about the proceedings

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like the evidence presented at the hearing, whether the defendant spoke, the demographic characteristics of the CO and XO, and so on.

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V.   RESULTS

My first step in analyzing the single offense and multiple offenses data sets was to determine if there were any significant differences in the offenses brought against sailors by race, ethnicity, or gender. To do this I ran LPMs using the offense variable indicators as the outcome variables with controls for race, gender, rank, and indicators for the quarter in which the NJP proceeding occurred.

I then analyzed the differences in punishments for each offense. I first compared the distribution of the five major punishment categories for each offense in each data set to the overall distribution of punishments for each offense in the whole data set. I then used ordinary least squares regression models to determine if there were any statistically significant differences in the number of punishments within the same violation category by demographics.

A.   SINGLE OFFENSE

1.   Charged Offenses

Table 2 includes the data of the five LPMs using each article as the outcome variable for the single offense data set. I discuss the results for each of the offenses in the following five sections.

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Table 2.   Violation Probabilities: Single Offense (Outcome = Indicator for Offense)

	Model 1: Art. 92 Failure to Obey	Model 2: Art. 86 Absence Without Leave	Model 3: Art. 112a Wrongful Use of a Controlled Substance	Model 4: Art. 107 False Official Statement	Model 5: Art. 113 Drunken Operation of a Vehicle
Black	-0.172***	0.058***	0.087***	0.003	-0.010
	(0.018)	(0.013)	(0.014)	(0.006)	(0.007)
Asian	0.040	-0.032	-0.001	0.029	-0.030*
	(0.046)	(0.026)	(0.029)	(0.021)	(0.013)
Other Race	-0.063*	0.017	0.011	0.016	-0.011
	(0.027)	(0.018)	(0.019)	(0.010)	(0.011)
Hispanic	0.025	-0.014	-0.000	-0.012	0.015
	(0.024)	(0.015)	(0.016)	(0.006)	(0.010)
Male	-0.082***	0.018	0.016	0.000	0.018*
	(0.020)	(0.014)	(0.014)	(0.006)	(0.007)
E1-E3	0.051**	0.030**	-0.011	-0.010	-0.027***
	(0.017)	(0.011)	(0.012)	(0.005)	(0.007)
Chief Petty Officer	0.194***	-0.068**	-0.071*	0.025	-0.001
	(0.052)	(0.024)	(0.028)	(0.026)	(0.026)
Officer	0.008	-0.083***	-0.073*	-0.010	0.080
	(0.065)	(0.021)	(0.032)	(0.018)	(0.046)
Q1 FY 2021=1	0.158*	-0.086	-0.012	-0.001	-0.002
	(0.065)	(0.049)	(0.047)	(0.023)	(0.028)
Q2 FY 2021=1	0.204**	-0.076	-0.028	-0.013	-0.007
	(0.066)	(0.049)	(0.047)	(0.023)	(0.028)
Q3 FY 2021=1	0.116	-0.033	-0.012	-0.011	-0.000
	(0.066)	(0.050)	(0.047)	(0.023)	(0.028)
Q4 FY 2021=1	0.045	0.001	-0.022	0.005	0.010
	(0.066)	(0.050)	(0.047)	(0.023)	(0.028)
R-squared	0.048	0.023	0.016	0.007	0.012
N	3772	3772	3772	3772	3772
Outcome mean	0.513	0.128	0.132	0.024	0.045

Standard errors in parentheses

$^{*} p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$

a. Article 92: Failure to Obey an Order or Regulation

The column labeled Model 1 includes the results for the LPM using an indicator variable for article 92 as the outcome variable. Of the eight demographic characteristic regressors, five were statistically significant. Black sailors were 17 percentage points, or 33 percent, less likely to be charged with an article 92 violation than White sailors. Additionally, the race group "other" was six percentage points, 12 percent, less likely than White sailors to be charged with an article 92 as well. Men were eight percentage points, or 15 percent, less likely than women to be charged with article 92. Apprentice level sailors (E1–E3) were five percentage points, or 10 percent more likely than POs to receive an article 92 violation. Finally, CPOs were 19 percentage points, or 37 percent, more likely to be charged with an article 92 violation than POs. Given the ambiguous nature of Article 92 violations, it is unclear why Black sailors or those of other race were less likely to receive an article 92 violation.

b. Article 86: Absence Without Leave

Model 2 summarizes the regression results for the demographic differences in Article 86 charges. Four of the demographic indicators were statistically significant in this model. Black sailors were 5.6 percentage points, or 45 percent more likely than White sailors to be accused of violating article 86. Apprentice level sailors (E1–E3) were three percentage points, or 23 percent more likely than POs (E4–E6) to face an article 86 charge. Finally, CPOs and officers were each 6.8 percentage points (53 percent) and 8.3 percentage points (64 percent) less likely to be charged with an article 86 violation than POs.

c. Article 112a: Wrongful Use or Possession of a Controlled Substance

In the single offense data set I found that Black sailors were over-represented as a proportion of sailors taken to NJP for violation of article 112a. Specifically, 42 percent of the sailors charged with an article 112a violation were Black, while only 29 percent of the single offense data set was Black. This initial finding suggested that there was a significant difference in the rate at which Black sailors are charged with 112a.

Model 3 includes the regression results for Article 112a. I found that Black sailors were 8.7 percentage points, or 66 percent more likely to be charged with an article 112a violation than their White counterparts, which confirms my findings from above. The only other statistically significant differences that I observed were for officers and CPOs who were each seven percentage points, or 53 percent less likely to receive an article 112a violation than POs.

d. Article 107: False Official Statement

There were no statistically significant results for article 107, meaning that I found no differences in the probability of being charged with an article 107 violation for any demographic group.

e. Article 113: Drunken Operation of a Vehicle, Aircraft, or Vessel

Finally, the fifth column includes the regression results of the probabilities that the various demographic groups were charged with an article 113 violation. There was a statistically significant difference for men, who were 1.8 percentage points, or four percent, more likely to be charged with an article 113 violation than women. Additionally, Asian sailors were three percentage points, or six percent, less likely to receive an article 113 charge than White sailors. Finally, there was a statistically significant difference for junior sailors who were 2.7 percentage points, or six percent more likely to receive an article 113 charge than POs.

2. Total Punishments

Next, I shifted my focus to the total punishments that the sailors received, conditional on the violation. The average total number of punishments for the offenses ranged from 2.3–2.7. Table 3 includes the results for the five regressions that I used for the analysis. The outcome for each regression was the total punishments received by the offender and each column displays the results conditional on being charged with the listed offense. Each of the following sections summarizes the results for each charged offense.

Table 3.   Total Punishments: Single Offense (Outcome = Total Number of Punishments)

	Model 1: Art. 92 Failure to Obey	Model 2: Art. 86 Absence Without Leave	Model 3: Art. 112a Wrongful Use of a Controlled Substance	Model 4: Art. 107 False Official Statement	Model 5: Art. 113 Drunken Operation of a Vehicle
Black	-0.109	0.015	-0.183	-0.352	0.128
	(0.057)	(0.102)	(0.117)	(0.253)	(0.212)
Asian	0.035	-0.787**	0.119	-0.652	-1.203*
	(0.113)	(0.280)	(0.369)	(0.632)	(0.545)
Other Race	-0.088	-0.307	0.107	-1.001**	-0.206
	(0.078)	(0.164)	(0.162)	(0.369)	(0.249)
Hispanic	0.104	0.241	0.176	0.158	0.213
	(0.064)	(0.135)	(0.136)	(0.484)	(0.205)
Male	0.058	0.223	0.478***	0.338	0.192
	(0.055)	(0.114)	(0.142)	(0.315)	(0.185)
E1-E3	0.339***	0.395***	0.644***	0.309	0.353*
	(0.053)	(0.101)	(0.107)	(0.265)	(0.172)
Chief Petty Officer	-0.810***	-0.259	-0.568	-0.975*	-1.035*
	(0.132)	(0.274)	(0.406)	(0.456)	(0.402)
Officer	-1.379***	-1.387***	-0.799*	-1.424***	-1.403***
	(0.109)	(0.143)	(0.353)	(0.239)	(0.219)
Q1 FY 2021=1	-0.232	0.236	1.026*	-1.388*	1.210
	(0.222)	(0.348)	(0.474)	(0.557)	(0.614)
Q2 FY 2021=1	-0.247	0.211	0.728	-1.305*	1.074
	(0.222)	(0.350)	(0.479)	(0.540)	(0.627)
Q3 FY 2021=1	-0.335	0.436	0.485	-1.084	1.014
	(0.223)	(0.348)	(0.478)	(0.556)	(0.613)
Q4 FY 2021=1	-0.207	0.309	0.814	-1.260*	1.243*
	(0.224)	(0.341)	(0.478)	(0.486)	(0.611)
R-squared	0.090	0.080	0.161	0.198	0.202
N	1882	479	483	87	165
Outcome mean	2.605	2.658	2.781	2.322	2.642

Standard errors in parentheses

$^{*} p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$

a. Article 92: Failure to Obey an Order or Regulation

The regression results for Article 92 violators are summarized in column 1. The offenders received on average 2.6 punishments. I found statistically significant differences for apprentice sailors (E1–E3), CPOs, and officers. The results show that CPOs received about 0.8 fewer punishments than POs and officers received about 1.4 fewer punishments. However, apprentice level sailors received 0.3 more punishments than POs. There were no other statistically significant differences for the other demographic groups. These findings show that officers and senior sailors received fewer punishments than E6 and below sailors, but since article 92 can act as a catch all offense category, it is difficult to interpret any differences without knowing the severity of the charged offense.

b. Article 86: Absence Without Leave

Column two includes the regression results for the 86 violators, who received 2.6 punishments on average. The only statistically significant results that I found were for Asian sailors, apprentice level sailors, and officers. Asian sailors received 0.78 fewer punishments than White sailors. Additionally, apprentice level sailors received 0.39 more punishments than POs, while officers received 1.38 fewer punishments than POs. Of note, though Black sailors were 45 percent more likely to be charged with an article 86 violation than White sailors, there was no statistically significant difference in the number of punishments that they received, relative to White sailors. This suggests that while the distribution of offenses is inconsistent, the distribution of punishments is consistent for the demographic characteristics, except rank.

c. Article 112a: Wrongful Use or Possession of a Controlled Substance

Article 112a offenders were the second largest offense group in the single offense data set–refer to the summary statistics in Table 1–and they received on average 2.7 punishments. The results of the total punishment regression for 112a violators are displayed in column 3. Overall, I found statistically significant differences for male sailors, apprentice level sailors, and officers. Males received 0.4 more punishments than females, officers received about 0.8 fewer punishments than POs, and apprentice level sailors received 0.6 more punishments than POs. As with article 86, Black sailors were more likely

than White sailors to be charged with an article 112a violation. However, there was no statistically significant difference in the total punishments given.

d.   *Article 107: False Official Statement*

Column 4 summarizes the regression results for article 107 violators. There were no statistically significant results for that regression.

e.   *Article 113: Drunken Operation of a Vehicle, Aircraft, or Vessel*

Column 5 includes the results for article 113 violators. I found statistically significant results for Asian sailors and for each rank category. Asian sailors, who were less likely than White sailors to be charged with an article 113 violation, received 1.2 fewer punishments than White sailors. Additionally, officers received 1.4 fewer punishments than POs and CPOs received one less punishment than POs. Finally, apprentice sailors (E1–E3) received 0.35 more punishments than POs.

3.   Type of Punishment

Finally, for each of the five violations I analyzed the differences in probabilities that the demographic categories received each of the five punishments. I used the indicator variables for each punishment as the outcome variable to run five LPMs for each offense. The results of the models are summarized below.

a.   *Article 92: Failure to Obey an Order or Regulation*

As previously noted, article 92 violators in the single offense data set received on average 2.6 total punishments. Figure 5 displays the frequencies of the punishments for article 92 violators in the single offense group. Sixty-nine percent received restriction, 69 percent received extra duties, 62 percent received a pay forfeiture, 50 percent were reduced in rank, and 11 percent received a reprimand. These proportions were consistent with the full data set, displayed in Figure 6. The exception was for reduction in rank as 54 percent of the full sample received that punishment, while only 50 percent of the single offenders did.

Article 92 Punishments: Single Offense

1400	69%, 1296 69%, 1291
1200	62%, 1159
1000	50%, 947
800	
600	
400	
200	11%, 209
0	

Frequency (y-axis)

Restriction | Extra Duties | Pay Forfeiture | Reduction in Rank | Reprimand
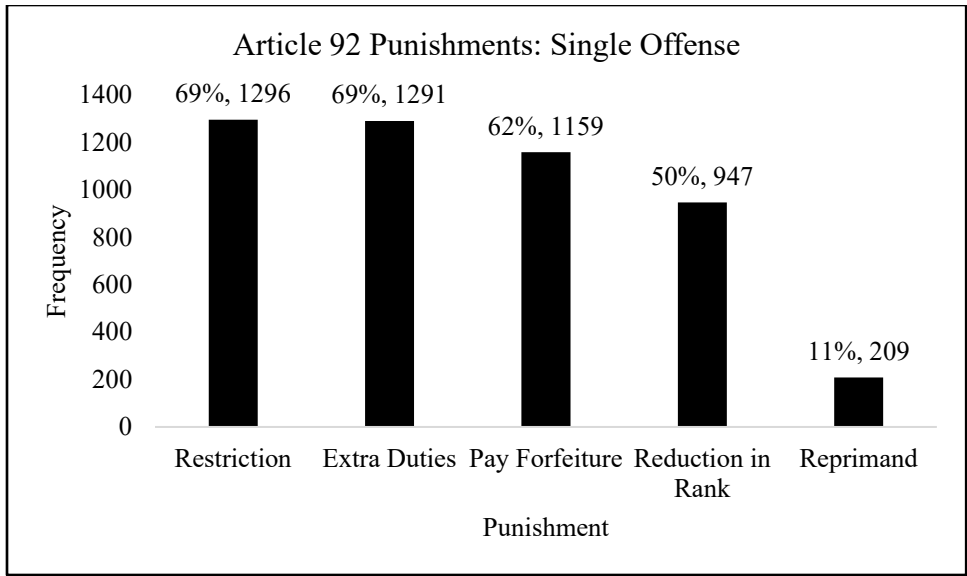
Punishment

Figure 5.   Distribution of Punishments for Single Offenders Charged with Violation of Article 92

Article 92 Punishments: Full Data Set

1,800	69%, 1,659 69%, 1,656
1,600	62%, 1,483
1,400	54%, 1,297
1,200	
1,000	
800	
600	
400	
200	11%, 260
0	

Frequency (y-axis)

Restriction | Extra Duties | Pay Forfeiture | Reduction in Rank | Reprimand
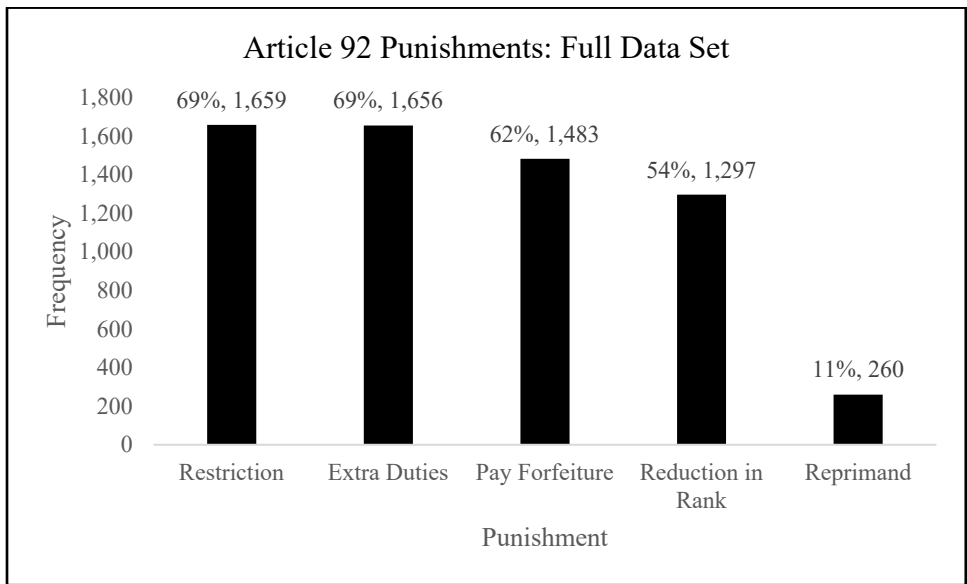
Punishment

Figure 6.   Distribution of Punishments for Article 92 Violators in Full Data Set

Table 4 below summarizes the results for the five LPMs. For the first model, wherein restriction is the outcome, there were only statistically significant results for the rank variables. Apprentice level sailors (E1–E3) were 33 percentage points, or 48 percent

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more likely than POs to receive restriction. However, officers were 41 percent less likely (28 percentage points) than POs to receive restriction. Similarly, CPOs were also 42 percent (29 percentage points) less likely than POs to receive restriction.

In model 2, using extra duties as the outcome, I again found that there were only statistically significant differences for the rank variables. Apprentice level sailors were 30 percent (21 percentage points) less likely than POs to receive extra duties. But as with restriction, officers were 85 percent (58 percentage points) less likely than POs to receive extra duties and CPOs were 55 percent (38 percentage points) less likely to receive extra duties as a punishment.

The results for the model with forfeiture of pay as the outcome variable are summarized in the third column. I found that Black sailors were nine percent (five percentage points) less likely than White sailors to receive pay forfeiture as a punishment. Additionally, the "other race" category was 15 percent (9.8 percentage points) less likely than White sailors to receive a pay forfeiture for an article 92 violation. For this model, there were also statistically significant differences for apprentice level sailors and for officers. Apprentice level sailors were 19 percent (12 percentage points) more likely than POs to receive a pay forfeiture. Conversely, officers were 86 percent (53 percentage points) less likely than POs to receive a pay forfeiture.

In the fourth model, which used reduction in rank as the outcome variable, I found statistically significant differences amongst the rank variables and for males. Apprentice level sailors were 57 percent (29 percentage points) less likely than POs to receive a reduction in rank. Similarly, CPOs were 69 percentage points and officers 71 percentage points less likely than POs to receive a reduction in rank. Finally, males were 12 percent (6.1 percentage points) more likely than female sailors to receive a reduction in rank.

In the final model, I used the reprimand indicator as the outcome variable. I found that Black sailors were 38 percent (4.2 percentage points) less likely than White sailors to receive a reprimand. Apprentice level sailors were 33 percent (3.7 percentage points) less likely than POs to receive a reprimand. However, CPOs were 59 percentage points and officers 72 percentage points more likely than POs to receive a reprimand.

Table 4.   Article 92–Failure to Obey Punishments: Single Offense (Outcome = Indicator for Punishment)

	Model 1: Restriction	Model 2: Extra Duties	Model 3: Pay Forfeiture	Model 4: Reduction in Rank	Model 5: Reprimand
Black	-0.009	-0.007	-0.055[*]	0.003	-0.042[**]
	(0.024)	(0.025)	(0.028)	(0.027)	(0.014)
Asian	0.020	0.046	-0.049	0.036	-0.018
	(0.054)	(0.055)	(0.063)	(0.058)	(0.039)
Other Race	-0.037	-0.015	-0.098[*]	0.034	0.029
	(0.034)	(0.034)	(0.039)	(0.038)	(0.023)
Hispanic	0.032	0.037	0.025	0.006	0.005
	(0.027)	(0.028)	(0.030)	(0.031)	(0.017)
Male	-0.009	-0.044	0.024	0.061[*]	0.026
	(0.023)	(0.023)	(0.028)	(0.027)	(0.014)
E1-E3	0.336[***]	0.211[***]	0.121[***]	-0.291[***]	-0.037[*]
	(0.023)	(0.023)	(0.024)	(0.023)	(0.014)
Chief Petty Officer	-0.290[***]	-0.384[***]	-0.039	-0.691[***]	0.594[***]
	(0.056)	(0.054)	(0.069)	(0.031)	(0.061)
Officer	-0.284[***]	-0.580[***]	-0.530[***]	-0.710[***]	0.724[***]
	(0.080)	(0.022)	(0.044)	(0.020)	(0.072)
Q1 FY 2021=1	-0.120	-0.035	0.102	-0.159	-0.020
	(0.104)	(0.104)	(0.119)	(0.084)	(0.079)
Q2 FY 2021=1	-0.137	-0.032	0.054	-0.112	-0.020
	(0.104)	(0.105)	(0.120)	(0.085)	(0.079)
Q3 FY 2021=1	-0.159	-0.095	0.089	-0.139	-0.032
	(0.104)	(0.105)	(0.120)	(0.085)	(0.080)
Q4 FY 2021=1	-0.147	-0.083	0.031	-0.119	0.111
	(0.104)	(0.105)	(0.120)	(0.085)	(0.081)
R-squared	0.169	0.125	0.045	0.127	0.237
N	1882	1882	1882	1882	1882
Outcome mean	0.689	0.686	0.616	0.503	0.111

Standard errors in parentheses

[*] $p < 0.05$, [**] $p < 0.01$, [***] $p < 0.001$

b. *Article 86: Absence Without Leave*

Article 86 violators in the single offense group received punishments that were consistent with the full data set. Figures 7 and 8 display the distribution of punishments for the single data set and for the whole data set. Sixty-nine percent received restriction, 66 percent received extra duties, 66 percent received a pay forfeiture, 59 percent were reduced in rank, and 7 percent (32) received a reprimand or admonition.
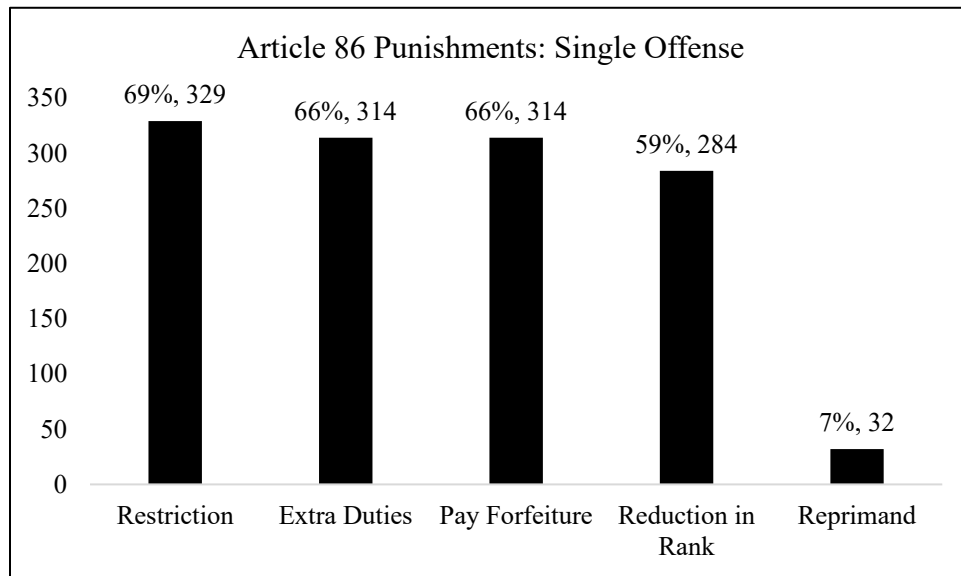
Figure 7.   Distribution of Punishments for Article 86 Violators in Single Offense Data Set
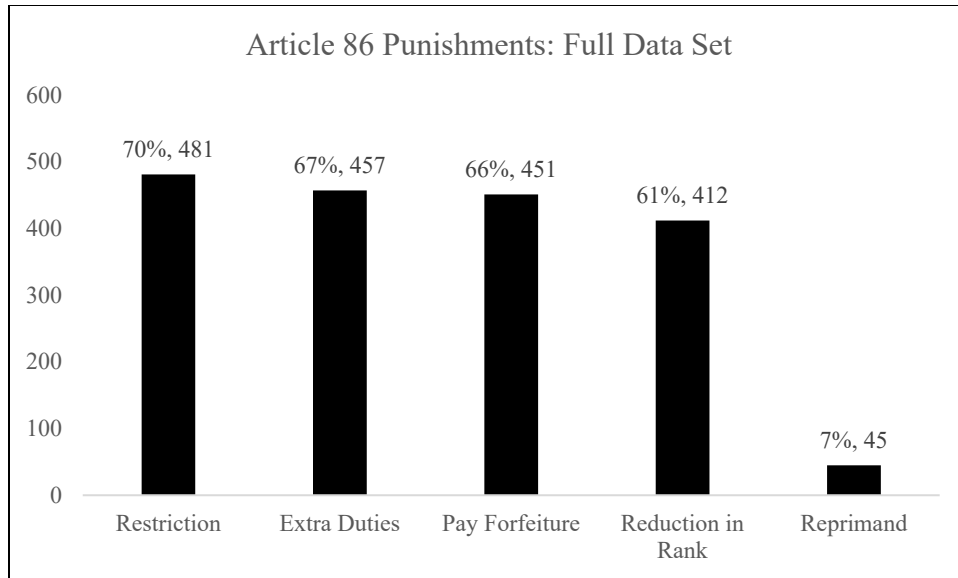
Figure 8.   Distribution of Punishments for Article 86 Violators in Full Data
Set

Table 5 summarizes the regression results for the punishments awarded to article 86 violators. In model 1, there were only statistically significant differences for apprentice level sailors, who were 41 percent (28 percentage points) more likely than POs to receive restriction and officers who were 71 percent (49 percentage points) less likely than POs to receive restriction. In model 2, I found that the only statistically significant difference was for officers who were 88 percent (58 percentage points) less likely than POs to receive extra duties.

In model three, Asian sailors were 68 percent (44 percentage points) less likely than White sailors to receive a pay forfeiture. I also found that the "other race" category was 38 percent (25 percentage points) less likely than White sailors to receive a pay forfeiture. However, Hispanic sailors were 31 percent (20 percentage points) more likely than non-Hispanic sailors to receive a pay forfeiture. Apprentice level sailors were 22 percent (14 percentage points) more likely than POs to receive a pay forfeiture, while officers were 89 percent (59 percentage points) less likely than POs to receive the same.

In model 4 Black sailors were 18 percent (10 percentage points) more likely than White sailors to receive a reduction in rank. This finding is notable because Black sailors

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were also more likely than White sailors to receive an article 86 charge. Apprentice level sailors were 19 percent (11 percentage points) less likely than POs to receive a reduction in rank, but that was only statistically significant at the ten percent level. Similarly, CPOs and officers were 70 percentage points less likely to receive a reduction in rank than POs.

In the last model, I found that Asian sailors were 88 percent (5.9 percentage points) less likely than White sailors to receive a reprimand while officer were 97 percentage points more likely than POs to receive one.

Table 5.   Article 86–Absence Without Leave Punishments: Single Offense
(Outcome = Indicator for Punishment)

	Model 1: Restriction	Model 2: Extra Duties	Model 3: Pay Forfeiture	Model 4: Reduction in Rank	Model 5: Reprimand
Black	0.036	-0.044	-0.088	0.104*	0.007
	(0.045)	(0.048)	(0.048)	(0.049)	(0.025)
Asian	-0.161	-0.219	-0.447***	0.099	-0.059**
	(0.177)	(0.181)	(0.130)	(0.144)	(0.021)
Other Race	-0.068	0.005	-0.246***	-0.019	0.021
	(0.072)	(0.075)	(0.073)	(0.081)	(0.041)
Hispanic	0.027	0.002	0.201***	0.018	-0.006
	(0.057)	(0.066)	(0.056)	(0.069)	(0.032)
Male	0.068	-0.010	0.059	0.085	0.022
	(0.057)	(0.057)	(0.056)	(0.060)	(0.027)
E1-E3	0.284***	0.078	0.144**	-0.114*	0.003
	(0.046)	(0.047)	(0.046)	(0.047)	(0.022)
Chief Petty Officer	-0.035	-0.147	0.162	-0.694***	0.455
	(0.257)	(0.272)	(0.235)	(0.057)	(0.248)
Officer	-0.493***	-0.575***	-0.585***	-0.709***	0.974***
	(0.067)	(0.068)	(0.066)	(0.065)	(0.032)
Q1 FY 2021=1	-0.093	0.401**	0.042	-0.139	0.025
	(0.145)	(0.154)	(0.149)	(0.163)	(0.024)
Q2 FY 2021=1	-0.144	0.428**	0.103	-0.268	0.092**
	(0.145)	(0.153)	(0.147)	(0.164)	(0.033)
Q3 FY 2021=1	-0.044	0.541***	0.083	-0.175	0.031
	(0.141)	(0.150)	(0.145)	(0.161)	(0.017)
Q4 FY 2021=1	-0.061	0.454**	0.063	-0.230	0.083***
	(0.140)	(0.148)	(0.144)	(0.160)	(0.023)
R-squared	0.108	0.045	0.086	0.052	0.071
N	479	479	479	479	479
Outcome mean	0.687	0.656	0.656	0.593	0.067

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

c. Article 112a: Wrongful Use or Possession of a Controlled Substance

The frequency of each of the punishments that were given to Article 112a violators are displayed in Figures 9 and 10. I found that the punishment distribution for the single offense data set was consistent with the full data set. The results of the LPMs are detailed in Table 6.

Article 112a Punishments: Single Offense
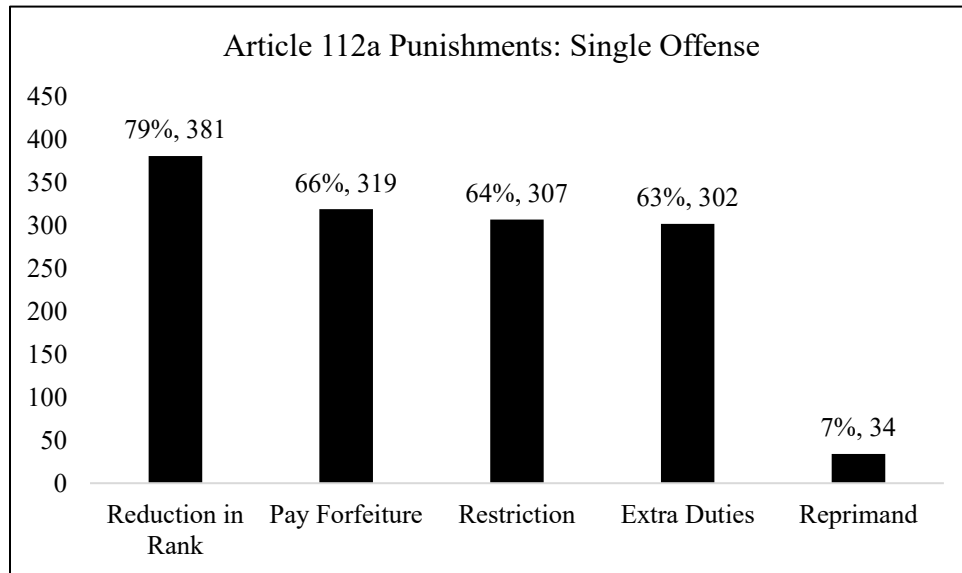
Figure 9. Distribution of Punishments for Article 112a Violators: Single Offense Category
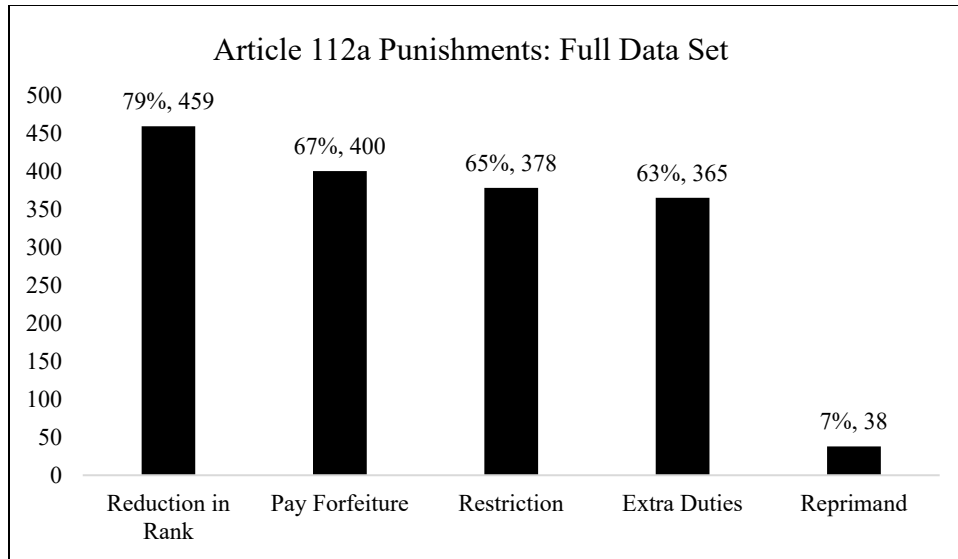
Figure 10. Distribution of Punishments for Article 112a Violators: Full Data Set

In model 1 I found that male sailors were 50 percent (32 percentage points) more likely than female sailors to receive restriction. I also found that apprentice level sailors were 51 percent (33 percentage points) more likely than POs to receive restriction. Furthermore, I found that officers were 90 percent less likely than POs to receive restriction.

In the second model I found that Hispanic sailors were 34 percent (22 percentage points) more likely than non-Hispanic sailors to receive extra duties. I also found that male sailors were 28 percent (17 percentage points) more likely than female sailors to receive extra duties. Apprentice level sailors were 35 percent (22 percentage points) more likely than POs to receive extra duties while officers were 72 percent (45 percentage points) less likely than POs to receive extra duties. Model 3 includes the results for the pay forfeiture regression. In that model, apprentice level sailors were 25 percent (17 percentage points) more likely than POs to receive a pay forfeiture. Conversely, officers were 91 percent (60 percentage points) less likely than POs to receive a pay forfeiture.

Asian sailors were 24 percent (19 percentage points) more likely than White sailors to receive a reduction in rank, as seen in the model 4 results. CPOs were 82 percentage points and officers 89 percentage points less likely than POs to receive a reduction in rank.

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Finally, in model 5 the "other race" category was 8 percentage points less likely than White sailors to receive a reprimand and officers were 57 percentage points less likely than POs to receive one.

Table 6. Article 112a–Wrongful Use or Possession of a Controlled Substance Punishments: Single Offense (Outcome = Indicator for Punishment)

	Model 1: Restriction	Model 2: Extra Duties	Model 3: Pay Forfeiture	Model 4: Reduction in Rank	Model 5: Reprimand
Black	-0.034	0.000	-0.069	-0.072	-0.008
	(0.045)	(0.049)	(0.048)	(0.042)	(0.026)
Asian	-0.192	0.000	0.090	0.187^{***}	0.033
	(0.116)	(0.143)	(0.128)	(0.036)	(0.078)
Other Race	0.028	0.095	0.109	-0.048	-0.079^{***}
	(0.066)	(0.071)	(0.071)	(0.063)	(0.020)
Hispanic	-0.053	0.215^{***}	0.055	-0.015	-0.027
	(0.060)	(0.055)	(0.058)	(0.052)	(0.028)
Male	0.316^{***}	0.174^{**}	0.044	-0.030	-0.026
	(0.057)	(0.059)	(0.059)	(0.047)	(0.035)
E1-E3	0.326^{***}	0.220^{***}	0.165^{***}	-0.061	-0.005
	(0.043)	(0.045)	(0.044)	(0.037)	(0.023)
Chief Petty Officer	-0.039	0.122	-0.168	-0.827^{***}	0.343
	(0.205)	(0.232)	(0.210)	(0.041)	(0.218)
Officer	0.570^{***}	-0.447^{***}	-0.603^{***}	-0.890^{***}	0.572^{*}
	(0.103)	(0.086)	(0.063)	(0.041)	(0.244)
Q1 FY 2021=1	0.233	0.226	0.208	0.263	0.096^{***}
	(0.153)	(0.161)	(0.156)	(0.154)	(0.026)
Q2 FY 2021=1	0.158	0.212	0.148	0.203	0.007
	(0.154)	(0.163)	(0.159)	(0.156)	(0.014)
Q3 FY 2021=1	0.130	0.132	0.005	0.189	0.029
	(0.154)	(0.163)	(0.159)	(0.157)	(0.017)
Q4 FY 2021=1	0.186	0.140	0.086	0.262	0.140^{***}
	(0.154)	(0.162)	(0.158)	(0.155)	(0.036)
R-squared	0.201	0.119	0.090	0.094	0.104
N	483	483	483	483	483
Outcome mean	0.636	0.625	0.660	0.789	0.070

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

d. Article 107: False Official Statement

As with the previous offense categories, I analyzed the frequency of punishments for each punishment category for Article 107 violators. There were differences in rank reduction, restriction, and extra duties which all proportionally occurred less frequently in the single offense data set than the full data set. Figures 11 and 12 display the distribution frequencies of each.

Article 107 Punishments: Single Offense

Punishment	Value
Reduction in Rank	55%, 48
Pay Forfeiture	61%, 53
Restriction	54%, 47
Extra Duties	49%, 43
Reprimand	13%, 11
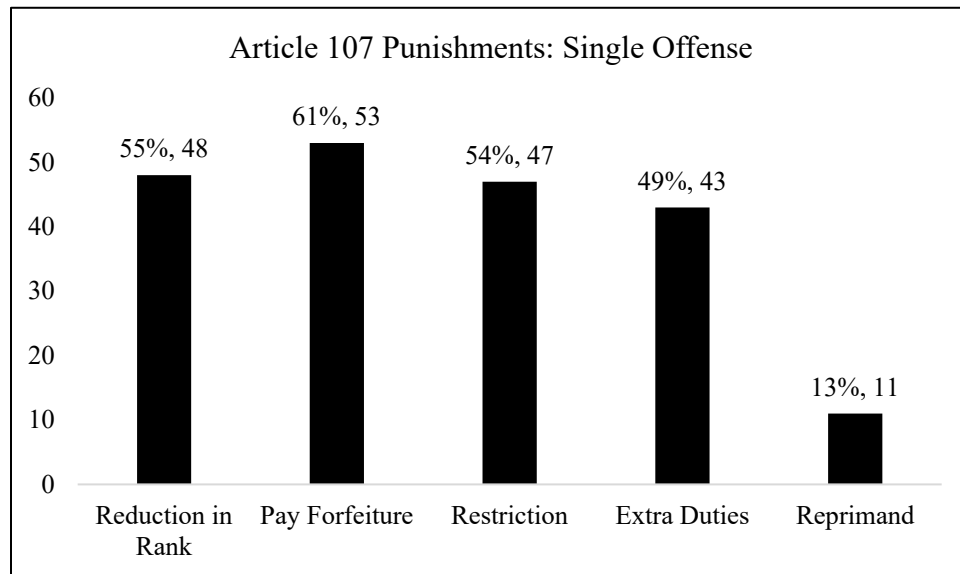
Figure 11. Frequency of punishments for Article 107 Violators: Single Offense Category
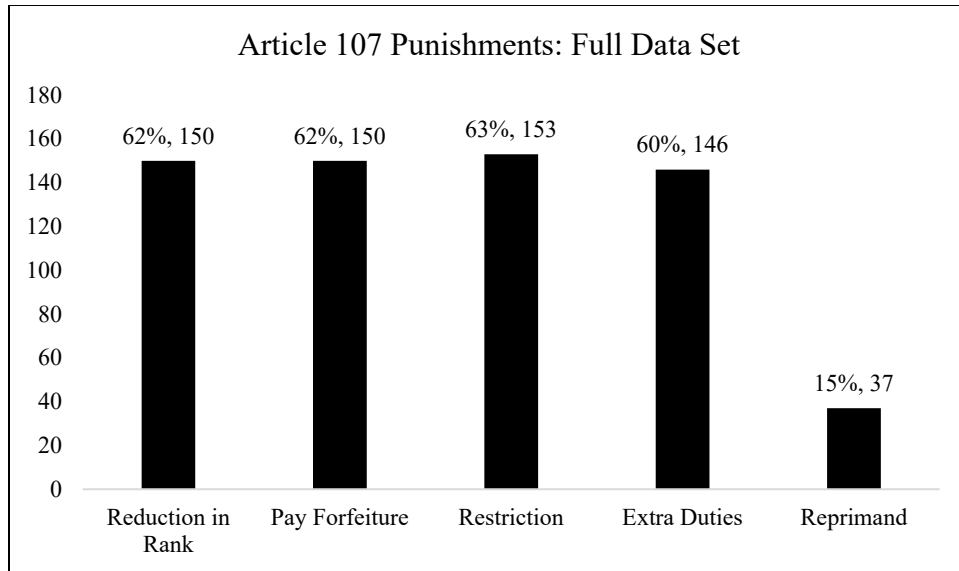
Figure 12. Distribution of Punishments for Article 107 Violators: Single Offense Category

Table 7 summarizes the results of the LPMs for the offenses imposed on article 107 violators. In model 1, the "other race" category was 49 percentage points less likely than White sailors to receive restriction. Similarly, officers were 57 percentage points less likely than POs to receive restriction. However, apprentice level sailors were 62 percent (34 percentage points) more likely than POs to receive restriction. The results in model 2 show that only officers had a statistically significant difference in that they were 96 percent (48 percentage points) less likely than POs to receive extra duties.

In model 3, Asian sailors were 75 percent (46 percentage points) less likely than White sailors to receive a pay forfeiture. Additionally, officers 80 percentage points less likely to receive a pay forfeiture than POs. Model 4's results show that CPOs were 69 percentage points and officers 60 percentage points less likely than POs to receive a reduction in rank. Finally in model 5, officers were 100 percentage points less likely than POs to receive a reprimand.

Table 7.   Article 107–False Official Statement Punishments: Single Offense
(Outcome = Indicator for Punishment)

	Model 1: Restriction	Model 2: Extra Duties	Model 3: Pay Forfeiture	Model 4: Reduction in Rank	Model 5: Reprimand
Black	-0.203	-0.056	-0.117	0.022	0.003
	(0.125)	(0.127)	(0.128)	(0.123)	(0.084)
Asian	0.071	-0.178	-0.459*	0.028	-0.114
	(0.199)	(0.277)	(0.226)	(0.233)	(0.064)
Other Race	-0.485***	-0.241	-0.015	-0.163	-0.096
	(0.140)	(0.159)	(0.175)	(0.170)	(0.099)
Hispanic	0.063	0.025	-0.051	0.093	0.028
	(0.193)	(0.185)	(0.207)	(0.191)	(0.102)
Male	0.177	0.229	-0.086	-0.111	0.129
	(0.149)	(0.160)	(0.154)	(0.160)	(0.085)
E1-E3	0.336**	0.189	-0.057	-0.178	0.018
	(0.117)	(0.117)	(0.130)	(0.121)	(0.072)
Chief Petty Officer	-0.269	-0.209	-0.115	-0.685***	0.302
	(0.208)	(0.259)	(0.245)	(0.096)	(0.247)
Officer	-0.567**	-0.476**	-0.799***	-0.604***	1.021***
	(0.165)	(0.163)	(0.133)	(0.168)	(0.055)
Q1 FY 2021=1	-0.350	-0.778**	0.179	-0.333	-0.105
	(0.233)	(0.244)	(0.382)	(0.212)	(0.115)
Q2 FY 2021=1	-0.358	-0.546*	0.037	-0.389	-0.049
	(0.244)	(0.256)	(0.383)	(0.214)	(0.114)
Q3 FY 2021=1	-0.083	-0.751**	0.408	-0.467	-0.191
	(0.285)	(0.269)	(0.396)	(0.245)	(0.120)
Q4 FY 2021=1	-0.276	-0.860***	0.206	-0.421*	0.091
	(0.215)	(0.207)	(0.362)	(0.169)	(0.084)
R-squared	0.290	0.180	0.122	0.152	0.223
N	87	87	87	87	87
Outcome mean	0.540	0.494	0.609	0.552	0.126

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

e. *Article 113: Drunken Operation of a Vehicle, Aircraft, or Vessel*

The frequency of punishments for article 113 violators in the single offense category were consistent with the full data set, as displayed in figures 13 and 14. Of note, 18 percent of the sailors in the single offense category received a reprimand compared to only 15 percent of the full data set. Table 8 summarizes the LPM results of the five models that I ran for article 113 punishments.
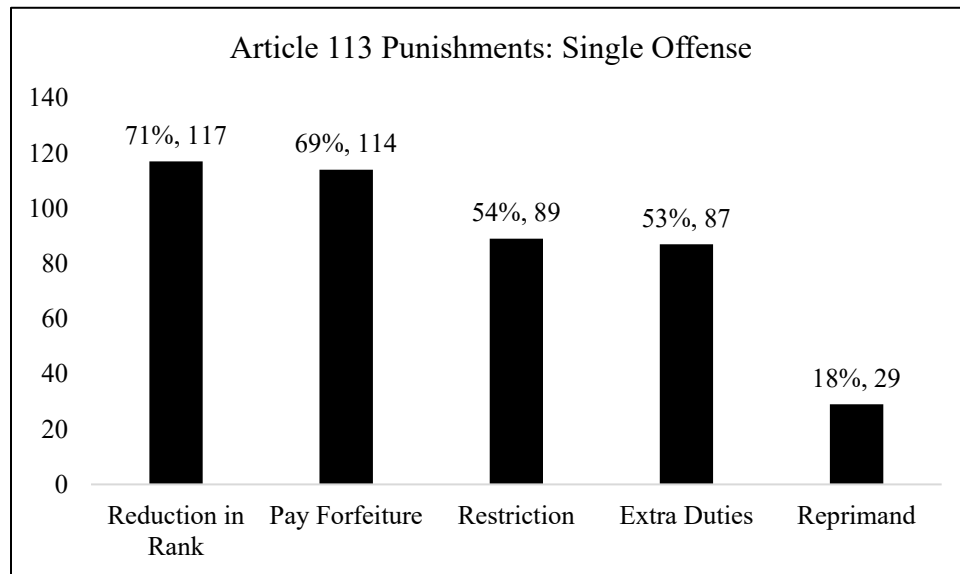
Figure 13.   Distribution of punishments for Article 113 Violators: Single Offense
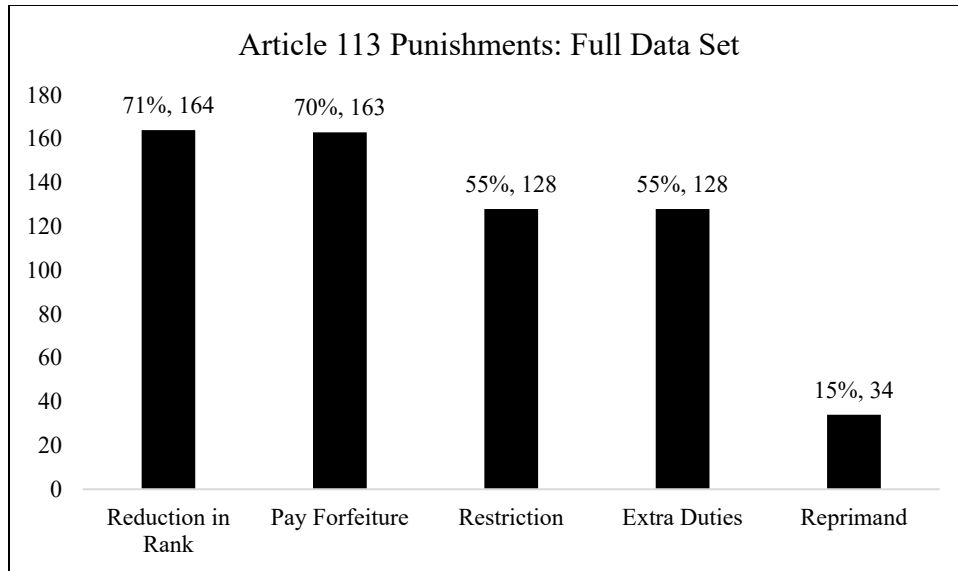
Figure 14.   Distribution of Punishments for Article 113 Violators: Full Data
Set

In model one, there were statistically significant results for males, apprentice level sailors, and officers. Males were 81 percent (44 percentage points) more likely than females to receive restriction. Apprentice level sailors were 30 percent (16 percentage points) more likely than POs to receive restriction. However, officers were 91 percent less likely (49 percentage points) less likely than POs to receive restriction for a 113 violation.

The results in model 2 show that Asian sailors were 98 percent less likely than White sailors to receive extra duties. The only other statistically significant result was for officers who were 54 percentage points less likely than POs to receive restriction. In model 3, males were 43 percent (30 percentage points) less likely than females to receive a pay forfeiture and officers were 55 percentage points less likely than POs to receive a pay forfeiture. In model 4, CPOs and officers were 79 percentage points and 74 percentage points less likely to receive a reduction in rank than POs. Finally in model 5, Black sailors were 21 percentage points less likely than White sailors to receive a reprimand and officers were 92 percentage points less likely than POs to receive one.

Table 8.   Article 113–Drunken Operation of a Vehicle Punishments: Single Offense (Outcome = Indicator for Punishment)

	Model 1: Restriction	Model 2: Extra Duties	Model 3: Pay Forfeiture	Model 4: Reduction in Rank	Model 5: Reprimand
Black	-0.127	0.128	-0.050	-0.031	0.208**
	(0.090)	(0.093)	(0.086)	(0.077)	(0.075)
Asian	-0.182	-0.517***	-0.240	-0.283	0.018
	(0.439)	(0.113)	(0.380)	(0.387)	(0.046)
Other Race	0.157	0.065	-0.163	-0.208	-0.057
	(0.116)	(0.132)	(0.132)	(0.124)	(0.046)
Hispanic	0.108	0.097	-0.044	0.021	0.032
	(0.089)	(0.109)	(0.106)	(0.093)	(0.067)
Male	0.438***	0.061	-0.298***	-0.022	0.011
	(0.106)	(0.140)	(0.073)	(0.112)	(0.088)
E1-E3	0.163*	0.117	0.006	0.027	0.041
	(0.076)	(0.082)	(0.074)	(0.071)	(0.052)
Chief Petty Officer	-0.329	-0.094	-0.131	-0.790***	0.309
	(0.191)	(0.242)	(0.218)	(0.054)	(0.197)
Officer	-0.488***	-0.539***	-0.552***	-0.747***	0.923***
	(0.104)	(0.070)	(0.136)	(0.070)	(0.046)
Q1 FY 2021=1	0.560***	0.224	0.421*	0.511	-0.505
	(0.113)	(0.314)	(0.204)	(0.273)	(0.267)
Q2 FY 2021=1	0.520***	0.225	0.490*	0.451	-0.613*
	(0.125)	(0.320)	(0.210)	(0.278)	(0.265)
Q3 FY 2021=1	0.350**	0.271	0.560**	0.397	-0.564*
	(0.120)	(0.317)	(0.199)	(0.279)	(0.267)
Q4 FY 2021=1	0.470***	0.228	0.500*	0.515	-0.470
	(0.113)	(0.315)	(0.201)	(0.272)	(0.267)
R-squared	0.237	0.111	0.154	0.264	0.367
N	165	165	165	165	165
Outcome mean	0.539	0.527	0.691	0.709	0.176

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

B. MULTIPLE OFFENSES

1. Charged Offense

Table 9 includes the results for the LPMs wherein the outcome variables were an indicator for the charged offense. Amongst the sailors who were charged with multiple UCMJ violations, there were no statistically significant differences by demographics for the probability of being charged with a violation of article 92. For the article 86 model, there was only one statistically significant result. Apprentice level sailors were 28 percent more likely than POs to be charged with a violation of article 86. In model 3, I found that CPOs were 77 percent (5.5 percentage points) less likely than POs to be charged with article 112a. Similarly, officers were 80 percent (5.7 percentage points) less likely than POs to be charged with an article 112a violation. There were no statistically significant results for article 107. In model 5, I found that Black sailors were 56 percent (2.7 percentage points) to face an article 113 than White sailors. Additionally, male sailors were 65 percent (3.1 percentage points) more likely than female sailors to be charged with a violation of article 113.

Table 9.   Violations Probabilities: Multiple Offenses (Outcome = Indicator for Offense)

	Model 1: Art. 92	Model 2: Art. 86	Model 3: Art. 112a	Model 4: Art. 107	Model 5: Art. 113
	Failure to Obey	Absence Without Leave	Wrongful Use, of a Controlled Substance	False Official Statement	Drunken Operation of a Vehicle
Black	-0.031	0.021	0.027	0.007	-0.027[*]
	(0.030)	(0.022)	(0.017)	(0.019)	(0.012)
Asian	-0.094	-0.034	0.064	-0.027	-0.003
	(0.072)	(0.050)	(0.052)	(0.049)	(0.036)
Other Race	0.047	-0.033	0.002	-0.010	0.019
	(0.043)	(0.029)	(0.020)	(0.030)	(0.022)
Hispanic	0.032	-0.026	-0.015	0.033	-0.020
	(0.037)	(0.026)	(0.017)	(0.025)	(0.015)
Male	-0.022	-0.018	-0.028	-0.021	0.031[**]
	(0.034)	(0.025)	(0.020)	(0.023)	(0.011)
E1-E3	-0.017	0.040[*]	0.020	-0.033	-0.008
	(0.027)	(0.019)	(0.014)	(0.018)	(0.012)
Chief Petty Officer	-0.016	0.007	-0.055[***]	0.058	-0.015
	(0.107)	(0.073)	(0.013)	(0.083)	(0.047)
Officer	-0.073	-0.072	-0.057[***]	-0.056	-0.005
	(0.079)	(0.041)	(0.012)	(0.048)	(0.038)
Quarter 1 FY21=1	-0.277[*]	0.135[***]	0.055[***]	0.054	-0.040
	(0.121)	(0.020)	(0.016)	(0.062)	(0.080)
Quarter 2 FY21=1	-0.302[*]	0.137[***]	0.084[***]	0.075	-0.080
	(0.119)	(0.017)	(0.015)	(0.061)	(0.079)
Quarter 3 FY21=1	-0.155	0.155[***]	0.107[***]	-0.024	-0.056
	(0.124)	(0.029)	(0.024)	(0.062)	(0.080)
Quarter 4 FY21=1	-0.046	0.167[*]	0.074	-0.059	-0.061
	(0.145)	(0.066)	(0.041)	(0.061)	(0.089)
R-squared	0.025	0.012	0.016	0.020	0.017
N	1420	1420	1420	1420	1420
Outcome mean	0.373	0.144	0.071	0.114	0.048

Standard errors in parentheses

[*] $p < 0.05$, [**] $p < 0.01$, [***] $p < 0.001$

2. Total Punishments

Next, I discuss the total punishments that the sailors received, conditional on the violation. The average total number of punishments ranged from 2.7–2.97. The results of the five regressions that I used for this analysis are included in Table 10. The outcome for each regression was the total punishments received and each column includes the results conditional on being charged with the given offense. The following sections summarize the results for each charged offense.

Table 10. Total Punishments: Multiple Offenses (Outcome = Total Number of Punishments)

	Model 1: Art. 92	Model 2: Art. 86	Model 3: Art. 112a	Model 4: Art. 107	Model 5: Art. 113
Black	-0.039	0.202	0.164	0.130	-0.433
	(0.094)	(0.163)	(0.269)	(0.200)	(0.328)
Asian	0.081	0.694	0.253	0.705	-1.408*
	(0.365)	(0.402)	(0.410)	(0.467)	(0.569)
Other Race	-0.110	0.378	0.627	0.106	0.142
	(0.138)	(0.253)	(0.374)	(0.226)	(0.298)
Hispanic	0.304**	0.357	0.180	0.397	0.030
	(0.112)	(0.207)	(0.443)	(0.205)	(0.293)
Male	0.305**	-0.107	-0.082	0.256	1.926***
	(0.116)	(0.187)	(0.294)	(0.206)	(0.440)
E1-E3	0.272**	0.210	-0.075	0.296	-0.273
	(0.092)	(0.166)	(0.249)	(0.182)	(0.257)
Chief Petty Officer	-1.291***	0.355	0.000	0.163	-1.045**
	(0.296)	(0.447)	(.)	(0.448)	(0.338)
Officer	-1.552***	-2.269***	0.000	-1.635***	-2.181***
	(0.151)	(0.225)	(.)	(0.193)	(0.323)
Quarter 1 FY21=1	1.837***	0.004	-0.954**	-0.130	1.318***
	(0.330)	(0.300)	(0.293)	(0.195)	(0.335)
Quarter 2 FY21=1	1.853***	0.210	-1.199***	-0.170	1.045**
	(0.320)	(0.274)	(0.311)	(0.172)	(0.338)
Quarter 3 FY21=1	2.262***	1.027**	-0.882*	-0.417	1.475***
	(0.326)	(0.315)	(0.353)	(0.753)	(0.337)
Quarter 4 FY21=1	0.883*	0.000	0.000		0.273
	(0.377)	(.)	(.)		(0.257)
R-squared	0.252	0.181	0.061	0.116	0.423
N	519	202	100	156	67
Outcome mean	2.800	2.837	2.970	2.788	2.701

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

a. Article 92: Failure to Obey an Order or Regulation

On average, the sailors in the multiple offenses data set who were charged with an article 92 violation received 2.8 punishments. In model 1 I found five statistically significant differences in the number of punishments that these sailors received. Hispanic sailors received 0.3 fewer punishments than non-Hispanic sailors and males received 0.3 fewer punishments than females. Apprentice level sailors (E1–E3) received 0.27 fewer punishments than POs. Conversely, officers received 1.6 fewer punishments than POs and CPOs received 1.3 fewer punishments than POs.

b. Article 86: Absence Without Leave

Article 86 violators received on average 2.8 punishments in the multiple offenses data set. I only found a statistically significant difference in the number of punishments for article 86 violators amongst officers, who received 2.3 fewer punishments than POs. However, there was not a statistically significant difference in the probability that officers were charged with an article 86 violation.

c. Article 112a: Wrongful Use or Possession of a Controlled Substance

On average, article 112a violators in the multiple offenses data set received 2.9 punishments. However, there were no statistically significant results for the article 112a model. Of note, none of the CPOs or officers in the sample were charged with an article 112a violation, so they dropped from the model due to collinearity.

d. Article 107: False Official Statement

Those found guilty of an article 107 violation received 2.8 punishments on average. The model 4 estimates show that the only statistically significant difference was for officers who received 1.6 fewer punishments than POs.

e. Article 113: Drunken Operation of a Vehicle, Aircraft, or Vessel

Article 113 violators received on average 2.7 punishments. In model 5, there were four statistically significant results. Asian sailors received 1.4 fewer punishments than White sailors, while male sailors received 1.9 more punishments than female sailors. CPOs

received one less punishment than POs while officers received 2 fewer punishments than POs.

3.   Type of Punishment

Next, for each of the five violations I analyzed the differences in probabilities that the demographic categories received each of the five punishments. I used the indicator variables for each punishment as the outcome variable to run five LPMs for each offense. The results of the models are summarized below.

a.   *Article 92: Failure to Obey an Order or Regulation*

Figure 13 displays the distribution of punishments for sailors who were charged with multiple offenses and one of which was Article 92. The distribution mirrors the full data set as shown in Figure 4, except for reduction in rank. In the multiple offenses data set, 67 percent of sailors who were charged with an article 92 violation received a reduction in rank as a punishment. Table 15 contains the regression results of the five models that I ran, conditional on the fact that one of the offenses was article 92.
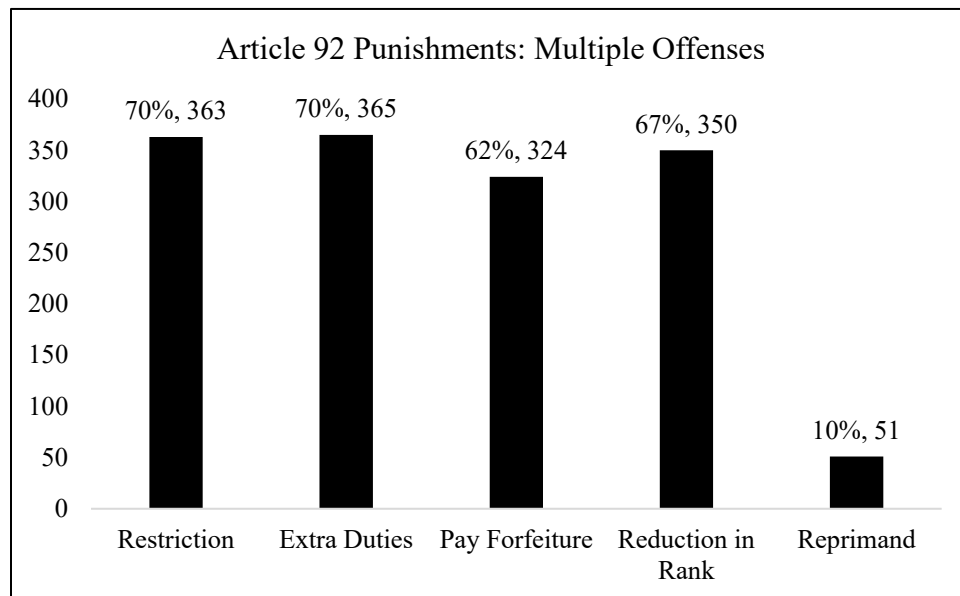

Figure 15.   Distribution of Punishments for Article 92 Violation: Multiple Offense Category

In model 1, I found that Hispanic sailors were 17 percent (12 percentage points) more likely than non-Hispanic sailors to receive restriction. Additionally, apprentice level sailors (E1–E3) were 38 percent (26 percentage points) more likely than POs to receive restriction. Conversely, CPOs were 61 percent (43 percentage points) less likely than petty officers to receive restriction and officers were 52 percent (37 percentage points) less likely than petty officers to receive restriction. In model 2, Hispanic sailors were 19 percent (13 percentage points) more likely than non-Hispanic sailors to receive extra duties. Apprentice level sailors were also 25 percent more likely than POs to receive extra duties. However, again officers and CPOs were 87 percent (61 percentage points) and 89 percent (63 percentage points), respectively, less likely than POs to receive extra duties.

There was only one statistically significant result for model 3, wherein officers were 98 percent (61 percentage points) less likely than POs to receive a pay forfeiture. Model 4 however, had 4 statistically significant results. Males were 20 percent (14 percentage points) less likely than females to receive reduction in rank as a punishment. Similarly, apprentice sailors were 26 percent (18 percentage points) less likely than POs to receive a pay forfeiture. Additionally, CPOs and officers were 81 percentage points and 72 percentage points, respectively less likely than POs to receive a reduction in rank. Finally in model 5, Black sailors were 84 percent (8 percentage points) less likely than White sailors to receive a reprimand. Additionally, Hispanic sailors were 64 percent (6.3 percentage points) less likely than non-Hispanic sailors to receive a reprimand. CPOs and officers were both over 70 percentage points more likely than POs to receive a reprimand.

Table 11. Article 92–Failure to Obey Punishments: Multiple Offenses
(Outcome = Indicator for Punishment)

	Model 1: Restriction	Model 2: Extra Duties	Model 3: Pay Forfeiture	Model 4: Reduction in Rank	Model 5: Reprimand
Black	0.060	0.010	0.000	-0.027	-0.082**
	(0.043)	(0.044)	(0.050)	(0.047)	(0.025)
Asian	-0.050	0.052	-0.004	0.077	0.007
	(0.114)	(0.108)	(0.147)	(0.119)	(0.087)
Other Race	-0.054	-0.081	0.026	0.005	-0.007
	(0.065)	(0.067)	(0.062)	(0.067)	(0.035)
Hispanic	0.117*	0.132**	0.037	0.081	-0.063**
	(0.049)	(0.048)	(0.053)	(0.052)	(0.024)
Male	0.027	-0.002	0.106	0.138**	0.037
	(0.049)	(0.045)	(0.055)	(0.053)	(0.023)
E1-E3	0.266***	0.175***	0.055	-0.176***	-0.047
	(0.041)	(0.042)	(0.043)	(0.039)	(0.025)
Chief Petty Officer	-0.427**	-0.625***	-0.163	-0.812***	0.736***
	(0.133)	(0.043)	(0.198)	(0.056)	(0.110)
Officer	-0.366**	-0.612***	-0.613***	-0.728***	0.768***
	(0.123)	(0.041)	(0.045)	(0.043)	(0.092)
Quarter 1 FY21=1	0.599***	0.734***	0.398**	-0.055	0.162***
	(0.107)	(0.057)	(0.146)	(0.154)	(0.038)
Quarter 2 FY21=1	0.704***	0.772***	0.349*	-0.021	0.050*
	(0.103)	(0.051)	(0.143)	(0.152)	(0.023)
Quarter 3 FY21=1	0.653***	0.841***	0.504***	0.220	0.044
	(0.109)	(0.057)	(0.150)	(0.153)	(0.029)
Quarter 4 FY21=1	0.226	0.474***	-0.144	0.292	0.035
	(0.136)	(0.115)	(0.165)	(0.151)	(0.055)
R-squared	0.224	0.215	0.117	0.188	0.322
N	519	519	519	519	519
Outcome mean	0.699	0.703	0.624	0.674	0.098

Standard errors in parentheses

$^*\, p < 0.05$, $^{**}\, p < 0.01$, $^{***}\, p < 0.001$

b. *Article 86: Absence Without Leave*

Figure 16 displays the punishment frequency chart for article 86 violators. Most of the punishments are consistent with the overall data set except restriction. For sailors facing multiple charges, 75 percent received restriction while only 70 percent of sailors in the full data set received restriction. The regression results using the punishment indicators as the outcome variables are displayed in Table 12.
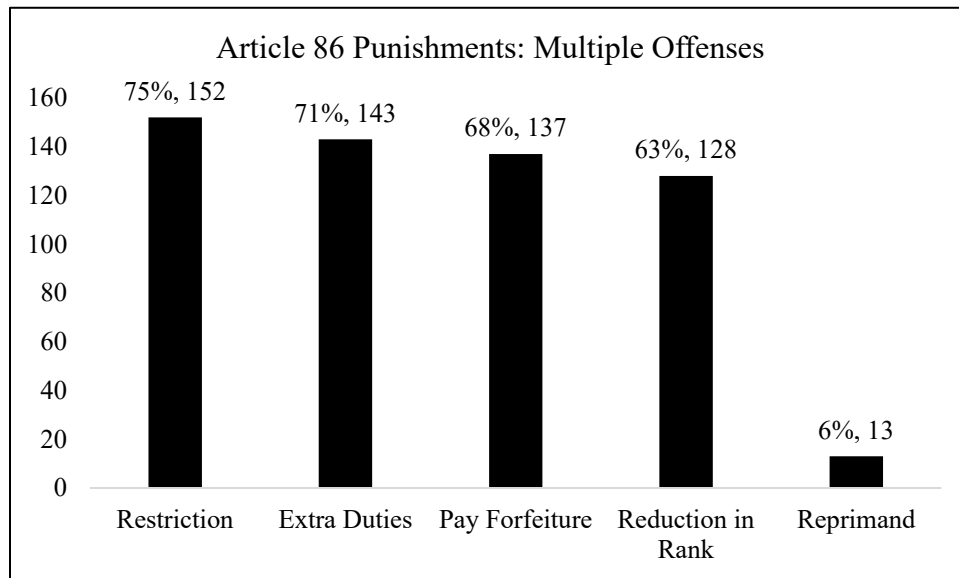
Figure 16. Distribution of Punishments for Violation of Article 86: Multiple Offense Category

There were three statistically significant results in model 1. Hispanic sailors were 33 percent (25 percentage points) more likely than non-Hispanic sailors to receive restriction. Apprentice level sailors were 30 percent (22 percentage points) more likely than POs to receive restriction and officers were 99 percent (75 percentage points) less likely than POs to receive it. In the second model CPOs were 85 percent less likely than POs to receive extra duties. Similarly, officers were 92 percent less likely (65 percentage points) less likely than POs to receive extra duties.

In model 3, Asian sailors were 58 percent (39 percentage points) more likely than White sailors to receive a pay forfeiture. The "other race" was 40 percent (27 percentage

points) more likely than White sailors to receive a pay forfeiture. Apprentice level sailors were 23 percent (16 percentage points) more likely than POs to receive a pay forfeiture. CPOs were 72 percentage points more likely than POs to receive a pay forfeiture, however officers were 75 percentage points less likely than POs to receive a pay forfeiture.

There were four statistically significant results in the fourth model. Asian sailors were again more likely than White sailors to receive a reduction in rank by 59 percent (38 percentage points). Apprentice level sailors were 47 percent (30 percentage points) less likely than POs to receive a reduction in rank. Additionally, CPOs were 79 percentage points less likely than POs to receive a reduction in rank and officers were 112 percentage points less likely to receive a rank reduction. Finally, in model 5 CPOs and officers were each 100 percentage points less likely than POs to receive a reprimand. None of the other outcomes of that model were statistically significant.

Table 12. Article 86–Absence Without Leave Punishments: Multiple Offenses (Outcome = Indicator for Punishment)

	Model 1: Restriction	Model 2: Extra Duties	Model 3: Pay Forfeiture	Model 4: Reduction in Rank	Model 5: Reprimand
Black	0.071	0.105	0.001	0.018	0.006
	(0.070)	(0.076)	(0.078)	(0.076)	(0.029)
Asian	-0.160	0.119	0.391***	0.377***	-0.033
	(0.208)	(0.214)	(0.074)	(0.098)	(0.023)
Other Race	-0.099	0.013	0.271**	0.107	0.086
	(0.124)	(0.128)	(0.097)	(0.119)	(0.092)
Hispanic	0.249***	0.148	-0.087	0.052	-0.006
	(0.066)	(0.091)	(0.102)	(0.097)	(0.044)
Male	0.119	-0.086	-0.089	-0.069	0.019
	(0.080)	(0.074)	(0.078)	(0.076)	(0.032)
E1-E3	0.224**	0.122	0.156*	-0.300***	0.008
	(0.070)	(0.072)	(0.076)	(0.064)	(0.030)
Chief Petty Officer	0.036	-0.603***	0.719***	-0.789***	0.992***
	(0.323)	(0.145)	(0.191)	(0.158)	(0.025)
Officer	-0.749***	-0.651***	-0.751***	-1.119***	1.001***
	(0.079)	(0.095)	(0.096)	(0.082)	(0.024)
Quarter 1 FY21=1	-0.150	-0.138	0.296	-0.061	0.056
	(0.234)	(0.206)	(0.213)	(0.233)	(0.038)
Quarter 2 FY21=1	-0.124	-0.050	0.374	-0.023	0.032
	(0.227)	(0.197)	(0.204)	(0.226)	(0.027)
Quarter 3 FY21=1	0.077	0.031	0.595**	0.322	0.002
	(0.230)	(0.209)	(0.211)	(0.231)	(0.020)
R-squared	0.188	0.118	0.138	0.212	0.387
N	202	202	202	202	202
Outcome mean	0.752	0.708	0.678	0.634	0.064

Standard errors in parentheses

$^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

c. *Article 112a: Wrongful use or Possession of a Controlled Substance*

Like the single offense data set, Black sailors accounted for a disproportionate fraction of the sailors charged with an article 112a violation in the multiple offenses data set. Forty-one percent of the sailors who were charged with an article 112a violation in that data set were Black. However, as previously noted, Black sailors were not statistically more likely to be charged with an article 112a violation than White sailors. Furthermore, the distribution of punishments for article 112a violators is significantly different than the full data set. As displayed in Figure 17. The most noticeable difference is in pay forfeiture as 82 percent of multiple offenders who were found guilty of an article 112a violation received pay forfeiture as a punishment while 67 percent of the full data set received a pay forfeiture punishment.
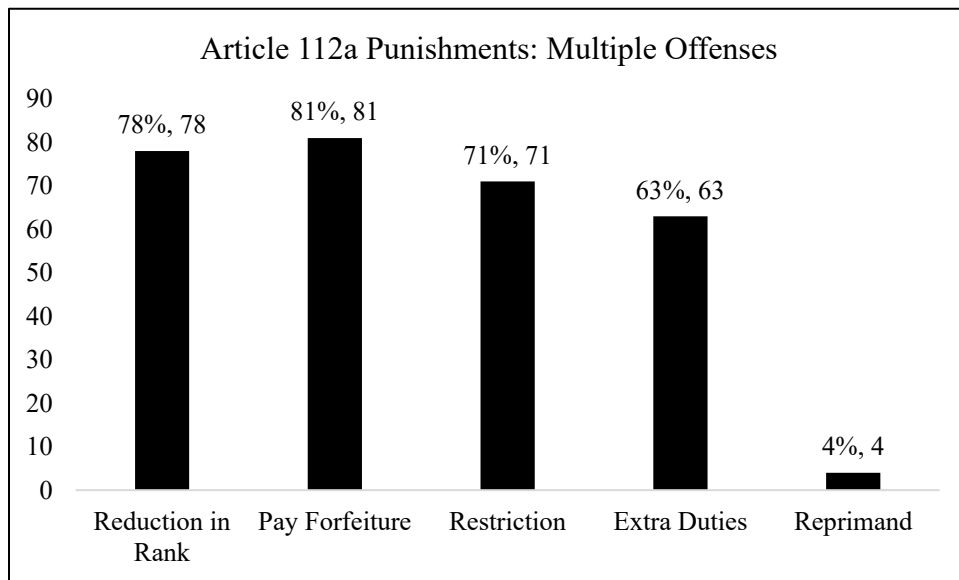
Figure 17.   Frequency of Punishments for Article 112a Violators: Multiple Offenders

Table 13 includes the regression results of the LPMs for punishment outcomes for article 112a violators. A significant point of emphasis for these regressions is that officers and CPOs were dropped from the models because none of the article 112a violators were officers or CPOs. In model 1, the only statistically significant result was for Black sailors

who were 34 percent (24 percentage points) more likely than White sailors to receive restriction. None of the results in the second model were statistically significant, except the quarter indexes. Additionally, none of the results in the third model were statistically significant. In model 4, sailors in the "other race" category were 44 percent more likely than White sailors to lose a rank. However, apprentice sailors were 42 percent (33 percentage points) less likely than POs to lose a rank. Finally, in the fifth model Black sailors were nine percentage points less likely to receive a reprimand.

Table 13. Article 112a–Wrongful Use or Possession of a Controlled Substance Punishments: Multiple Offenses (Outcome = Indicator for Punishment)

	Model 1: Restriction	Model 2: Extra Duties	Model 3: Pay Forfeiture	Model 4: Reduction in Rank	Model 5: Reprimand
Black	0.240*	-0.006	0.026	-0.010	-0.085*
	(0.108)	(0.121)	(0.090)	(0.094)	(0.043)
Asian	0.244	0.260	-0.348	0.195	-0.098
	(0.213)	(0.201)	(0.237)	(0.106)	(0.061)
Other Race	-0.004	0.242	0.102	0.343**	-0.057
	(0.189)	(0.165)	(0.151)	(0.119)	(0.040)
Hispanic	0.178	0.124	-0.060	0.007	-0.069
	(0.142)	(0.175)	(0.145)	(0.152)	(0.040)
Male	-0.073	-0.166	0.054	0.066	0.038
	(0.120)	(0.125)	(0.103)	(0.097)	(0.026)
E1-E3	0.114	0.139	0.039	-0.325***	-0.043
	(0.106)	(0.113)	(0.102)	(0.077)	(0.048)
Chief Petty Officer	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)
Officer	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)
Quarter 1 FY21=1	-0.074	-0.441**	-0.132	-0.355**	0.047
	(0.129)	(0.146)	(0.097)	(0.125)	(0.066)
Quarter 2 FY21=1	-0.157	-0.454***	-0.163	-0.426***	0.002
	(0.093)	(0.113)	(0.096)	(0.103)	(0.010)
Quarter 3 FY21=1	-0.311*	-0.341*	-0.060	-0.143	-0.027
	(0.128)	(0.130)	(0.090)	(0.112)	(0.019)
R-squared	0.099	0.098	0.083	0.202	0.094
N	100	100	100	100	100
Outcome mean	0.710	0.630	0.810	0.780	0.040

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

d. *Article 107: False Official Statement*

Sixty-nine percent of sailors who were found guilty of an article 107 violation were placed on restriction while only 63 percent of the full sample received restriction. Additionally, 66 percent were given extra duties while only 60 percent of those charged with an article 107 violation in the full data set received extra duties. The punishment distributions are displayed in Figure 18.
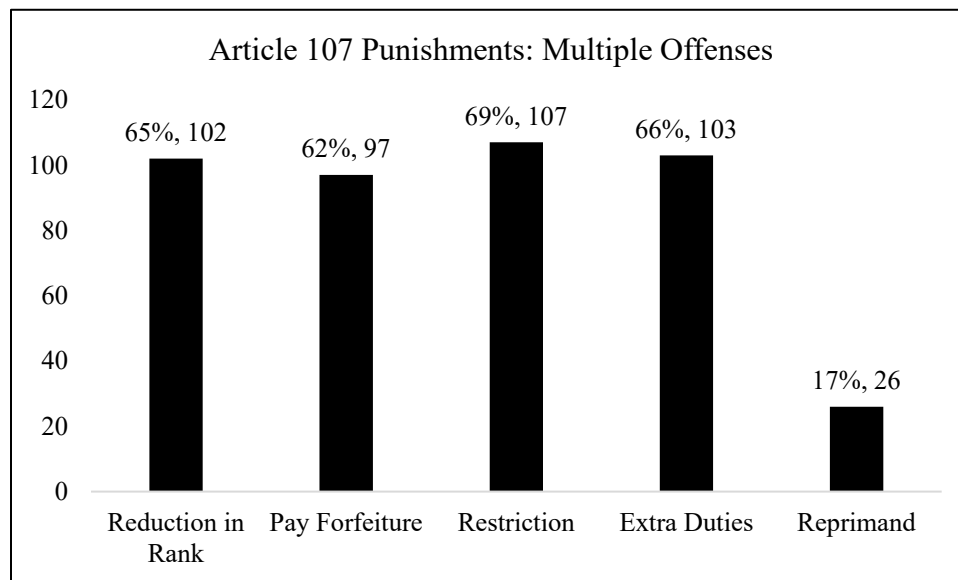

Figure 18. Frequency of Punishments for Article 107 Violators: Multiple Offenses Category

Table 14 summarizes the results of the LPMs for the punishments of article 107 violators. In model 1 I found that Hispanic sailors were 41 percent (29 percentage points) more likely than non-Hispanic sailors to receive restriction. Additionally, apprentice sailors were 28 percent (19 percentage points) more likely than POs to receive restriction. Finally, officers in the first model were 87 percent (60 percentage points) less likely to receive restriction than POs.

In the second model, apprentice sailors were 29 percent (19 percentage points) more likely than POs to receive extra duties while officers were 86 percent (57 percentage points) less likely than POs to receive extra duties. In model 3, Asian sailors were 79 percent (49

69

percentage points) more likely than White sailors to receive a pay forfeiture. Furthermore, CPOs were 81 percent (50 percentage points) less likely than POs to receive a pay forfeiture and officers were 83 percent (52 percentage points) less likely than POs to receive the same.

Asian sailors were 46 percent (30 percentage points) more likely than White sailors to receive a reduction in rank while apprentice sailors were 32 percent (21 percentage points) less likely than PO to receive a reduction in rank. Additionally, CPOs and officers were 78 percentage points less likely than POs to receive a reduction in rank. Finally, in model 5 Asian sailors were 83 percent (14 percentage points) more likely than White sailors to receive a reprimand and Hispanic sailors were 75 percent less likely than non-Hispanic sailors to receive a reprimand. Officers were 83 percentage points less likely than POs to receive a reprimand and CPOs were 77 percentage points less likely than POs to receive the same.

Table 14. Article 107–False Official Statement Punishments: Multiple Offenses (Outcome = Indicator for Punishment)

	Model 1: Restriction	Model 2: Extra Duties	Model 3: Pay Forfeiture	Model 4: Reduction in Rank	Model 5: Reprimand
Black	0.082	0.031	0.057	0.024	-0.064
	(0.086)	(0.089)	(0.094)	(0.092)	(0.067)
Asian	-0.096	0.144	0.494***	0.304***	-0.139**
	(0.274)	(0.231)	(0.087)	(0.088)	(0.051)
Other Race	-0.028	-0.011	0.143	0.053	-0.050
	(0.107)	(0.117)	(0.121)	(0.117)	(0.065)
Hispanic	0.287***	0.143	0.062	0.029	-0.125*
	(0.079)	(0.097)	(0.104)	(0.106)	(0.056)
Male	0.166	0.048	-0.025	0.032	0.035
	(0.092)	(0.089)	(0.099)	(0.094)	(0.058)
E1-E3	0.193*	0.194*	0.128	-0.208**	-0.011
	(0.074)	(0.078)	(0.084)	(0.078)	(0.058)
Chief Petty Officer	-0.041	-0.290	0.504***	-0.784***	0.774***
	(0.263)	(0.222)	(0.078)	(0.064)	(0.081)
Officer	-0.598***	-0.566***	-0.515***	-0.787***	0.831***
	(0.078)	(0.077)	(0.083)	(0.073)	(0.073)
Quarter 1 FY21=1	-0.356***	0.688***	-0.376***	-0.409***	0.323***
	(0.090)	(0.090)	(0.100)	(0.091)	(0.087)
Quarter 2 FY21=1	-0.218**	0.764***	-0.404***	-0.452***	0.140*
	(0.079)	(0.082)	(0.084)	(0.085)	(0.057)
Quarter 3 FY21=1	-0.445	0.581*	-0.464	-0.116	0.026
	(0.239)	(0.226)	(0.250)	(0.088)	(0.053)
R-squared	0.206	0.143	0.098	0.164	0.330
N	156	156	156	156	156
Outcome mean	0.686	0.660	0.622	0.654	0.167

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

e. *Article 113: Drunken Operation of a Vehicle, Aircraft, or Vessel*

Fifty-eight percent of article 113 violators in the multiple offenses data set received restriction as a punishment, while only 55 percent of article 113 violators in the full data set received restriction. Additionally, 61 percent received extra duties, while only 55 percent of the full data who were charged with an article 113 violation received extra duties. The full distribution of punishments is displayed in Figure 19. The results of the regressions for the punishments given to article 113 violators are presented in Table 15.
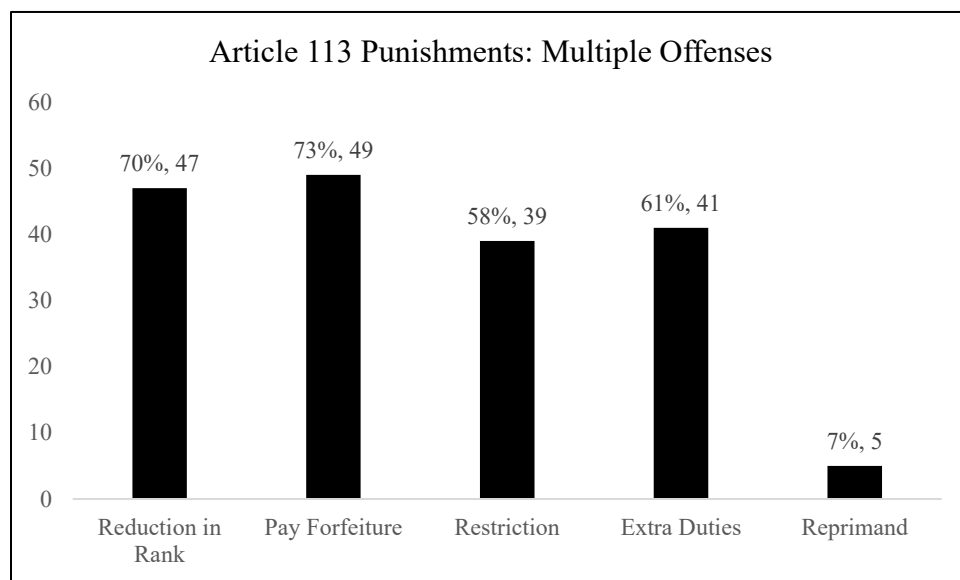

Figure 19.   Distribution of Punishments for Article 113 violators in the Multiple Offenses Data Set

In model 1, there were statistically significant results for males and CPOs. Men were 76 percentage points more likely than women to receive restriction and CPOs were 60 percentage points more likely than POs to receive restriction. In the second model, males were 64 percentage points more likely than women to receive extra duties. CPOs were 88 percent (54 percentage points) less likely than POs to receive extra duties and officers were 92 percent (56 percentage points) less likely than POs to receive the same. The results of model 3 show that Black sailors were 56 percent (41 percentage points) less likely than White sailors to receive a pay forfeiture. Additionally, apprentice sailors were

46 percent (34 percentage points) less likely than POs to receive a pay forfeiture and officers were 100 percentage points less likely than PO to receive the same.

In model 4, Asian sailors were 81 percentage points less likely than White sailors to receive a reduction in rank while Hispanic sailors were 25 percent (18 percentage points) more likely than non-Hispanic sailors to receive a reduction in rank. Additionally, CPOs were 88 percentage points less likely than POs to receive a rank reduction and officers were 85 percentage points less likely than POs to receive the same. Finally, in the fifth model, CPOs were 91 percentage points less likely than POs to receive a reprimand, which was the sole statistically significant result.

Table 15.   Article 113–Drunken Operation of a Vehicle Punishments:
Multiple Offenses (Outcome = Indicator for Punishment)

	Model 1: Restriction	Model 2: Extra Duties	Model 3: Pay Forfeiture	Model 4: Reduction in Rank	Model 5: Reprimand
Black	0.236	-0.039	-0.410**	-0.136	-0.083
	(0.122)	(0.158)	(0.153)	(0.172)	(0.056)
Asian	-0.123	-0.126	-0.265	-0.811***	-0.083
	(0.402)	(0.353)	(0.285)	(0.142)	(0.084)
Other Race	0.111	0.001	-0.009	0.106	-0.067
	(0.194)	(0.175)	(0.160)	(0.092)	(0.053)
Hispanic	-0.084	0.243	-0.213	0.177*	-0.092
	(0.210)	(0.164)	(0.174)	(0.082)	(0.058)
Male	0.766***	0.636***	0.055	0.412	0.058
	(0.110)	(0.119)	(0.220)	(0.223)	(0.063)
E1-E3	0.044	0.173	-0.338**	-0.139	-0.013
	(0.134)	(0.130)	(0.102)	(0.099)	(0.070)
Chief Petty Officer	-0.601***	-0.540**	0.066	-0.881***	0.911***
	(0.165)	(0.159)	(0.120)	(0.158)	(0.081)
Officer	-0.105	-0.562***	-1.043***	-0.852***	0.380
	(0.420)	(0.136)	(0.125)	(0.130)	(0.379)
Quarter 1 FY21=1	0.609***	0.583***	0.152	-0.177	0.151
	(0.145)	(0.148)	(0.104)	(0.123)	(0.105)
Quarter 2 FY21=1	0.601***	0.540**	-0.066	-0.119	0.089
	(0.165)	(0.159)	(0.120)	(0.158)	(0.081)
Quarter 3 FY21=1	0.666***	0.581**	0.162	0.019	0.048
	(0.164)	(0.193)	(0.099)	(0.115)	(0.052)
Quarter 4 FY21=1	-0.044	0.827***	0.338**	-0.861***	0.013
	(0.134)	(0.130)	(0.102)	(0.099)	(0.070)
R-squared	0.297	0.348	0.383	0.426	0.329
N	67	67	67	67	67
Outcome mean	0.582	0.612	0.731	0.701	0.075

Standard errors in parentheses

$^{*} p < 0.05,$ $^{**} p < 0.01,$ $^{***} p < 0.001$

C.   KEY FINDINGS

There are several key takeaways from my analysis. First is that Black sailors are over-represented as a proportion of the sailors taken to NJP relative to the Navy's demographics at large. In 2020 Black sailors were 19 percent of the enlisted force, but in my study Black sailors were 29 percent of the NJP defendant population (DOD, 2020). Second is that this over-representation appears to be concentrated in article 112a violations. This raises several questions because it is likely that most of these cases come from urinalysis testing failures. Namely, are proportionally more Black sailors required to provide for random urinalysis testing? Fleet wide, this should theoretically be false given that the urinalysis testing program is randomized. Unfortunately, this study does not and cannot explain the differences in article 112a, but rather it shows that there is a significant disparity.

Finally, I found that punishments appear to be consistent across racial and ethnic demographic groups. There does appear to be a difference in the frequency of punishments for multiple offenders relative to single offenders, but this should not come as a surprise. It stands to reason that a person that is found guilty of multiple UCMJ violations would receive more punishments than someone who is only facing one charge. Granted, this may differ given the nature of the offense, but given the bounds of this data, punishments seem to be consistent.

Furthermore, in most of the models there were statistically significant difference in the punishments for officers and the senior enlisted. This may be due in part to the facts surrounding the cases that led to different punishment outcomes. Additionally, it may be the case that officers and chiefs are being referred for administrative separation (ADSEP) at a higher rate than enlisted sailors, but I did not have the data to analyze cases that resulted in ADSEP. In all, my research shows that there are significant differences in the distribution UCMJ charges and the punishments awarded at NJP.

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VI. RECOMMENDATIONS AND CONCLUSION

A. DATA COLLECTION METHODS

I faced numerous challenges in processing the data set, most of which are attributable to the data collection methods used to gather the data . The primary issue with the data is that there are numerous observational data points missing. I recommend that the data collectors ensure that the information is complete such that each individual included in the data has a unique identifier, demographic markers, the result of the NJP, charges, etc. Additionally, for ease of analysis, I recommend creating a separate indicator variable for each punishment, instead of a single offense category with the punishments listed. This would enable the data collectors to record a single NJP hearing with multiple violations in one row vice many. Furthermore, I suggest that a total number of punishments variable be added, as well as an administrative separation indicator. I was unable to study administrative separations as a punishment because it not recorded as a punishment category. I also recommend adding an indicator variable for suspended punishments.

Regarding the demographic characteristic variables, I recommend adding a marital status variable and a variable for age to determine if there are statistically significant differences in violations and outcomes based on those characteristics. I also recommend that the data collectors rank the offenses and punishments in terms of severity. This would enable a more robust analysis of the differences in punishments for the offense categories. Finally, the data collectors should differentiate the severity of punishment within the same offense category, particularly for Article 92, which is a vague punitive article. It is possible that many different types of misconduct are charged as Article 92 violations. Therefore, it is difficult to compare punitive outcomes, as some violators may have committed a more egregious offense than others. A ranking scale of the severity of the offense could help to offset this issue.

B. FURTHER STUDY

With the above recommendations, I also recommend further study of the Article 112a disparity between White and Black sailors. I assume that many of the Article 112a

cases were for positive urinalysis samples, which, if true, is particularly astounding because the navy's urinalysis testing system is random. However, the disparity may be unrelated to the urinalysis program, and it may be that Black sailors in the data were more likely to use a controlled substance. Unfortunately, the data do not allow for this level of analysis, which is why I recommend further study of the 112a disparity. More broadly, I recommend that further study be conducted to determine the root cause of the over-representation of Black sailors in this data set. A more in-depth study may look at the racial makeup of the ships where the sailors are being tried to see if there are command effects that impact the racial makeup of NJP cases.

Additionally, this data set was overwhelmingly composed of sailors who were found guilty at NJP. I recommend collecting data on all the cases that are opened at each command regardless of whether the case makes it to NJP. This would allow future researchers to study whether minority sailors are more likely to be the subject of an investigation, which may explain the over-representation of Black sailors at NJP. I also recommend collecting data on the procedural steps taken at NJP like the type of evidence that was presented, whether the accused had someone speak on their behalf, and whether the defendant offered a defense for themselves. As such, the data I observed was focused on the outcome of the trial, while a more robust analysis would include the process leading to the NJP decision.

C.   CONCLUSION

Though there were some challenges arising from the data collection methods, the data suggests that there are significant racial disparities in the Navy's NJP system. This study does not offer a definitive answer regarding the roots of those disparities nor to the question of whether implicit racial bias exists in the system, but rather analyzes the available data to identify trends. In all, it is abundantly clear that the Navy must study further the disparities that I found. Disparate treatment of sailors based on race undermines their faith in the criminal justice system and thereby diminishes good order and discipline, which is antithetical to the stated purpose of NJP.

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