"GETTING LET GO OR GETTING LOCKED UP":

LEGAL DETERMINANTS AS SOURCES OF VARIATION IN LENGTHS OF DETENTION IN FLORIDA COUNTIES RELATIVE TO CONDITIONS ASSOCIATED WITH PRETRIAL RELEASE AND CONFINEMENT ALTERNATIVES IN THE ERA OF THE COVID-19 PANDEMIC *

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*** Please note that a summary of this research may be found on page 2, the *Abstract,* while the *Discussion and Conclusions* may be found on pages 106 – 112 of this document.**

ABSTRACT

Even though traditionally used as a form of secured pretrial release, cash bonding and surety bonding as pretrial release practices continue to undergo increased scrutiny and criticism in terms of the way that it is currently used and implemented. The attacks against cash bonding and surety bonding specifically, and secured pretrial release practices generally, have been largely framed in a political and ideological context that are designed to pave the way for the broader use of *un*secured pretrial release programs and the total elimination of secured pretrial release mechanisms to ensure a defendant's appearance in court.

The distinctions between cash bonding and surety bonding have been largely ignored by opponents of the two who have attempted to falsely portray surety bonding as the equivalent of cash bonding. Furthermore, critics of surety-based pretrial release fail to acknowledge that a cash bond or a surety bond is nothing more than an insurance policy that is ultimately based on the assessment of risk. In doing so, critics of the practice undermine the inherent power of the court to assess such risk on criminal defendants who appear before them.

This research addresses two fundamental questions with respect to the use of pretrial release mechanisms: (1) do defendants who are in pretrial detention and who are awaiting pretrial release spend longer time in jail awaiting a surety bond or being admitted to some type of unsecured pretrial release program or the use of release on recognizance (ROR), or promise to appear; and (2) what are the primary determinants of release and confinement relative to the number of days spent in detention?

Based upon a study of 1,599 cases from selected Florida counties over a three-month time period (June 1 – August 31, 2021), the research findings demonstrate two fundamental conclusions. First, *there is no statistically significant differences between the amount of time that defendants spend in jail awaiting either a surety bond or being admitted to an unsecured pretrial release program.* However, although the difference is not statistically significant, defendants who are released on surety bond actually spend *less* time in pretrial detention than those defendants who are ultimately released to an unsecured pretrial release program. Second, *sources of variation in the number of days spent in detention are closely related to legally relevant criteria associated with the case, and not necessarily the personal attributes or characteristics of the defendants.*

Additional findings further demonstrated that *the notion that defendants are spending prolonged lengths of time in jail awaiting trial is largely a myth, and that any prolonged detention is ostensibly related to legalistic factors associated with confinement and case processing protocols.*

Finally, the use of analysis of variance (ANOVA) and multiple regression as statistical tools demonstrates that the derived model using ten predictor variables explains between fifty and sixty percent of the variance in the number of days in confinement depending on whether the dependent variable is grouped or disaggregated in terms of its measurement.

STATEMENT OF THE PROBLEM

One of the principal arguments that undergirds the opposition to secured pretrial release is that criminal defendants are spending prolonged time in pretrial confinement because they cannot afford the cost of a cash bond or the cost of a surety bond to secure their release prior to trial. A collateral argument is that since defendants are locked up because they are poor, they are being systematically deprived of their due process rights because of their financial status. As a consequence of both suppositions, it has been proposed by the opponents of cash bonding and surety bonding and secured pretrial release that an alternative method of unsecured pretrial release be implemented as policy that would allow defendants to remain free without any type of surety to secure their appearance in court. As an alternative to being admitted to bail through cash bonding or a private surety bonding company on a "pay-as-you-go" basis, it is argued that defendants could be placed in government-sponsored and government-run unsecured pretrial release programs that are directly funded and directly paid for by taxpayer support.

Certainly, there are people in jail who are actually supposed to be there for a lawful purpose and legitimate reason: there are offenders serving sentences; there are those persons that are on "hold" for transfer to another county or another state; there are those persons that are being held in protective custody; there are individuals who are being deported and awaiting transfer to Immigration and Customs Enforcement; there are those persons who are in detention because they are awaiting trial on federal charges; and there are those convicted offenders who are awaiting transfer to state correctional facilities from their original jurisdiction of conviction. Finally, there are those persons in pretrial detention who are there because the judge has determined that the nature and the gravity of the alleged offense(s) are of sufficient severity to preclude any type of pretrial release, whether secured or unsecured. Fundamentally, people end up in jail for a multitude and

myriad of reasons *other* than just pretrial detention. Moreover, defendants end up in pretrial confinement because of a perception of risk by the court who deems it necessary to set bail to ensure a defendant's subsequent appearance in court. Associated with these different reasons for being in jail are differential lengths of time associated with such diverse types of detention.

Thus, the purpose of this research is to determine, based upon available data from those counties in the state of Florida that have online databases with search and query capabilities, the average length of stay in pretrial detention following arrest prior to being released from pretrial custody and whether or not defendants who are awaiting release on cash bond or surety bond spend more time in pretrial detention than those who are ultimately admitted to an unsecured pretrial release program or avail themselves of other unsecured pretrial release mechanisms such as release on recognizance or a promise to appear. In addition, the research seeks to address the question as to which factors are related to lengths of confinement based on release or confinement considerations.

CASH BONDING AND SURETY BONDING AS A SECURED PRETRIAL RELEASE MECHANISMS

The use of bail in the United States is as old as the Republic itself, and historically, a defendant's right to bail can be traced back as early as 1275 in the Statute of Westminster in England. It was also incorporated into the Magna Carta and English common law. Historically, through legislation and case law, the right to bail was recognized. The Judiciary Act of 1789, adopted on the same day that Congress proposed the Bill of Rights to the States for ratification, directed that "*upon all arrests in criminal cases, bail shall be admitted except where the punishment may be death."* The one restriction on its use in the United States can also be traced back to the Eighth Amendment of the United States Constitution whereby it is simply asserted that "bail shall not be excessive."

When the Eighth Amendment was ratified by the states, the right to bail was presumptive, since the Eighth Amendment provides that "*excessive bail shall not be required."* State constitutions have overwhelmingly recognized a right to bail as an option to avoid pretrial deprivations of liberty for the accused. Historically and traditionally, bail has meant *monetary, or surety* bail. The idea that "bail shall not be excessive" is predicated on the fact that bail exists in the first place. Thus, in the state of Florida, surety bonding and its use as well as its regulation is authorized in state statute under chapter 903 and 648, respectively.

The applicable Florida statute requires that the court consider a multitude of factors in determining whether the defendant shall be admitted to bail and the conditions surrounding its use, including the following:

(a) The nature and circumstances of the offense charged;
(b) The weight of the evidence against the defendant;
(c) The defendant's family ties, length of residence in the community, employment history, financial resources, and mental condition;
(d) The defendant's past and present conduct, including any record of convictions, previous flight to avoid prosecution, or failure to appear at court proceedings;
(e) The nature and probability of danger which the defendant's release poses to the community;
(f) The source of funds used to post bail;
(g) Whether the defendant is already on release pending resolution of another criminal proceeding or on probation, parole, or other release pending completion of a sentence;
(h) The street value of any drug or controlled substance connected to or involved in the criminal charge;
(i) The nature and probability of intimidation and danger to victims;
(j) Whether there is probable cause to believe that the defendant committed a new crime while on pretrial release;
(k) Any other facts that the court considers relevant;

(l) Whether the crime charged is a violation of chapter 874 or alleged to be subject to enhanced punishment under chapter 874 or reclassification under s. 843.22. If any such violation is charged against a defendant or if the defendant is charged with a crime that is alleged to be subject to such enhancement or reclassification, he or she is not eligible for release on bail or surety bond until the first appearance on the case to ensure the full participation of the prosecutor and the protection of the public; and,

(m) Whether the defendant, other than a defendant whose only criminal charge is a misdemeanor offense under chapter 316, is required to register as a sexual offender under s.943.0435 or a sexual predator under s. 775.21; and, if so, he or she is not eligible for release on bail or surety bond until the first appearance on the case in order to ensure the full participation of the prosecutor and the protection of the public." [1]

However, even though there are specifically defined criteria and conditions regarding the use of bail in the state of Florida, in almost all courts, the determination of both the amount and type of bail is based mainly on a two-pronged test: the judge's view of the seriousness of the crime, and the defendant's prior record. In part, this two-pronged emphasis generally results from a lack of information about the accused. Because bail is typically determined within a period of 24- to 48-hours after an arrest [2], there is little time to conduct a more thorough, exhaustive, and comprehensive assessment as to the worthiness of the defendant to be placed on bail. As a result, judges have developed standard rates of bail that are *offense-specific*. In some cases, the judge will set a high bail if the police or prosecutor is seeking to have a certain person kept off the street.[3] In some counties that utilize unsecured pretrial release, defendants are placed in these programs based upon their outcome score on a risk assessment tool in an attempt to determine who will have the greatest

[1] Florida Statutes, Chapter 903.046.
[2] In the state of Florida, the decision to admit a defendant to bail is rendered within twenty-four hours subsequent to arrest.
[3] Unsecured pretrial release programs were instituted to ostensibly give the judge more complete information upon which to base his/her decision to admit a defendant to pretrial release without some form of cash bond or surety bond being posted.

likelihood of success in unsecured pretrial release status. Whether these risk assessment tools predict defendant success in unsecured pretrial release programs is, however, questionable.

One of the issues surrounding the use of pretrial risk assessment instruments has to do with the amount of dangerousness that is being predicted by the instrument itself. In predicting the likelihood of future dangerousness, instruments such as these traditionally tend to overpredict the amount of future dangerousness exhibited by the defendant. From a pretrial release policy point of view, trying to predict whether someone will be successful in any type of pretrial release program based upon what they *might* do in the future coupled with the systematic *overprediction* of future dangerousness seems to be a bit of a stretch. A more moderated approach is clearly indicated.

When reduced to its simplest form and considered in its appropriate context, cash bonding and surety bonding as secured pretrial release mechanisms are nothing more than a type of insurance policy that is fundamentally designed to do one and only one thing – *to ensure the defendant's appearances in court for of his/her scheduled court dates.* To this extent, the setting of bail and the use of surety bonding is not designed to be a punitive social control mechanism. In fact, cash bonding and surety bonding are just like any other form of insurance; they are simply designed to mitigate risk and to make sure that the defendant appears in court when he/she is required to do so. For example, if a driver operates a motor vehicle, the driver is required to have motor vehicle insurance. If a homeowner has a mortgage on a house or property, that homeowner is required to have home and property insurance. If you rent, it is prudent if you have renter's insurance. If you are a physician or an attorney, you are required to have malpractice insurance to cover "errors and omissions." We have health insurance to cover medical costs and expenses, and we have life insurance in the event that the insured party dies. Regardless of the nature and type of insurance policy, every single commercial insurance policy issued to any policy holder for whatever reason is

based on a level of risk that is actuarially determined. These actuarial data and the level of risk determination provide a rational basis for the issuance of the insurance policy, the amount of the policy premium that is paid, the terms and conditions of the policy as specified in insurance "riders", and so forth. Unfortunately, however, the assessment tools utilized by unsecured pretrial release programs typically suffer from problems of demonstrable predictive validity and instrument reliability when it comes to the assessment of risk on the part of criminal defendants, and are fraught with a multitude of methodological problems.

Fundamentally, a cash bond or a surety bond is no different than any other type of commercially available insurance policy, whether for life, health, automobile, property, homeowners, or liability insurance: *the amount of the cash bond or the surety bond is based upon the contemporaneous analysis and assessment of risk by the judge or magistrate who renders a bail decision based upon the facts and circumstances surrounding the case.* For all intents and purposes, the conditions that the judge is required to consider under chapter 903 of the Florida Statutes are nothing more than what amount to "pre-existing conditions." To this extent, the setting of bail is not an arbitrary decision; quite the opposite, the decision by a judge to admit a defendant to bail comports with the procedures stipulated in the language in the Florida statutes for risk mitigation purposes.

Traditionally, the setting of bail is determined by a judge who reviews the totality of the facts and circumstances of the case and renders a bail decision based upon the judge's perception of risk relative to the perceived likelihood of the defendant's subsequent appearance in court and the bail schedule established pursuant to Florida law. Quite simply, the process that leads to a judge's decision to admit a defendant to bail is made neither in a vacuum nor is it made on a random basis. In fact, unlike cash bonds, the surety bond is the one the best mechanism to ensure that the defendant

appears for all his/her subsequent court dates. Moreover, and from a purely practical standpoint, the bail agent does, in fact, provide a valuable adjunctive service to law enforcement since the bail agent is lawfully authorized to effect an arrest if the defendant fails to appear for any regularly scheduled court appearances that require his/her participation. This eliminates members of law enforcement being required to apprehend a defendant as second time when he/she fails to appear for scheduled court appearances.

The continued use of cash bonding or surety bonding has also been affirmed as recently as March, 2016 by the Department of Justice under the Obama administration by issuing restrictions on what cash bonding and surety bonding *cannot* do. In a Memorandum Opinion rendered by the United States Department of Justice on March 14, 2016, pertaining to the enforcement of fines and fees, in regards to those individuals accused of misdemeanors, quasi-criminal ordinance violations, or civil infractions, the Department states in principle (6), "Courts must not employ bail or bail bond practices that cause indigent defendants to remain incarcerated *solely because they cannot afford to pay for their release*".[4] Moreover, in footnote 2 of the Memorandum, the Department of Justice is quite clear: *"Nothing in this letter is intended to suggest that courts may not preventively detain a defendant pretrial in order to secure the safety of the public or appearance by the defendant."* This

[4] The importance of this qualifier cannot be underestimated. This phraseology implies that confinement, or even long-term confinement, is not prohibited as long as such confinement is not predicated upon a defendant's inability to pay for the cost of the bond. It is also important to recognize that there are some significant distinctions between a *surety* bond and a *cash* bond even though both are examples of *secured* pretrial release. In a cash bond transaction, there are only *two* parties to the transaction: the defendant and the court. In a surety bond, there are *three* parties involved: the defendant, the surety bonding company, and the court. When the defendant posts a cash bond directly with the court, the defendant absorbs *all* the financial risk. If the defendant fails to appear for his or her court dates, the court will consider this bail forfeit. When this happens, the defendant loses all of the money paid to bail the defendant out of jail. On the other hand, if the case concludes smoothly, all prepaid monies are returned to the defendant. Alternatively, when a bond company posts a surety bond with the court, both the defendant and the bond company are taking on financial risk. If the defendant fails to appear in court, the bond company has the right to track down the defendant and return them to police custody. If that happens, the bond company will not lose their money. If the defendant is never located, however, the court will issue a bench warrant for that person's arrest. The bond company will then lose the money they put up, and the defendant loses any collateral that was provided to secure the bond.

is an important qualifier to the language of the Memorandum itself, and in no way implies that *secured* pretrial release is *not* an option, or that all defendants are presumptively entitled to unequivocal and unsecured pretrial release. What is guardedly implied in the language of the Memorandum is that risk is relative to the safety of the public or the likelihood of appearance in court by the defendant.

In the spirit of the memorandum originally promulgated by the Justice Department, the posting of a surety bond by the accused subsequent to being charged with low-level misdemeanors, quasi-criminal ordinance violations, or civil infractions may be inconsistent with the interests of justice. There are other types of pretrial release mechanisms to address those issues. However, the *real* question then becomes what mechanism(s) *may* be utilized to best ensure the three-pronged goals of public safety, defendant accountability, and the appearance of the defendant for those who are charged with *more serious types of crimes*?

Unsecured pretrial release programs typically rely heavily on the use of "an empirically developed risk assessment instrument." This risk assessment instrument is at the very core of many such programs. The use of a risk assessment tool typically attempts to answer three questions. Does the risk assessment tool predict pretrial failure; does it distinguish between low, moderate, and high-risk defendants and their relative failure rates; and does it predict pretrial failure among different subgroups of defendants? Unfortunately, the very risk assessment tool relied upon to determine pretrial success or failure simply does not work either as designed or intended. The risk assessment simply does not do what it is supposed to do. Amazingly, however, some courts *still continue to use this instrument even though it does not accomplish its intended goals.* For example, the study by Stevenson, showed that risk assessment had no effect on racial disparities in pretrial detention once

differing regional trends were accounted for, and that the increase in releases was not cost-free: failures to appear and pretrial crime increased as well. [5]

An analysis of bond failure rates in Harris County Texas illustrates that there are distinct differences in failure rates between defendants released on secured bond versus those released on unsecured bond. In this research, the data indicated that the bond forfeiture rates for unsecured-released clients was nearly five times the bond forfeiture rates for those clients who were released on a secured bond. Additionally, when it came to considering bond failure rates of all types, the *overall* failure rate for unsecured clients was nearly four times as high than for those defendants who were released on a secured bond.

Bond Failure Rates in Harris County, Texas, Since Implementation of the Preliminary Injunction in *ODonnell v. Harris County*, No. 16-1414 (S.D. Tex.)
Failure rates from June 6, 2017 to April 30, 2018*

Bond Type	Failure Type	# Bonds Approved	Failure Count	Failure Rate
Secured Bond	**Forfeiture**	**17,729**	**1,777**	**10.02%**
	Revocation	17,729	487	2.75%
	Surrender	17,729	194	1.09%
	Order of Court	17,729	3	0.02%
	Total Failure Rate	*17,729*	*2,461*	*13.88%*
Unsecured Bond — Sheriff	**Forfeiture**	**12,577**	**6,201**	**49.30%**
	Revocation	12,577	335	2.66%
	Order of Court	12,577	12	0.10%
	Total Failure Rate	*12,577*	*6,548*	*52.06%*

[5] Certainly, there are wide-ranging degrees of quality in terms of risk assessment tools as far as pretrial defendants are concerned. Counties are, therefore, urged to examine the methodologies surrounding and underlying the development of these risk assessment tools to determine whether or not the risk assessment instrument addresses the measurement issues of validity and reliability. Risk assessment tools vary along the dimensions of whether they are qualitatively or quantitatively based, and whether they accurately predict the extent to which defendants are appropriately classified with respect to success or failure on pretrial release status. In this research, the assessment of risk was not incorporated into the analysis for one simple reason: risk-based assessment data was not available in the online databases that were used to query and generate the study's overall sample of 1,599 cases. Perhaps in the future, such data will be available in order to assess the overall assessment of risk in pretrial release decisions and whether pretrial defendants are appropriately classified.

A similar analysis by Carmichael et al (2017) demonstrated that there were substantial differences between bail forfeiture rates under a financial release system (Tarrant County, Texas) and a risk-informed release system (Travis County, Texas). Specifically, Carmichael *et al* in their analysis of pretrial practices in the state of Texas argue that regarding bond forfeiture,

Table 5. Bail Forfeiture among Defendants on Bond

	Financial Release System (Tarrant County) (n=69,906)	Risk-Informed Release System (Travis County) (n=43,612)
BAIL FORFEITURE	11.6%	17.5%

> "In Travis County's risk-informed release system, costs are driven up by a bond forfeiture rate (17.5%) that is 6 percentage points higher than Tarrant County's financial release system (11.6%). With financial interests at stake, it appears commercial bond companies do a better job ensuring clients are present in court. Conversely, the risk-informed system releases ten times more people, most of whom are unmonitored while awaiting trial. The volume of people freed in Travis County's risk-informed system, combined with their relative independence, may increases opportunity for missed court appearances" (Carmichael, et al, 2017:27).

Furthermore, the use of unsecured pretrial release programs may, by virtue of the way that they are structured, impose undue burdens on a pretrial defendant's release which may, in turn, create further hardship on the defendant, even though the defendant has not been convicted of any crime. If the defendant's case is on pretrial release status, *there has been no adjudication of guilt by any court of competent jurisdiction.* Ironically, these types of "conditions" are most typically *associated with those persons whose cases have been adjudicated guilty and who are on some type of post-conviction community control*:

(a) Placing the defendant in the custody of a designated person or organization agreeing to supervise the defendant;
(b) Place the defendant under the supervision of a presentence or probation officer, *even though there has been no adjudication of guilt;*

(c) Place restrictions on travel, associations, activities, consumption of alcoholic beverages and drugs, or place of abode during the period of release;
(d) Requiring periodic reports from the defendant to an appropriate agent of the court or the defendant's attorney;
(e) Requiring psychiatric or medical treatment of the defendant;
(f) Requiring the defendant to provide suitable support for the defendant's family to be supervised by an officer of the court or Family Court with the consent of the court;
(g) Impose *any other condition deemed reasonably necessary to assure appearance as required to carry out the purpose of this chapter.* (italics added) [6]

Moreover, it could be argued that any costs associated with the participation in an unsecured pretrial release program could, arguably, be passed on to the program's clients. To a degree, this is partially true. However, the problem with that line of reasoning is that the costs that are passed on to the clients themselves may ultimately *exceed* the costs associated with obtaining a surety bond.

Finally, the claim that *overwhelming numbers of people* are languishing away in jail because they cannot financially afford the costs of a cash or surety bond because they have allegedly committed a high-grade misdemeanor or a non-capital felony is untenable. That is a supposition not established in fact by credible scientific evidence. There are simply too many options that allow surety bonding agencies to be flexible in their approach to funding a surety bond, including the development of a state-based fund for indigent clients that could be funded in part by the surety bonding industry, not the taxpayers. Furthermore, if defendants are detained in pretrial status, is it because they cannot afford the cost of a cash or a surety bond, or is it because there are other associated collateral risks potentially associated with their release? [7]

[6] This last stipulation (condition "g") is particularly problematic, especially since the language and wording is both vague and overly broad. A court would most likely hold that this condition would be "void for vagueness".
[7] One could arguably make the case that the person most qualified to assess defendant "risk" is the judge, separate and apart of any risk assessment instrument. It is the judge who has immediate access to computerized criminal histories on the defendant and can be expected, based upon his/her legal training and judicial experience, to render a pretrial release

Based upon the way that unsecured pretrial release programs are typically funded and administered, an *unsecured* pretrial release program may be viewed as a "public good"(Olson, 1974), such that if one person receives the benefit, everyone enjoys the benefit regardless of whether or not they pay for it or even avail themselves of its use. In other words, the benefit of unsecured pretrial release cannot be withheld from anyone. There is a problem with this, however. Not everyone breaks the law, so the question then becomes - *why should taxpayers who don't break the law have to pay for something that they will foreseeably never use, or that to avail themselves of its use, they actually have to break the law?*

There are several research questions that will be addressed during this research. These include the following:

(1) What are the properties and characteristics of the sample of cases included in this array of 1,599 cases? In other words, what does the sample look like from a statistical point of view?
(2) Are there any statistically significant differences between the different forms of *pretrial release mechanisms* with respect to the number of days spent in confinement?
(3) Are there any statistically significant differences between the different types of *confinement mechanisms* with respect to the number of days spent in confinement?
(4) Can these different types of pretrial release and confinement mechanisms be broken down statistically into different homogenous groups using *ex post facto* analytical techniques in conjunction with the analysis of variance?
(5) Who are the people who are in prolonged detention, whereby "prolonged" is defined as one hundred days or more in confinement?

decision that will further the interests of justice, the public safety interests of the community, and the individual circumstances surrounding any given defendant.

(6) Can the number of days in detention be reliably predicted using linear modeling techniques such as multiple regression?

RESEARCH METHODS

Data for this research were collected from all Florida county jail facilities which had publicly available online search and query tools in order to determine the date of booking and the date of release of the defendants over a three-month period of time (92 days), from June 1 through August 31, 2021.[8] From each of these twenty-eight Florida counties' jail facilities that had publicly available search tools for their searchable jail databases, there were three one-day search periods over this 92-day time period that were randomly selected for data collection and analysis. Accordingly, three days' worth of inmate data from each of these Florida county jail facilities over the 3-month period were randomly selected for subsequent analysis, thereby yielding a final case total of 1,599 unduplicated jail detainee records for this research.[9]

Thus, for each of the Florida counties included in this study, three separate days during this three-month period were randomly selected for data collection purposes. Each day from June 1st to August 31st was assigned a consecutive number, and from that sequence of numbers, three days were randomly generated for each one of the counties in question for purposes of colleting data for this research.

[8] One important qualifier that should be noted is that during this three-month time frame from June 1 through August 31, 2021, the nation as a whole was trying to emerge from the effects of the COVID-19 pandemic. It is literally impossible to determine how the data may have been affected because of this pandemic. Nor is it possible within the scope of this particular research as to how operations throughout the criminal justice system were specifically affected by the pandemic. Otherwise stated, the effects of COVID-19 in this study are both unknown and unknowable with respect to the specific data incorporated herein.

[9] Florida counties (n=28) included in the research were as follows: Bradford; Brevard; Charlotte; Columbia; Escambia; Flagler; Gadsden; Hernando; Hamilton; Hendry; Hillsborough; Indian River; Lake; Lee; Levy; Manatee; Nassau; Okaloosa; Palm Beach; Pasco; Pinellas; Polk; Putnam; Santa Rosa; St Johns; Sumter; Suwanee; and Walton. Sarasota County had been included in the original data collection effort, but technical difficulties precluded being able to search on the established dates that had been randomly selected for inclusion in the sample. Hence, data for Sarasota County is not included in this study.

Data collection took place between July and November, 2021, and included the following variables: the name of the Florida county; whether the county had a reported unsecured pretrial release program; the jail roster search date; the defendant's booking number; the defendant booking number; date of defendant booking and date of defendant release;[10] defendant sex and defendant race; defendant date of birth; defendant age at time of booking; whether the defendant was released under surety bond, cash bond, unsecured pretrial release, or release on recognizance (ROR); whether the defendant was in jail awaiting trial or if there was some type of "hold" on the detainee at time of booking; whether the inmate was serving a sentence or awaiting sentencing; whether the defendant was awaiting transport to another facility; whether the defendant was charged with a violation of probation (VOP) or whether the defendant was reported homeless; the total number of charges against the defendant; the total number of felonies and misdemeanors against the defendant; the total amount of defendant's bond on all charges, both felonies and misdemeanors; and the total number of days in detention.

Sample Description

An analysis of the data indicates that the sample was predominately from counties whose populations were greater than 500,00 persons (68%), was from a county that had an unsecured pretrial release program according to the designation by OPPAGA (76.7%). The sample was predominately Caucasian (61%) and male (76.5%). The average (mean) age of booking was 37.38 years, and the average (mean) number of days spent in detention was 29.78 across *all detainees and for whatever reasons*. On average (mean), detainees were facing 2.3 charges each. Of these total

[10] Assume that a defendant was booked into jail on July 6th and released on July 9th. The defendant was in detention for all, or part of, four days. Simply subtracting the date of booking from the date of release would only show three days, and not four. Hence, for this research, the number of days in detention was calculated by subtracting the date of booking from the date of release, and adding "1" to it, as follows: DETENTION DAYS = (RELEASE DATE – BOOKING DATE) +1.

mean number of charges, detainees were facing, on average (mean), 1.07 felony charges and 1.23 misdemeanor charges. Just over three percent (3.3%) of the defendants in this study were documented as being homeless.

The data further indicate that there are some divergences between measures of central tendency (mean, median and mode) [11] amongst these different variables. For example, while the *mean* number of detention days across the sample was 29.78 days, the *median* number of days was 3 days, and the *mode* number of days was 1 day. Similarly, the mean age at booking across the entire distribution was 37.38, while the median was 35, and the mode was 36 years old.

For purposes of analysis, one part of the sample was comprised of those defendants who were released based on some established criteria for pretrial release, while the other part of the sample included those defendants who were in confinement based upon some legally-established criteria to hold the defendant in custody.

The Issue of Statistical Significance

For purposes of analysis, one of the goals of the research was to determine the extent to which the relationships between the variables within the study were statistically significant. The concept of statistical significance is the extent to which the relationship surpasses sheer randomness and could have occurred by chance. A relationship is "statistically significant" if the probability of the finding occurring by chance is fewer than five times in a hundred ($p<.05$).

One of the problems with using a relatively samples such as this one is that as a sample size increases, it requires a lower magnitude relationship to be defined as "statistically significant" than

[11] The mean is the arithmetic average of the entire distribution; the mode is the most frequently appearing score in the distribution; and the median is that particular score wherein half of the distribution lies above it, and half of the distribution lies below it. All three measures are considered to be measures of central tendency, or averages.

in a smaller- sized sample.[12] In a smaller sample, the magnitude of the relationship between the variables needs to be greater in magnitude for it to be defined as being statistically significant at any given level.

Although the sample size in this study (n = 1,599) may be considered moderately large, it is only 17 percent of the sample size from a previous study conducted in 2019 (n = 9,373; Krahl, 2019), and has a more restrictive sample of included dates in the sample itself for data collection and analysis purposes (92 days as opposed to one full calendar year with multiple data points). Another major difference between the current study and the one previously conducted by Krahl (2019) is that the distinction between case status categories for release and confinement are substantially expanded in the current research. For release statuses, this research includes the following mechanisms: pretrial release by surety bond; pretrial release by cash bond; pretrial release via participation in an unsecured pretrial release program; pretrial release via release on recognizance (ROR); and finally, pretrial release because of charge dismissal, no bill or information filed by the state, or a *nolle prosequi* status assigned by the state attorney.

In terms of confinement statuses, categories in the current research now include the following mechanisms: awaiting trial in pretrial detention; awaiting sentencing post-conviction; serving a sentence subsequent to conviction; awaiting transportation to another receiving facility (pre- or post-conviction); a lawful "hold" by another agency and for which case transfer is pending to another jurisdiction; and confinement pursuant to an alleged violation of probation for which pretrial release is not possible under existing Florida law until the defendant is seen by a judge for adjudication.

[12] The concept of "statistically significant differences" (i.e., rejecting the null hypothesis) states that differences in group means are not likely due to sampling error, and that the findings did not occur by chance. The problem is that statistically significant differences can be found even with very small differences if the sample size is large enough.

Finally, the current data were collected for a three-month time period in 2021, just when the nation was trying to emerge from the shadow of the COVID-19 pandemic. Although the demonstrable and measurable effects of COVID-19 on the operation of the criminal justice system generally and pretrial release programs specifically have not been completely elucidated as of this writing, one may safely assume that the pandemic continues to exert both major and minor effects on criminal justice pretrial release mechanisms.

RESULTS

Frequency Distribution Analysis

An analysis of the overall dataset indicates that defendant data may be classified according to their release and confinement statuses.[13] In this research, there were five different release mechanisms included: (1) secured pretrial release via surety bond; (2) secured pretrial release via cash bond; (3) pretrial release via participation in a unsecured pretrial release program; (4) pretrial release on recognizance (ROR); and (5) pretrial release based upon the charges being dropped or a true bill or indictment not being returned against the defendant. Accordingly, 65.6 percent of the 1,185 defendants who were released on a pretrial basis were released on some type of surety bond (n=777), 11.4 percent were released on cash bond (n=135), 3.6 percent were released via unsecured pretrial release program participation (n=43), 17.8 percent were released ROR (n=211), and finally, 1.6 percent were released because the charges were dropped, there was no true bill or indictment returned against the defendant, or the case was assigned a status of *nolle prosequi* (n=19). These data are displayed in Table 1.

[13] It should be noted that while the sample size for this study is 1,599, there is the possibility that some of the cases included in the sample were *released* on some charges but *confined* on others. It is also possible that there were multiple mechanisms for release and multiple mechanisms for confinement. For example, a defendant could have been released on a surety bond for one charge, but ROR'd on another charge. Alternatively, a defendant in confinement could be awaiting trial on one charge and at the same time, be in confinement for a violation of probation.

These data in Table 1 show several interesting findings. First, defendant release on a surety bond was common to nearly two-thirds of all defendants who were released on some type of pretrial release mechanism. Second, nearly twenty percent of the released defendants were released on recognizance (ROR). Third, the proportion of defendants released to an unsecured pretrial release program constituted less than five percent of all defendants released from pretrial confinement. Fourth, over 75 percent of the defendants were released from pretrial detention using some type of *secured* release mechanism (surety bond or cash bond).

Table 1
Frequency Distribution of Defendant Pretrial Release Status
n = 988

Pretrial Release Status	Number	Percent
Surety Bond	642	65.0
Cash Bond	116	11.7
Unsecured PTR Program	38	3.9
Release on Recognizance	174	17.6
Charges Dropped/No Bill	18	1.8
TOTALS	**988**	**100.0**

Table 2 displays the number and percentage of defendants who were in specific confinement statuses included in this study. These confinement statuses included: awaiting trial; awaiting sentencing; serving a sentence; awaiting transportation to another facility; a violation of probation (VOP); and an agency “hold”.

Table 2
Frequency Distribution of Defendant Confinement Status
n = 611

Confinement Status	Number	Percent
Awaiting Trial	44	7.2
Agency Hold	56	9.2
Serving/Served Sentence	199	32.5
Awaiting Sentence	24	3.9
Transport	45	7.4
Violation of Probation (VOP)	243	39.8
TOTALS	**611**	**100.0**

According to Table 2, 7.5 percentage of the defendants in confinement were awaiting trial, while nearly one-third of defendants were serving (or had served) their sentences. In addition, nearly forty percent of defendants were confined because of a violation of probation. Finally, just over fifteen percent of defendants had some type of agency hold (9.2%) or were awaiting transport (7.4%) to an external agency or jurisdiction.

When it comes to the number of days spent in jail, Table 3 shows that 51.9 percent of the sample of 1,599 defendants spent between one and three days in jail prior to release. Another 9.9 percent of the sample spent between four and ten days in confinement, while yet another 3.3 percent of the detainees spent between eleven and fourteen days in detention. Nearly two-thirds (65.1%) of all detainees in the sample spent between one and fourteen days in detention regardless of reason for their confinement. Finally, the data indicate that roughly three-quarters of all detainees spent less than thirty days in jail regardless of reason for detention.

Table 3
Frequency Distribution of Number of Detainee Detention Days for Overall Sample (n= 1,599)

Number of Detention Days	Number of Detainees	Percentage	Cumulative Percentage
1 – 3 Days	830	51.9	51.9
4 – 6 Days	90	5.6	57.5
7 – 10 Days	69	4.3	61.8
11 – 14 Days	53	3.3	65.1
15 – 21 Days	71	4.4	69.5
22 – 29 Days	72	4.5	74.0
30 – 45 Days	86	5.4	79.4
46 – 60 Days	55	3.4	82.8
61 – 89 Days	58	3.6	86.4
90 – 119 Days	39	2.4	88.8
120 – 149 Days	91	5.7	94.5
150 – 179 Days	51	3.2	97.7
180 + Days	34	2.3	100.0
Totals	**1,599**	**100.0**	

Differences between the Means

T-test statistics for independent samples were used to evaluate whether the arithmetic means of any two different comparison groups were statistically similar or dissimilar with respect to the

dependent variable, the number of days spent in detention.[14] In terms of hypothesis testing, the logic may be depicted as follows:

H_0: $\mu_1 - \mu_2 = 0$, where H_0 is the null hypothesis, and μ_1 and μ_2 are the statistical means of groups 1 and 2, respectively, on a dependent variable (number of days spent in detention).

The two groups themselves are statistically equivalent, if the critical value of the t-test does not surpass the specified level at the standard .05 level of statistical significance.[15] For purposes of this analysis, a two-tailed test of significance (as opposed to a one-tailed test) is used because no directionality is being hypothesized or predicted as far as the different means are concerned. It is important to note, however, that the t-test assesses the extent to which the means, or averages, are statistically different from one another when comparing one pretrial release mechanism with another. Moreover, the t-test assesses only the extent to which the differences between the two the means are statistically meaningful and not simply random differences between them. Finally, the t-test, in and of itself, says nothing about the degree of association or cause-and-effect relationships between the variables under consideration.

Table 4-A shows the mean number of days spent in detention prior to being released a specific pretrial release mechanism. According to this table, there are some observable differences between the different means from one category to the next. For example, the time spent in pretrial

[14] The use of t-tests to compare differences between means on several different variables is acknowledged to have limitations based upon the number of t-tests actually performed. One of the problems in performing multiple t-tests is that not all of the tests would be independent comparisons and the resulting probabilities would overlap, thereby increasing the probability of making a Type 1 error. A Type 1 error is described as a false positive, and occurs when a researcher falsely rejects a null hypothesis when it is actually true. Thus, the use of multiple t-tests in this research is for purposes of initial benchmarking only and to get an initial "sense" of what the data might indicate based upon a cursory analysis. The use of the t-tests will therefore be supplemented by using a more robust and elegant statistical tool, the analysis of variance (ANOVA).

[15] A level of statistical significance of $p < .05$ means that the finding could have occurred by chance less than five times out of 100. A level of $p < .01$ means that the finding could have observed by chance less than one time in 100. A level of $p < .001$ indicates that the finding could have occurred less than one time in 1,000. A level of $p < .05$ is the minimum level that indicates statistical significance.

detention prior to being released on surety bond or cash bond is 6.85 days and 5.45 days, respectively.[16] The table also shows that the fewest number of days spent in detention were by those defendants who were released on their own recognizance, or ROR (5.95 days) and on release via cash bond (5.45 days). The data further indicate that defendants who were admitted to some of unsecured pretrial release program spent, on average, 8.45 days in jail prior to being released. Finally, Table 3-A shows that of those defendants whose charges were "no billed", no indictment returned, or whose charges were dropped, dismissed, or *nolle prosse*'d by the state spent just under 28 days (26.67 days) in detention prior to their actual release from custody.

Table 4-A
Average (Mean) Days in Detention by *Release* Mechanism
Overall Sample
Released or Confined Comprehensive Categories (RelConfComp)
Dependent Variable = Number of Days in Detention

Case Outcome Category	Mean	N	Standard Deviation	Standard Error of Mean
Surety Bond	6.85	642	15.64	.617
Cash Bond	5.45	116	13.24	1.23
Unsecured PTR Program	8.45	38	14.74	2.39
ROR	5.95	174	12.33	0.935
Charges Dropped/Dismissed	26.67	18	22.08	5.20
TOTAL		988		

Curiously, even though there are observable distinctions between the different means in this table in terms of their overall magnitude, none of the means are statistically different from one another *except* for the mean associated with the charges dropped/dismissed category when compared with the remaining four variables. That mean is statistically different from all the others in the table

[16] The weighted mean between these two *secured* release categories is 7.52 days in detention. This was obtained as follows: ((6.85 * 642) + (5.45 * 116))/758 = 7.47.

at the p<.001. Although there were relatively few cases in this category (n=18), this variable accounted for all the statistically significant t-test results in this table of mean comparisons (see Table 4-B).

Table 4 – B
T-Tests for *Release* Mechanisms
Overall Sample
Released or Confined Comprehensive Categories (RelConfComp)
Dependent Variable = Number of Days in Detention

Variable Pair	Mean	Standard Deviation	N	*t* Value	*df* [17]	*p* [18],[19]
Surety Bond Cash Bond	6.85 5.45		642 116	.909	756	NS, *p*>.05
Surety Bond Unsecured PTR Program	6.85 8.45		642 38	-.613	678	NS, *p*>.05
Surety Bond ROR	6.85 5.95		642 174	.705	814	NS, *p*>.05
Surety Bond Charges Dropped/Dismiss	6.85 26.67		642 18	3.781	17.482	*p*<.001
Cash Bond Unsecured PTR Program	5.45 8.45		116 38	-1.178	152	NS, *p*>.05
Cash Bond ROR	5.45 5.95		116 174	-.328	288	NS, *p*>.05
Cash Bond Charges Dropped/Dismiss	5.45 26.67		116 18	3.968	18.941	*p*<.05
Unsecured PTR Program ROR	8.45 5.95		38 174	1.091	210	NS, *p*>.05
Unsecured PTR Program Charges Dropped/Dismiss	8.45 26.67		38 18	-3.181	24.439	*p*<.005
ROR Charges Dropped/Dismiss	5.95 26.67		174 18	-3.919	18.113	*p*<.001

The t-tests for independent samples performed on the data in Table 5-A when compared to the independent sample t-tests performed on the data in Table 4-A show some contrasting findings with respect to statistical significance. In Table 4-A, only four of the ten t-tests were statistically

[17] Degrees of freedom.
[18] Level of statistical significance.
[19] NS means that the relationship was not statistically significant at the conventionally established .05 level of statistical significance.

significant, and those all involved one specific variable: whether the charges against the defendant were dropped, dismissed, "no billed', no indictment returned, or *nolle prosse'*d.

Table 5-A
Average Days in Detention by *Confinement* Mechanism
Overall Sample
Release or Confinement Comprehensive Categories (RelConfComp)
Dependent Variable = Number of Days in Detention

Case Outcome Category	Mean	N	Standard Deviation	Standard Error of Mean
Awaiting Trial	132.45	44	64.32	9.70
Agency Hold	38.30	56	56.77	9.86
Serving Sentence	75.87	199	60.07	4.21
Awaiting Sentencing	47.33	24	57.33	11.07
Awaiting Transport	65.87	45	62.34	9.29
Violation of Probation	55.89	243	61.32	3.93
TOTAL		611		

Table 5-B shows a completely different picture when it comes to the analysis of the different confinement categories. Of the fifteen t-tests performed on the data in Table 5-B, only five of them were *not* statistically significant. The t-tests for independent samples were statistically significant for the following ten pairs of variables when measured on the number of days spent in detention as the dependent variable: awaiting trial and agency hold; awaiting trial and serving sentence; awaiting trial and awaiting sentencing; awaiting trial and awaiting transportation to an outside agency, county, or facility; awaiting trial and violation of probation; agency hold and serving sentence; agency hold and awaiting transportation; agency hold and violation of probation; serving sentence and awaiting sentencing; serving sentence and violation of probation (see Table 5-B).

Table 5 – B
T-Tests for *Confinement* Mechanisms
Overall Sample
Released or Confined Comprehensive Categories (*RelConfComp*)
Dependent Variable = Number of Days in Detention

Variable Pair	Mean	Standard Deviation	N	*t* Value	*df* [20]	*p* [21], [22]
Awaiting Trial	132.45	64.34	44	8.141	98	*p*<.001
Agency Hold	38.30	51.34	56			
Awaiting Trial	132.45	64.34	44	5.633	241	*p*<.001
Serving Sentence	75.87	59.39	199			
Awaiting Trial	132.45	64.34	44	5.498	66	*p*<.001
Awaiting Sentencing	47.33	54.24	24			
Awaiting Trial	132.45	64.34	44	4.960	87	*p*<.001
Awaiting Transport	65.81	62.31	45			
Awaiting Trial	132.45	64.34	44	7.564	285	*p*<.001
Violation of Probation	55.89	61.32	243			
Agency Hold	38.30	64.34	56	-4.667	253	*p*<.001
Serving Sentence	75.87	59.39	199			
Agency Hold	38.30	51.34	56	-.709	78	NS, *p*>.05
Awaiting Sentencing	47.33	54.24	24			
Agency Hold	38.30	51.34	56	-2.387	99	*p*<.05
Awaiting Transport	65.87	62.31	45			
Agency Hold	38.30	51.34	56	-2.244	297	*p*<.05
Violation of Probation	55.89	61.32	243			
Serving Sentence	75.67	59.39	199	2.243	221	*p*<.05
Awaiting Sentencing	47.33	54.24	24			
Serving Sentence	75.67	59.39	199	1.011	242	NS, *p*>.05
Awaiting Transport	65.87	62.31	45			
Serving Sentence	75.67	59.39	199	3.456	440	*p*<.001
Violation of Probation	55.89	61.32	243			
Awaiting Sentencing	47.33	54.24	24	-1.229	67	NS, *p*>.05
Awaiting Transport	65.87	62.31	45			
Awaiting Sentencing	47.33	54.24	24	-.659	265	NS, *p*>.05
Violation of Probation	55.89	61.32	243			
Awaiting Transport	65.87	62.31	45	1.000	286	NS, *p*>.05
Violation of Probation	55.89	61.32	243			

[20] Degrees of freedom.
[21] Level of statistical significance.
[22] NS means that the relationship was not statistically significant at the conventionally established .05 level of statistical significance.

One finding that is rather striking in Table 5-A is the mean length of time spent in confinement for those defendants who are awaiting trial (mean = 132.45 days). As noted in Table 5-B, this mean number of days spent in detention while awaiting trial is statistically greater than all the other means on all the five remaining variables in the table (interagency hold, serving sentence, awaiting sentencing, awaiting transportation to an outside agency or facility, or violation of probation (VOP). This finding compels additional inspection and scrutiny.

Further analysis of the data indicates that there were 44 defendants who had a confinement status of "awaiting trial". This constitutes 2.75 percent of the overall sample (44/1,599) and 7.2 percent of the defendants who were in some type of confinement status (44/611). Of these 44 cases, there were 31 defendants who were in confinement for greater than 90 days and who were charged with one or more felonies. Of those cases, 15 defendants were awaiting trial on four or more felony charges. Of those fifteen defendants, 7 defendants were awaiting trial on between 4 and six felonies, and 8 defendants were awaiting trial on 7 or more felonies. These data are summarized in Table 6-A and Table 6-B below.

Table 6 - A
Days in Confinement by Number of Felony Charges for Persons Awaiting Trial
More Than 90 Days in Detention
Number of Felonies Grouped into Four Categories
n = 31

	1 Felony	2-3 Felonies	4-6 Felonies	7+ Felonies	**TOTALS**
90- 119 Days	0	1	0	0	**1**
120 – 149 Days	2	5	2	4	**13**
150 – 179 Days	1	1	4	1	**7**
180+ Days	2	4	1	3	**10**
TOTALS	**5**	**11**	**7**	**8**	**31**

Table 6 - B
Days in Confinement by Number of Felony Charges for Persons Awaiting Trial
More Than 90 Days in Detention
Felony Categories Trichotomized into Three Groups
n = 31

	1 Felony	2-3 Felonies	4 or More Felonies	**TOTALS**
90- 119 Days	0	1	0	**1**
120 – 149 Days	2	5	6	**13**
150 – 179 Days	1	1	5	**7**
180+ Days	2	4	4	**10**
TOTALS	**5**	**11**	**15**	**31**

Overall, both of these tables reveal that of the 31 of the 44 cases that were awaiting trial *and* where the number of days in confinement was greater than or equal to 90, 11 of these 31 cases (35.5%) are awaiting trial on 2 – 3 felonies, while 15 of the 31 cases (48.4%) are awaiting trial on four or more felony charges.[23] There were five of the 31 cases (16.1%) for which the defendant was in confinement for longer than 90 days awaiting trial on one felony charge. These findings would appear to indicate that the number of days awaiting trial is ostensibly predicated on the number of felony charges on which the defendant is standing trial. Are there defendants who are in detention for more than 90 days? Yes, there are. But the reason for that prolonged detention appears to be based on a purely *legalistic* criterion – *the number of felonies with which the defendant has been*

[23] The average (mean) number of felonies in this sample was 1.07 felonies per defendant. The data in this table indicate that 83.9 percent of the cases were charged with multiple felonies. Only 16.1 percent of the cases were charged with a single felony.

charged. It is these 31 cases that are presumably increasing the average number of days in detention (132.45 days) for all the 44 defendants who were awaiting trial.

Exploring Differences Between the Means Using Analysis of Variance (ANOVA)

One of the potential problems with calculating multiple t-tests involving all possible pairs of groups is that one must consider the number of possible pairs of groups upon which the t-test is being performed. For example, in this study we have included five possible pretrial release mechanisms: cash bonding, surety bonding release on recognizance (ROR), participating in an unsecured pretrial release program, and having the charges dropped or dismissed. Each one of these pretrial release mechanisms may be measured relative to the amount of time spent in detention. Similarly, we have included six possible confinement mechanism variables: awaiting trial, agency hold, serving sentence, awaiting sentencing, awaiting transportation to an outside agency, facility, or another jurisdiction, and finally, confinement based on a violation of probation (VOP). Similarly, each one of these variables may be measured relative to the time spent in confinement.

For the first set of five pretrial release mechanism variables, there are a determinate number of pairwise comparisons between the means based on the formula, $n(n-1)/2$. In this case, there are a total of (5)(5-1)/2, or 10, possible pairwise comparisons using the t-test. At the same time, in the second set of the six confinement mechanisms, there would be a total of (6)(6-1)/2, or 15, possible t-test pairwise comparisons on these variables. That is precisely how many t-test pairwise comparisons were performed on this data (see Tables 4-B and 5-B).

One of the problems associated with this strategy is that in running multiple pairwise t-tests, not all of them would necessarily be truly independent comparisons. Because of this, the probabilities associated with the different t-tests would overlap, thereby increasing the probability of

making a Type 1 error.[24] Since we have established our level of statistical significance (the alpha level) at .05, we would, in the long run, falsely reject a true null hypothesis in one of every twenty pairwise comparisons. The net effect is that, in the long run, the more separate tests that are performed, the more likely it becomes that we will claim when some differences are statistically "real" when they had occurred by chance alone.

One way to overcome this possible limitation is to employ the analysis of variance (ANOVA) test, a more elegant and robust statistical tool, to assess the extent to which the "false positives" occurred using the multiple pairwise t-tests on the same set of data.

Assumptions of Analysis of Variance

The analysis of variance, or ANOVA, is a cornerstone of what is referred to as the general linear model. There are several assumptions associated with the use of this statistical tool (Cooper, Collins, and Walsh, 2016: 144):

(1) The samples are independent from one another and are randomly selected from a population;
(2) Within any given sample, the subjects are independent of one another;
(3) The dependent variable are continuous at the interval or ratio levels of measurement; and finally,
(4) The distribution of all cases generates a normal curve which approximates the standardized normal distribution.

Simply stated, ANOVA is attempting to explain the amount of variance in the dependent variable that may be explained by one more independent variables in a model. Its use allows one to compare the statistical significance of difference of group means. ANOVA compares two different sources of variance. *Between-group* variance is the variance attributed to the categories of an independent variable, while *within group* variance (also known as error variance or residual

[24] A Type 1 error, or a "false positive", occurs when one rejects a null hypothesis that is actually true.

variance) is attributed to individual differences not directly attributable to the effects of the independent variable.

Even though ANOVA is a useful tool in identifying whether means differ in a general sense to the point that at least two means are statistically significant from one another, ANOVA does not necessarily show at the outset which two specific means are statistically different from one another. To accomplish that task, we need to conduct either pairwise tests or *post hoc* tests which will enable us to see which specific means are different from each other.

Table 7 shows the means and standard deviations for each of the release and confinement mechanisms included in this study.

Table 7
Descriptive Statistics of Study Variables
Dependent Variable: Days in Detention by Detainee

Released or Confined - Comprehensive Category List	Mean	Std. Deviation	N
Surety Bond	6.85	15.642	642
Cash Bond	5.45	13.238	116
Unsecured Pretrial Release (UPTR)	8.45	14.742	38
ROR, Release on Recognizance	5.95	12.333	174
Charges Dropped, No Bill Returned, Nolle Prosequi	26.67	22.077	18
Awaiting Trial	132.45	64.342	44
Interagency Hold	38.30	51.339	56
Serving Sentence	75.87	59.388	199
Awaiting Sentence	47.33	54.238	24
Awaiting Transport	65.87	62.308	45
VOP, Violation of Probation	55.89	61.316	243
Total	**29.78**	**50.244**	**1,599**

Table 8 shows the means, standard errors of the means, their respective standard errors, and the lower and upper bounds of the different release and confinement mechanisms based upon estimated marginal means. The estimated marginal means are the means for each release or confinement mechanism in the analysis, adjusted for any other variables in the model. The 95 percent confidence interval indicates that, given the means and the standard errors, we can be 95 percent confident that the population mean falls in between the lower and upper bound of each of the release or confinement mechanisms.

Table 8
Means, Standard Errors of the Means, and Lower and Upper Bounds of Pretrial and Confinement Mechanisms and the Number of Days Spent in Confinement by Defendant Based on Estimated Marginal Means in the Sample
Dependent Variable: Days in Detention by Detainee

Released or Confined - Comprehensive Category List	Mean	Std. Error	95% Confidence Interval Lower Bound	Upper Bound
Surety Bond	6.852	1.531	3.849	9.855
Cash Bond	5.448	3.601	-1.616	12.512
Unsecured Pretrial Release (UPTR)	8.447	6.292	-3.895	20.790
ROR, Release on Recognizance	5.948	2.941	.180	11.716
Charges Dropped, No Bill Returned, Nolle Prosequi	26.667	9.143	8.734	44.599
Awaiting Trial	132.455	5.848	120.985	143.924
Interagency Hold	38.304	5.183	28.137	48.471
Serving Sentence	75.869	2.750	70.476	81.263
Awaiting Sentence	47.333	7.918	31.803	62.864
Awaiting Transport	65.867	5.782	54.525	77.208

VOP, Violation of Probation	55.893	2.488	51.012	60.774

Table 9 shows the pairwise comparisons between the different release and confinement mechanisms and show the mean differences between them. In addition to showing the mean differences between the pairs (based upon the means shown in Table 8), the standard errors, the significance levels of the differences, and the upper and lower bounds of the different pairs. Statistically significant mean differences are shown with an asterisk (*) by the value of the mean difference, with the row highlighted in yellow.

The findings shown in this table are generally reflective of the observations shown from Table 4-B and Table 5-B based upon the pairwise computation of t-tests. Specifically, Table 9 shows the following with respect to the number of days spent in detention (the dependent variable):

(1) The mean number of days spent in confinement for defendants on Surety Bond, Cash Bond, and Release on Recognizance (ROR) are significantly different from the mean for Charges Dropped as a Release mechanism and the mean number days in confinement for all included Confinement mechanisms (Awaiting Trial, Interagency Hold, Awaiting Sentencing, Serving Sentence, Awaiting Transport, and Violation of Probation);

(2) The mean number of days in confinement for Unsecured Pretrial Release defendants is significantly different from the mean number of days in confinement for all Confinement mechanisms included in the study but not statistically different from any of the mean number of days in confinement for other Release mechanisms;

(3) The mean number of days in confinement for defendants who had their Charges Dropped or No Indictment Returned were statistically different from the mean number of days in detention for defendants under Surety Bond, Cash Bond, and ROR as Release mechanisms

and from the mean number of days in confinement for defendants Awaiting Trial, Awaiting Transportation, Serving Sentences, and Violation of Probation as Confinement mechanisms;

(4) The mean number of days in confinement for those defendants who are Awaiting Trial is statistically different from the means of all other Release and Confinement mechanisms included in the research [25];

(5) The mean number of days in confinement because of an Interagency Hold is statistically different for all Release mechanisms except for the mean number of days in detention prior to the Charges Dropped and for all Confinement mechanisms except for the mean number of days for those who are Awaiting Sentence being imposed;

(6) The mean number of days in confinement for those defendants who are Serving Sentences are statistically different for the mean number of days in all Release mechanisms and the mean number of days in confinement for all Confinement mechanisms except for those Awaiting Transport;

(7) The mean number of days in detention for those who are Awaiting Sentencing is statistically different for all Release mechanism means except for defendants with Charges Dropped, and the mean number of days in detention for two Confinement mechanisms (Awaiting Trial and Interagency Hold);

(8) The mean number of days for those Awaiting Transportation to an outside agency or jurisdiction is statistically different from all other mean number of days in confinement for all other Release Mechanisms, as well as the mean number of days in detention for those in the Confinement categories of Awaiting Trail and Agency Hold; and finally,

[25] This phenomenon pertaining to the number of days for those who are Awaiting Trial has been discussed previously in this document relative to Table 6-A and Table 6-B included herein.

(9) The mean number of days for those in Confinement due to a Violation of Probation is significantly different for all other mean number of days in detention in the study except for Awaiting Sentence and Awaiting Transport to another facility or jurisdiction.

Table 9
Pairwise Comparisons Between Different Release and Confinement Mechanisms based on Estimated Marginal Means in ANOVA

Dependent Variable: Days in Detention by Detainee

(I) Released or Confined - Comprehensive Category List	(J) Released or Confined - Comprehensive Category List	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
Surety Bond	Cash Bond	1.404	3.913	.720	-6.272	9.080
	Unsecured Pretrial Release (UPTR)	-1.595	6.476	.805	-14.298	11.107
	ROR, Release on Recognizance	.904	3.315	.785	-5.599	7.406
	Charges Dropped, No Bill Returned, *Nolle Prosequi*	-19.815*	9.270	.033	-37.997	-1.632
	Awaiting Trial	-125.603*	6.045	.000	-137.459	-113.746
	Interagency Hold	-31.452*	5.405	.000	-42.053	-20.850
	Serving Sentence	-69.017*	3.147	.000	-75.190	-62.844
	Awaiting Sentence	-40.481*	8.064	.000	-56.299	-24.663
	Awaiting Transport	-59.015*	5.982	.000	-70.747	-47.282
	VOP, Violation of Probation	-49.041*	2.922	.000	-54.771	-43.311
Cash Bond	Surety Bond	-1.404	3.913	.720	-9.080	6.272
	Unsecured Pretrial Release (UPTR)	-2.999	7.250	.679	-17.220	11.222
	ROR, Release on Recognizance	-.500	4.649	.914	-9.620	8.620
	Charges Dropped, No Bill Returned, *Nolle Prosequi*	-21.218*	9.826	.031	-40.492	-1.944
	Awaiting Trial	-127.006*	6.868	.000	-140.477	-113.536
	Interagency Hold	-32.855*	6.312	.000	-45.235	-20.475
	Serving Sentence	-70.421*	4.531	.000	-79.309	-61.533
	Awaiting Sentence	-41.885*	8.698	.000	-58.946	-24.824
	Awaiting Transport	-60.418*	6.812	.000	-73.780	-47.057
	VOP, Violation of Probation	-50.445*	4.377	.000	-59.031	-41.859
Unsecured Pretrial Release (UPTR)	Surety Bond	1.595	6.476	.805	-11.107	14.298
	Cash Bond	2.999	7.250	.679	-11.222	17.220
	ROR, Release on Recognizance	2.499	6.946	.719	-11.124	16.123

	Charges Dropped, No Bill Returned, *Nolle Prosequi*	-18.219	11.099	.101	-39.989	3.550
	Awaiting Trial	-124.007*	8.590	.000	-140.856	-107.158
	Interagency Hold	-29.856*	8.152	.000	-45.847	-13.866
	Serving Sentence	-67.422*	6.867	.000	-80.891	-53.953
	Awaiting Sentence	-38.886*	10.114	.000	-58.723	-19.049
	Awaiting Transport	-57.419*	8.546	.000	-74.181	-40.657
	VOP, Violation of Probation	-47.446*	6.766	.000	-60.718	-34.173
ROR, Release on Recognizance	Surety Bond	-.904	3.315	.785	-7.406	5.599
	Cash Bond	.500	4.649	.914	-8.620	9.620
	Unsecured Pretrial Release (UPTR)	-2.499	6.946	.719	-16.123	11.124
	Charges Dropped, No Bill Returned, *Nolle Prosequi*	-20.718*	9.604	.031	-39.556	-1.881
	Awaiting Trial	-126.506*	6.545	.000	-139.345	-113.668
	Interagency Hold	-32.355*	5.959	.000	-44.044	-20.666
	Serving Sentence	-69.921*	4.026	.000	-77.818	-62.025
	Awaiting Sentence	-41.385*	8.446	.000	-57.952	-24.818
	Awaiting Transport	-59.918*	6.487	.000	-72.642	-47.194
	VOP, Violation of Probation	-49.945*	3.852	.000	-57.500	-42.389
Charges Dropped, No Bill Returned, *Nolle Prosequi*	Surety Bond	19.815*	9.270	.033	1.632	37.997
	Cash Bond	21.218*	9.826	.031	1.944	40.492
	Unsecured Pretrial Release (UPTR)	18.219	11.099	.101	-3.550	39.989
	ROR, Release on Recognizance	20.718*	9.604	.031	1.881	39.556
	Awaiting Trial	-105.788*	10.853	.000	-127.075	-84.501
	Interagency Hold	-11.637	10.510	.268	-32.251	8.977
	Serving Sentence	-49.203*	9.547	.000	-67.929	-30.476
	Awaiting Sentence	-20.667	12.095	.088	-44.390	3.056
	Awaiting Transport	-39.200*	10.818	.000	-60.418	-17.982
	VOP, Violation of Probation	-29.226*	9.475	.002	-47.811	-10.641
Awaiting Trial	Surety Bond	125.603*	6.045	.000	113.746	137.459
	Cash Bond	127.006*	6.868	.000	113.536	140.477
	Unsecured Pretrial Release (UPTR)	124.007*	8.590	.000	107.158	140.856
	ROR, Release on Recognizance	126.506*	6.545	.000	113.668	139.345

	Charges Dropped, No Bill Returned, *Nolle Prosequi*	105.788*	10.853	.000	84.501	127.075
	Interagency Hold	94.151*	7.814	.000	78.824	109.478
	Serving Sentence	56.585*	6.462	.000	43.911	69.260
	Awaiting Sentence	85.121*	9.843	.000	65.815	104.428
	Awaiting Transport	66.588*	8.224	.000	50.457	82.718
	VOP, Violation of Probation	76.562*	6.355	.000	64.096	89.027
Interagency Hold	Surety Bond	31.452*	5.405	.000	20.850	42.053
	Cash Bond	32.855*	6.312	.000	20.475	45.235
	Unsecured Pretrial Release (UPTR)	29.856*	8.152	.000	13.866	45.847
	ROR, Release on Recognizance	32.355*	5.959	.000	20.666	44.044
	Charges Dropped, No Bill Returned, *Nolle Prosequi*	11.637	10.510	.268	-8.977	32.251
	Awaiting Trial	-94.151*	7.814	.000	-109.478	-78.824
	Serving Sentence	-37.566*	5.868	.000	-49.075	-26.057
	Awaiting Sentence	-9.030	9.463	.340	-27.592	9.532
	Awaiting Transport	-27.563*	7.765	.000	-42.795	-12.332
	VOP, Violation of Probation	-17.589*	5.750	.002	-28.867	-6.312
Serving Sentence	Surety Bond	69.017*	3.147	.000	62.844	75.190
	Cash Bond	70.421*	4.531	.000	61.533	79.309
	Unsecured Pretrial Release (UPTR)	67.422*	6.867	.000	53.953	80.891
	ROR, Release on Recognizance	69.921*	4.026	.000	62.025	77.818
	Charges Dropped, No Bill Returned, *Nolle Prosequi*	49.203*	9.547	.000	30.476	67.929
	Awaiting Trial	-56.585*	6.462	.000	-69.260	-43.911
	Interagency Hold	37.566*	5.868	.000	26.057	49.075
	Awaiting Sentence	28.536*	8.382	.001	12.096	44.976
	Awaiting Transport	10.003	6.403	.118	-2.556	22.561
	VOP, Violation of Probation	19.976*	3.708	.000	12.702	27.250
Awaiting Sentence	Surety Bond	40.481*	8.064	.000	24.663	56.299
	Cash Bond	41.885*	8.698	.000	24.824	58.946
	Unsecured Pretrial Release (UPTR)	38.886*	10.114	.000	19.049	58.723

	ROR, Release on Recognizance	41.385*	8.446	.000	24.818	57.952
	Charges Dropped, No Bill Returned, *Nolle Prosequi*	20.667	12.095	.088	-3.056	44.390
	Awaiting Trial	-85.121*	9.843	.000	-104.428	-65.815
	Interagency Hold	9.030	9.463	.340	-9.532	27.592
	Serving Sentence	-28.536*	8.382	.001	-44.976	-12.096
	Awaiting Transport	-18.533	9.804	.059	-37.764	.697
	VOP, Violation of Probation	-8.560	8.300	.303	-24.839	7.719
Awaiting Transport	Surety Bond	59.015*	5.982	.000	47.282	70.747
	Cash Bond	60.418*	6.812	.000	47.057	73.780
	Unsecured Pretrial Release (UPTR)	57.419*	8.546	.000	40.657	74.181
	ROR, Release on Recognizance	59.918*	6.487	.000	47.194	72.642
	Charges Dropped, No Bill Returned, *Nolle Prosequi*	39.200*	10.818	.000	17.982	60.418
	Awaiting Trial	-66.588*	8.224	.000	-82.718	-50.457
	Interagency Hold	27.563*	7.765	.000	12.332	42.795
	Serving Sentence	-10.003	6.403	.118	-22.561	2.556
	Awaiting Sentence	18.533	9.804	.059	-.697	37.764
	VOP, Violation of Probation	9.974	6.295	.113	-2.374	22.321
VOP, Violation of Probation	Surety Bond	49.041*	2.922	.000	43.311	54.771
	Cash Bond	50.445*	4.377	.000	41.859	59.031
	Unsecured Pretrial Release (UPTR)	47.446*	6.766	.000	34.173	60.718
	ROR, Release on Recognizance	49.945*	3.852	.000	42.389	57.500
	Charges Dropped, No Bill Returned, *Nolle Prosequi*	29.226*	9.475	.002	10.641	47.811
	Awaiting Trial	-76.562*	6.355	.000	-89.027	-64.096
	Interagency Hold	17.589*	5.750	.002	6.312	28.867
	Serving Sentence	-19.976*	3.708	.000	-27.250	-12.702
	Awaiting Sentence	8.560	8.300	.303	-7.719	24.839
	Awaiting Transport	-9.974	6.295	.113	-22.321	2.374

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Figure 1

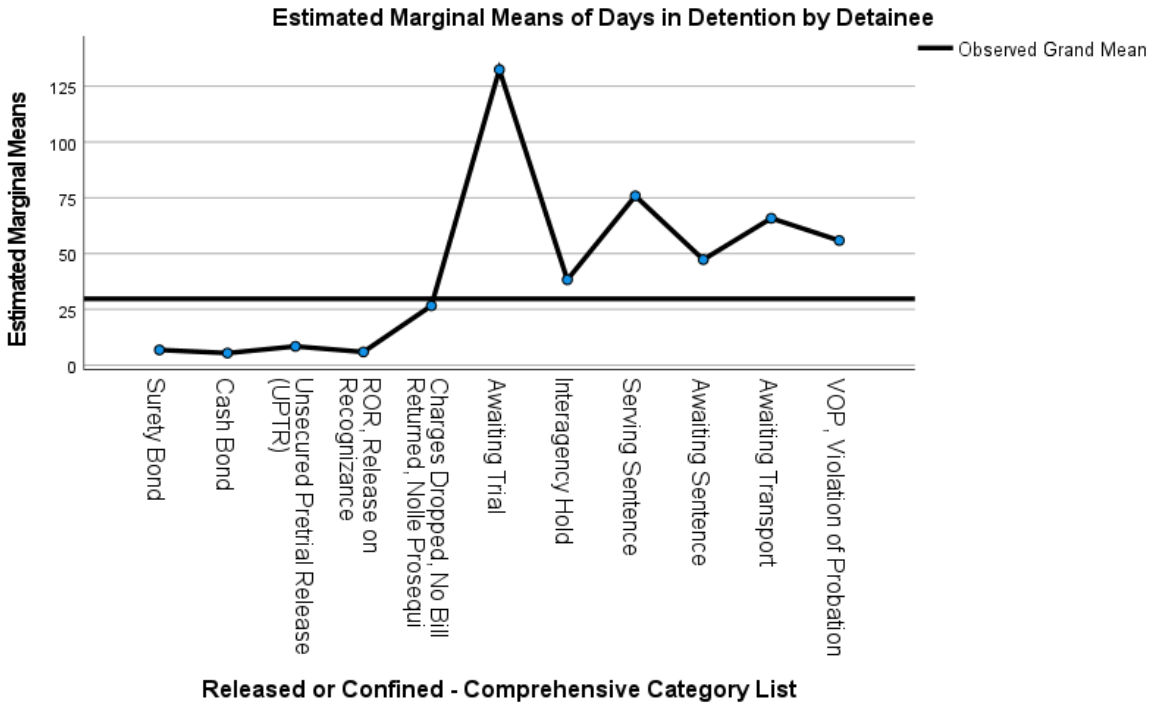

Table 10 shows the estimated marginal means of days in confinement by detainees by category according to the different specific release and confinement mechanisms and in relation to the observed grand mean (42.64) shown in Figure 1. This table shows that all five of the different Release mechanisms means fall *below* the grand mean, while all six of the different Confinement mechanisms means lie *above* the grand mean. The estimated marginal means are displayed below in Table 10-A.

Table 10-A
Estimated Marginal Means

Surety Bond	6.852
Cash Bond	5.448
Unsecured Pretrial Release (UPTR)	8.447
ROR, Release on Recognizance	5.948
Charges Dropped, No Bill Returned, Nolle Prosequi	26.667

Awaiting Trial	132.455
Interagency Hold	38.304
Serving Sentence	75.869
Awaiting Sentence	47.333
Awaiting Transport	65.867
VOP, Violation of Probation	55.893

Post Hoc Comparisons of Means

Another way to compare which pairs of means are statistically significantly different from one another is to use *post hoc* comparisons of the different pairs of means. *Post hoc* tests are used to uncover specific differences between three or more group means when an analysis of variance (ANOVA) F test is significant. Furthermore, *post hoc* tests enable one to locate and determine which of those specific differences between means are statistically significant relative to one another. To select the proper *post hoc* comparison method, it must be determined if the error variance of the dependent variable (number of days spent in detention) is equal across groups. According to Table 11, the null hypothesis that the error variance associated with the dependent variable is equal across the different groups must be rejected since the four different Levene statistical tests of the equality of error variances show that there is a significant differential distribution of the error variance across the different groups.

Thus, it may be concluded that based on the Levene test of equality of error variances, the error variance in the dependent variable is *unequal* across the different groups.

Table 11
Levene's Test of Equality of Error Variances [a,b]

		Levene Statistic	df1	df2	Sig.
Days in Detention by Detainee	Based on Mean	148.917	10	1588	.000
	Based on Median	78.433	10	1588	.000
	Based on Median and with adjusted df	78.433	10	808.463	.000

	Based on trimmed mean	136.814	10	1588	.000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
a. Dependent variable: Days in Detention by Detainee
b. Design: Intercept + RelConfComp

Based upon this finding, it is necessary to use a *post hoc* test that assumes *unequal* variances and, at the same time, addresses the methodological issue of the groups in the sample being of unequal sizes. This is known as the Behrens-Fisher problem and has been discussed extensively by Shingala and Rajyaguru (2015). Solutions to the Behrens-Fisher problem have been proposed ever since the 1930's, but Shingala and Rajyaguru (2015) have compared *post hoc* tests for unequal population variances and unequal sample sizes to provide a decision tree methodology that provides potential remedies to Behrens-Fisher. For comparison purposes, two different post hoc tests were employed in this research as a "check and balance" approach: the Games-Howell *post hoc* test and the Dunnett C *post hoc* test.

The Games-Howell post-hoc test is a nonparametric approach to compare combinations of groups or treatments with respect to their group means. Although the Games-Howell and the Dunnett C post hoc tests are somewhat similar to Tukey's HSD test with respect to their underlying mathematical structures, the Games-Howell and the Dunnett's C *post hoc* test does not assume equal variances and sample sizes. Since the Games-Howell and Dunnett's C *post hoc* test does not rely on equal variances and sample sizes, it is often recommended over other approaches such as Tukey's test.

It is also important to note that the differences between the means using the standard traditional ANOVA pairwise testing is based on the *expected marginal means,* or EMM. Alternatively, the differences between the means using either the *post hoc* tests for unequal variances

(Games-Howell or Dunnett's C) or the *post hoc* tests for equal variances (Tukey HSD and Scheffe) are based on actual *observed means*.

Table 12 and Table 13 show the results of the differences between the means using the Games-Howell *post hoc* test (Table 12) and the Dunnett's-C *post hoc* test (Table 13). The results shown in these two tables are remarkably consistent with each other. This is not unexpected since both tests are based upon the assumption of unequal variances in the dependent variable across the different groups.

Table 12

Multiple Post Hoc Comparisons Using Games-Howell *Post Hoc* Test for Unequal Variances

Dependent Variable: Days in Detention by Detainee

Games-Howell

(I) Released or Confined - Comprehensive Category List	(J) Released or Confined - Comprehensive Category List	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Surety Bond	Cash Bond	1.40	1.375	.995	-3.08	5.89
	Unsecured Pretrial Release (UPTR)	-1.60	2.470	1.000	-10.00	6.81
	ROR, Release on Recognizance	.90	1.120	.999	-2.73	4.53
	Charges Dropped, No Bill Returned, *Nolle Prosequi*	-19.81*	5.240	.041	-39.06	-.57
	Awaiting Trial	-125.60*	9.719	.000	-158.61	-92.60
	Interagency Hold	-31.45*	6.888	.001	-54.56	-8.34
	Serving Sentence	-69.02*	4.255	.000	-82.87	-55.17
	Awaiting Sentence	-40.48*	11.088	.041	-79.92	-1.05
	Awaiting Transport	-59.01*	9.309	.000	-90.58	-27.44
	VOP, Violation of Probation	-49.04*	3.982	.000	-61.97	-36.11
Cash Bond	Surety Bond	-1.40	1.375	.995	-5.89	3.08
	Unsecured Pretrial Release (UPTR)	-3.00	2.689	.988	-12.01	6.01
	ROR, Release on Recognizance	-.50	1.544	1.000	-5.52	4.52
	Charges Dropped, No Bill Returned, *Nolle Prosequi*	-21.22*	5.347	.026	-40.66	-1.78
	Awaiting Trial	-127.01*	9.777	.000	-160.17	-93.85
	Interagency Hold	-32.86*	6.970	.001	-56.20	-9.51
	Serving Sentence	-70.42*	4.386	.000	-84.68	-56.16
	Awaiting Sentence	-41.89*	11.139	.032	-81.43	-2.34
	Awaiting Transport	-60.42*	9.369	.000	-92.15	-28.69
	VOP, Violation of Probation	-50.44*	4.121	.000	-63.82	-37.07
	Surety Bond	1.60	2.470	1.000	-6.81	10.00

Unsecured Pretrial Release (UPTR)	Cash Bond	3.00	2.689	.988	-6.01	12.01
	ROR, Release on Recognizance	2.50	2.568	.996	-6.17	11.17
	Charges Dropped, No Bill Returned, *Nolle Prosequi*	-18.22	5.727	.105	-38.48	2.04
	Awaiting Trial	-124.01*	9.990	.000	-157.75	-90.26
	Interagency Hold	-29.86*	7.265	.005	-54.06	-5.65
	Serving Sentence	-67.42*	4.842	.000	-83.17	-51.67
	Awaiting Sentence	-38.89	11.327	.061	-78.85	1.08
	Awaiting Transport	-57.42*	9.591	.000	-89.77	-25.07
	VOP, Violation of Probation	-47.45*	4.603	.000	-62.41	-32.48
ROR, Release on Recognizance	Surety Bond	-.90	1.120	.999	-4.53	2.73
	Cash Bond	.50	1.544	1.000	-4.52	5.52
	Unsecured Pretrial Release (UPTR)	-2.50	2.568	.996	-11.17	6.17
	Charges Dropped, No Bill Returned, *Nolle Prosequi*	-20.72*	5.287	.030	-40.04	-1.39
	Awaiting Trial	-126.51*	9.745	.000	-159.58	-93.43
	Interagency Hold	-32.36*	6.924	.001	-55.57	-9.14
	Serving Sentence	-69.92*	4.312	.000	-83.95	-55.89
	Awaiting Sentence	-41.39*	11.111	.035	-80.87	-1.90
	Awaiting Transport	-59.92*	9.335	.000	-91.56	-28.28
	VOP, Violation of Probation	-49.94*	4.043	.000	-63.07	-36.82
Charges Dropped, No Bill Returned, Nolle Prosequi	Surety Bond	19.81*	5.240	.041	.57	39.06
	Cash Bond	21.22*	5.347	.026	1.78	40.66
	Unsecured Pretrial Release (UPTR)	18.22	5.727	.105	-2.04	38.48
	ROR, Release on Recognizance	20.72*	5.287	.030	1.39	40.04
	Awaiting Trial	-105.79*	11.008	.000	-142.64	-68.93
	Interagency Hold	-11.64	8.611	.956	-40.35	17.07
	Serving Sentence	-49.20*	6.693	.000	-71.89	-26.52
	Awaiting Sentence	-20.67	12.233	.830	-62.98	21.65
	Awaiting Transport	-39.20*	10.647	.020	-74.81	-3.59
	VOP, Violation of Probation	-29.23*	6.523	.003	-51.44	-7.01

Awaiting Trial	Surety Bond	125.60*	9.719	.000	92.60	158.61
	Cash Bond	127.01*	9.777	.000	93.85	160.17
	Unsecured Pretrial Release (UPTR)	124.01*	9.990	.000	90.26	157.75
	ROR, Release on Recognizance	126.51*	9.745	.000	93.43	159.58
	Charges Dropped, No Bill Returned, *Nolle Prosequi*	105.79*	11.008	.000	68.93	142.64
	Interagency Hold	94.15*	11.881	.000	54.80	133.51
	Serving Sentence	56.59*	10.574	.000	21.21	91.96
	Awaiting Sentence	85.12*	14.719	.000	35.69	134.56
	Awaiting Transport	66.59*	13.430	.000	22.19	110.99
	VOP, Violation of Probation	76.56*	10.467	.000	41.50	111.63
Interagency Hold	Surety Bond	31.45*	6.888	.001	8.34	54.56
	Cash Bond	32.86*	6.970	.001	9.51	56.20
	Unsecured Pretrial Release (UPTR)	29.86*	7.265	.005	5.65	54.06
	ROR, Release on Recognizance	32.36*	6.924	.001	9.14	55.57
	Charges Dropped, No Bill Returned, *Nolle Prosequi*	11.64	8.611	.956	-17.07	40.35
	Awaiting Trial	-94.15*	11.881	.000	-133.51	-54.80
	Serving Sentence	-37.57*	8.049	.000	-64.08	-11.05
	Awaiting Sentence	-9.03	13.024	1.000	-53.36	35.30
	Awaiting Transport	-27.56	11.547	.387	-65.76	10.64
	VOP, Violation of Probation	-17.59	7.908	.494	-43.68	8.50
Serving Sentence	Surety Bond	69.02*	4.255	.000	55.17	82.87
	Cash Bond	70.42*	4.386	.000	56.16	84.68
	Unsecured Pretrial Release (UPTR)	67.42*	4.842	.000	51.67	83.17
	ROR, Release on Recognizance	69.92*	4.312	.000	55.89	83.95
	Charges Dropped, No Bill Returned, *Nolle Prosequi*	49.20*	6.693	.000	26.52	71.89
	Awaiting Trial	-56.59*	10.574	.000	-91.96	-21.21
	Interagency Hold	37.57*	8.049	.000	11.05	64.08

	Awaiting Sentence	28.54	11.845	.394	-12.64	69.71
	Awaiting Transport	10.00	10.198	.996	-24.05	44.05
	VOP, Violation of Probation	19.98*	5.762	.024	1.33	38.62
Awaiting Sentence	Surety Bond	40.48*	11.088	.041	1.05	79.92
	Cash Bond	41.89*	11.139	.032	2.34	81.43
	Unsecured Pretrial Release (UPTR)	38.89	11.327	.061	-1.08	78.85
	ROR, Release on Recognizance	41.39*	11.111	.035	1.90	80.87
	Charges Dropped, No Bill Returned, *Nolle Prosequi*	20.67	12.233	.830	-21.65	62.98
	Awaiting Trial	-85.12*	14.719	.000	-134.56	-35.69
	Interagency Hold	9.03	13.024	1.000	-35.30	53.36
	Serving Sentence	-28.54	11.845	.394	-69.71	12.64
	Awaiting Transport	-18.53	14.451	.968	-67.13	30.06
	VOP, Violation of Probation	-8.56	11.749	1.000	-49.50	32.38
Awaiting Transport	Surety Bond	59.01*	9.309	.000	27.44	90.58
	Cash Bond	60.42*	9.369	.000	28.69	92.15
	Unsecured Pretrial Release (UPTR)	57.42*	9.591	.000	25.07	89.77
	ROR, Release on Recognizance	59.92*	9.335	.000	28.28	91.56
	Charges Dropped, No Bill Returned, *Nolle Prosequi*	39.20*	10.647	.020	3.59	74.81
	Awaiting Trial	-66.59*	13.430	.000	-110.99	-22.19
	Interagency Hold	27.56	11.547	.387	-10.64	65.76
	Serving Sentence	-10.00	10.198	.996	-44.05	24.05
	Awaiting Sentence	18.53	14.451	.968	-30.06	67.13
	VOP, Violation of Probation	9.97	10.087	.995	-23.76	43.70
VOP, Violation of Probation	Surety Bond	49.04*	3.982	.000	36.11	61.97
	Cash Bond	50.44*	4.121	.000	37.07	63.82
	Unsecured Pretrial Release (UPTR)	47.45*	4.603	.000	32.48	62.41
	ROR, Release on Recognizance	49.94*	4.043	.000	36.82	63.07

	Charges Dropped, No Bill Returned, *Nolle Prosequi*	29.23*	6.523	.003	7.01	51.44
	Awaiting Trial	-76.56*	10.467	.000	-111.63	-41.50
	Interagency Hold	17.59	7.908	.494	-8.50	43.68
	Serving Sentence	-19.98*	5.762	.024	-38.62	-1.33
	Awaiting Sentence	8.56	11.749	1.000	-32.38	49.50
	Awaiting Transport	-9.97	10.087	.995	-43.70	23.76

Based on observed means.

The error term is Mean Square(Error) = 1504.566.

*. The mean difference is significant at the 0.05 level.

Figure 2

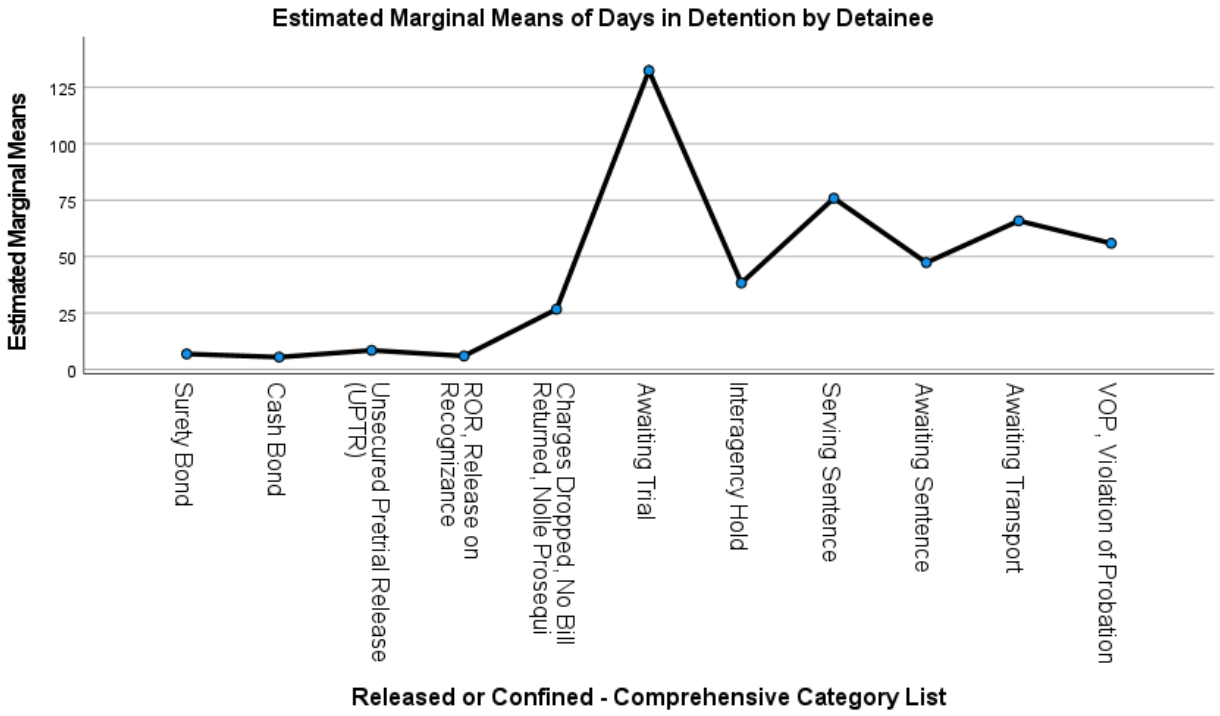

Table 13
Multiple Post Hoc Comparisons Using
Dunnett C *Post Hoc* Test for Unequal Variances

Dependent Variable: Days in Detention by Detainee

Dunnett C

(I) Released or Confined - Comprehensive Category List	(J) Released or Confined - Comprehensive Category List	Mean Difference (I-J)	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Surety Bond	Cash Bond	1.40	1.375	-3.10	5.91
	Unsecured Pretrial Release (UPTR)	-1.60	2.470	-10.03	6.84
	ROR, Release on Recognizance	.90	1.120	-2.74	4.55
	Charges Dropped, No Bill Returned, Nolle Prosequi	-19.81*	5.240	-39.09	-.53
	Awaiting Trial	-125.60*	9.719	-158.61	-92.59
	Interagency Hold	-31.45*	6.888	-54.57	-8.33
	Serving Sentence	-69.02*	4.255	-82.87	-55.16
	Awaiting Sentence	-40.48*	11.088	-79.93	-1.03
	Awaiting Transport	-59.01*	9.309	-90.59	-27.44
	VOP, Violation of Probation	-49.04*	3.982	-61.98	-36.10
Cash Bond	Surety Bond	-1.40	1.375	-5.91	3.10
	Unsecured Pretrial Release (UPTR)	-3.00	2.689	-12.13	6.14
	ROR, Release on Recognizance	-.50	1.544	-5.56	4.56
	Charges Dropped, No Bill Returned, Nolle Prosequi	-21.22*	5.347	-40.81	-1.63
	Awaiting Trial	-127.01*	9.777	-160.20	-93.81
	Interagency Hold	-32.86*	6.970	-56.24	-9.47
	Serving Sentence	-70.42*	4.386	-84.71	-56.13
	Awaiting Sentence	-41.89*	11.139	-81.49	-2.28
	Awaiting Transport	-60.42*	9.369	-92.19	-28.65
	VOP, Violation of	-50.44*	4.121	-63.85	-37.04

	Probation				
Unsecured Pretrial Release (UPTR)	Surety Bond	1.60	2.470	-6.84	10.03
	Cash Bond	3.00	2.689	-6.14	12.13
	ROR, Release on Recognizance	2.50	2.568	-6.24	11.24
	Charges Dropped, No Bill Returned, Nolle Prosequi	-18.22	5.727	-39.07	2.63
	Awaiting Trial	-124.01*	9.990	-157.96	-90.05
	Interagency Hold	-29.86*	7.265	-54.30	-5.41
	Serving Sentence	-67.42*	4.842	-83.39	-51.45
	Awaiting Sentence	-38.89	11.327	-79.13	1.36
	Awaiting Transport	-57.42*	9.591	-89.98	-24.86
	VOP, Violation of Probation	-47.45*	4.603	-62.63	-32.27
ROR, Release on Recognizance	Surety Bond	-.90	1.120	-4.55	2.74
	Cash Bond	.50	1.544	-4.56	5.56
	Unsecured Pretrial Release (UPTR)	-2.50	2.568	-11.24	6.24
	Charges Dropped, No Bill Returned, Nolle Prosequi	-20.72*	5.287	-40.13	-1.30
	Awaiting Trial	-126.51*	9.745	-159.60	-93.41
	Interagency Hold	-32.36*	6.924	-55.59	-9.12
	Serving Sentence	-69.92*	4.312	-83.97	-55.88
	Awaiting Sentence	-41.39*	11.111	-80.90	-1.87
	Awaiting Transport	-59.92*	9.335	-91.58	-28.26
	VOP, Violation of Probation	-49.94*	4.043	-63.09	-36.80
Charges Dropped, No Bill Returned, *Nolle Prosequi*	Surety Bond	19.81*	5.240	.53	39.09
	Cash Bond	21.22*	5.347	1.63	40.81
	Unsecured Pretrial Release (UPTR)	18.22	5.727	-2.63	39.07
	ROR, Release on Recognizance	20.72*	5.287	1.30	40.13
	Awaiting Trial	-105.79*	11.008	-143.89	-67.68
	Interagency Hold	-11.64	8.611	-41.58	18.31
	Serving Sentence	-49.20*	6.693	-72.74	-25.67

	Awaiting Sentence	-20.67	12.233	-64.48	23.15
	Awaiting Transport	-39.20*	10.647	-76.07	-2.33
	VOP, Violation of Probation	-29.23*	6.523	-52.23	-6.22
Awaiting Trial	Surety Bond	125.60*	9.719	92.59	158.61
	Cash Bond	127.01*	9.777	93.81	160.20
	Unsecured Pretrial Release (UPTR)	124.01*	9.990	90.05	157.96
	ROR, Release on Recognizance	126.51*	9.745	93.41	159.60
	Charges Dropped, No Bill Returned, Nolle Prosequi	105.79*	11.008	67.68	143.89
	Interagency Hold	94.15*	11.881	53.95	134.35
	Serving Sentence	56.59*	10.574	20.90	92.27
	Awaiting Sentence	85.12*	14.719	33.77	136.47
	Awaiting Transport	66.59*	13.430	20.99	112.18
	VOP, Violation of Probation	76.56*	10.467	41.22	111.90
Interagency Hold	Surety Bond	31.45*	6.888	8.33	54.57
	Cash Bond	32.86*	6.970	9.47	56.24
	Unsecured Pretrial Release (UPTR)	29.86*	7.265	5.41	54.30
	ROR, Release on Recognizance	32.36*	6.924	9.12	55.59
	Charges Dropped, No Bill Returned, Nolle Prosequi	11.64	8.611	-18.31	41.58
	Awaiting Trial	-94.15*	11.881	-134.35	-53.95
	Serving Sentence	-37.57*	8.049	-64.37	-10.76
	Awaiting Sentence	-9.03	13.024	-54.65	36.59
	Awaiting Transport	-27.56	11.547	-66.60	11.47
	VOP, Violation of Probation	-17.59	7.908	-43.93	8.75
Serving Sentence	Surety Bond	69.02*	4.255	55.16	82.87
	Cash Bond	70.42*	4.386	56.13	84.71
	Unsecured Pretrial Release (UPTR)	67.42*	4.842	51.45	83.39

	ROR, Release on Recognizance	69.92*	4.312	55.88	83.97
	Charges Dropped, No Bill Returned, Nolle Prosequi	49.20*	6.693	25.67	72.74
	Awaiting Trial	-56.59*	10.574	-92.27	-20.90
	Interagency Hold	37.57*	8.049	10.76	64.37
	Awaiting Sentence	28.54	11.845	-13.16	70.24
	Awaiting Transport	10.00	10.198	-24.36	44.37
	VOP, Violation of Probation	19.98*	5.762	1.23	38.72
Awaiting Sentence	Surety Bond	40.48*	11.088	1.03	79.93
	Cash Bond	41.89*	11.139	2.28	81.49
	Unsecured Pretrial Release (UPTR)	38.89	11.327	-1.36	79.13
	ROR, Release on Recognizance	41.39*	11.111	1.87	80.90
	Charges Dropped, No Bill Returned, Nolle Prosequi	20.67	12.233	-23.15	64.48
	Awaiting Trial	-85.12*	14.719	-136.47	-33.77
	Interagency Hold	9.03	13.024	-36.59	54.65
	Serving Sentence	-28.54	11.845	-70.24	13.16
	Awaiting Transport	-18.53	14.451	-68.97	31.91
	VOP, Violation of Probation	-8.56	11.749	-49.96	32.85
Awaiting Transport	Surety Bond	59.01*	9.309	27.44	90.59
	Cash Bond	60.42*	9.369	28.65	92.19
	Unsecured Pretrial Release (UPTR)	57.42*	9.591	24.86	89.98
	ROR, Release on Recognizance	59.92*	9.335	28.26	91.58
	Charges Dropped, No Bill Returned, Nolle Prosequi	39.20*	10.647	2.33	76.07
	Awaiting Trial	-66.59*	13.430	-112.18	-20.99
	Interagency Hold	27.56	11.547	-11.47	66.60
	Serving Sentence	-10.00	10.198	-44.37	24.36

	Awaiting Sentence	18.53	14.451	-31.91	68.97
	VOP, Violation of Probation	9.97	10.087	-24.03	43.98
VOP, Violation of Probation	Surety Bond	49.04*	3.982	36.10	61.98
	Cash Bond	50.44*	4.121	37.04	63.85
	Unsecured Pretrial Release (UPTR)	47.45*	4.603	32.27	62.63
	ROR, Release on Recognizance	49.94*	4.043	36.80	63.09
	Charges Dropped, No Bill Returned, Nolle Prosequi	29.23*	6.523	6.22	52.23
	Awaiting Trial	-76.56*	10.467	-111.90	-41.22
	Interagency Hold	17.59	7.908	-8.75	43.93
	Serving Sentence	-19.98*	5.762	-38.72	-1.23
	Awaiting Sentence	8.56	11.749	-32.85	49.96
	Awaiting Transport	-9.97	10.087	-43.98	24.03

Both Table 12 and Table 13 show that the results of the tests between the different pairs of means on the different independent variables using either Games-Howell or Dunnett's-C are only marginally different in in terms of their agreement when it comes to the differences between the means being statistically significant at the .05 level. For example, the results of using the standard pairwise tests of differences between the 110 pairs of means using estimated marginal means are in agreement with both the Games-Howell and Dunnett's-C test based on unequal variances 92.7 percent of the time. Table 12 and Table 13 also indicate that the results of the Games-Howell and Dunnett's-C test are in agreement one hundred percent of the time. Stated differently, when it comes to testing the differences between the means on the number of days in detention for each pair of independent variables in the study, the two *post hoc* tests based on unequal variances (Games-Howell and Dunnett's-C) are in agreement with each other one hundred percent of the time, and both of those are in agreement with the results of the standard ANOVA pairwise test based on estimated

marginal means over ninety percent of the time when it comes to estimating statistical significance of the different tests.

Comparing Results of Tests of Differences Between Means Using Tests that Assume Equal and Unequal Variances on the Comparison Variables

One important question is whether we obtain fundamentally similar or different results if we use either equal or unequal variance-assuming *post hoc* tests when attempting to determine which means are statistically significant. In other words, when attempting to determine whether a difference between two means is statistically significant, does it really matter if one uses a *post hoc* test that assumes *unequal* variances when you should be using a post hoc test that assumes *equal* variances? Alternatively, does it matter if you use a post hoc test that assumes *equal* variances when you should use a post hoc test that assumes *unequal* variances?

To evaluate the outcomes of tests of differences between means using *post hoc* comparison tests based on the assumption of equal and unequal variances, we can compare the results of such testing procedures side-by-side. This will demonstrate the degree of agreement between one set of tests and another as to whether the results of such tests are actually concordant when assessing whether the difference between any two sets of means are statistical significant. To this extent, we will be assessing the degree of agreement between two sets of tests between means using the assumption of unequal variances (Games – Howell and Dunnett C) and two sets of tests between means using the assumption of equal variances (Tukey and Scheffe). As mentioned earlier, *post hoc* tests are used to uncover specific differences between three or more group means when an analysis of variance (ANOVA) F test is significant. Furthermore, *post hoc* tests enable one to locate and determine which of those specific differences between means are statistically significant relative to one another.

One of the assumptions of ANOVA testing between means is that the population variances on the two comparison variables are equal. This is referred to as the assumption of the homogeneity of variances. In the case where population variances on the two variables are equal, we can use one of several different tests to evaluate whether the means are statistically different from one another. Two *post hoc* tests that are typically used are the Tukey HSD (honest significant differences) test and the Scheffe test. On the other hand, there are times when the population variances on the two variables are not homogeneous; that is, the population variances are unequal instead of being equal. Since this problem of unequal variances violates one of the assumptions of analysis of variance testing, alternative tests need to be utilized. Two tests which evaluate the statistical significance of differences between means using *post hoc* testing are the Games-Howell and the Dunnett's C test. Both tests are based on the assumption of unequal population variances.

To this end, we want to evaluate whether the results of Games-Howell and Dunnett's C *post hoc* tests are generally consistent with the results of the Tukey HSD and Scheffe *post hoc* tests in terms of evaluating whether the differences between the two comparison means are statistically significant at less than the .05 level *($p<.05$),* and whether the results of the two different sets of test results are similar to or different from the results of the standard pairwise means test using ANOVA.

Table 14 shows the outcomes of the traditional analysis of variance pairwise tests and the two different sets of *post hoc* tests for equal variances (Games-Howell and Dunnett's C) and unequal variances (Tukey HSD and Scheffe). Each cell within the eleven embedded tables within Table 14 shows whether the differences between the means on each pair of independent variables are statistically similar to or different from their respective mean values on the dependent variable (number of days in detention). Since there are eleven different independent variables being considered, there are a total of 11(11—1), or 110 different combinations of paired variables for

purposes of analysis. However, because each combination of paired variables also has a "reversed match", the actual number of unique pairs of variables for comparison is 11(11-1)/2, or 55.[26] Other important differences exist between the standard ANOVA pairwise test and the other types of tests based on the assumption of equal or unequal variances.[27]

Table 14 is a composite of Table 12 and Table 13 and enables one to examine the outcomes of the different tests side-by-side when it comes to estimating statistically significant differences between any two pairs of means. The results from Table 14 show that when one compares the outcomes of the standard ANOVA pairwise test of differences between two means using estimated marginal means with the outcomes of the Games-Howell and the Dunnett's C *post hoc* comparison tests for *unequal* variances across each set of paired comparison variables, there is a 92.7 percent agreement rate (102/110 possible matches, or 51/55 non-redundant matches) on the outcome as to whether the differences between each pair of means are statistically significant. Moreover, on each of the 110 possible comparisons between the different variables, there was 100 percent agreement between the Games-Howell and Dunnett's C *post hoc* test in terms of whether the difference between each of the 110 means was statistically significant.

Alternatively, looking at a comparison between the Games-Howell and Dunnett's-C testing outcomes with the Tukey HSD and Scheffe tests for *equal* variances, the overall results are somewhat different. When one compares the outcomes of the standard ANOVA pairwise test with the outcomes of the Tukey HSD and the Scheffe *post hoc* comparison tests for equal variances

[26] For example, the difference in value between the means of two variables in a combined pair, say $X_1 - X_2$, has a "reversed" value for the observed difference the same two variables, $X_2 - X_1$. The differences between the means on the dependent variable for each pair of comparison variables ($X_2 - X_1$) and ($X_1 - X_2$) have the same identical absolute value. The values of the mean differences are the same, and differ only in sign, whether positive or negative.

[27] It is also important to note that the differences between the means using the standard ANOVA pairwise testing is based on the *expected marginal means*, or EMM. Alternatively, the differences between the means using either the *post hoc* tests for unequal variances (Games-Howell or Dunnett's C) or the *post hoc* tests for equal variances (Tukey HSD and Scheffe) are based on actual *observed means*.

across each set of paired comparison variables, there is an 83.6 percent rate of agreement (92/110 possible matches, or 46/55 non-redundant matches) on the outcome as to whether the differences between each pair of means are statistically significant. Moreover, on each of the 110 possible comparisons between the different variables, there was 90.9 percent agreement rate (100/110 possible matches, or 46/55 non-redundant matches) between the Tukey HSD and the Scheffe *post hoc* tests in terms of whether the difference between each of the 110 means was statistically significant.

Table 14
Comparison of Outcomes of ANOVA Tests of Mean Differences Using Two Different Types of Equal and Unequal Variances Testing Methods with the Standard ANOVA Pairwise Method (Dependent Variable = Number of Days in Detention)

Variable Pair	Pairwise Test	Games-Howell	Dunnett's C	Tukey HSD	Scheffe
Surety Bond Cash Bond	NSD	NSD	NSD	NSD	NSD
Surety Bond Unsecured PTR	NSD	NSD	NSD	NSD	NSD
Surety Bond ROR	NSD	NSD	NSD	NSD	NSD
Surety Bond Charges Dropped	*p<.05*	*p<.05*	*p<.05*	NSD	NSD
Surety Bond Awaiting Trial	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Surety Bond Agency Hold	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Surety Bond Serving Sentence	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Surety Bond Await Sentence	*p<.001*	*p<.05*	*p<.05*	*p<.001*	*p<.05*
Surety Bond Transport	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Surety Bond VOP	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Cash Bond Surety Bond	NSD	NSD	NSD	NSD	NSD

Cash Bond Unsecured PTR	NSD	NSD	NSD	NSD	NSD
Cash Bond ROR	NSD	NSD	NSD	NSD	NSD
Cash Bond Charges Dropped	*p<.05*	*p<.05*	*p<.05*	NSD	NSD
Cash Bond Awaiting Trial	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Cash Bond Agency Hold	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.01*
Cash Bond Serving Sentence	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Cash Bond Await Sentence	*p<.001*	*p<.05*	*p<.05*	*p<.001*	*p<.05*
Cash Bond Transport	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Cash Bond VOP	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Unsecured PTR Surety Bond	NSD	NSD	NSD	NSD	NSD
Unsecured PTR Cash Bond	NSD	NSD	NSD	NSD	NSD
Unsecured PTR ROR	NSD	NSD	NSD	NSD	NSD
Unsecured PTR Charges Dropped	NSD	NSD	NSD	NSD	NSD
Unsecured PTR Awaiting Trial	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Unsecured PTR Agency Hold	*p<.001*	*p<.001*	*p<.05*	*p<.05*	NSD
Unsecured PTR Serving Sentence	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Unsecured PTR Await Sentence	*p<.001*	NSD	NSD	*p<.01*	NSD
Unsecured PTR Transport	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Unsecured PTR VOP	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
ROR Surety Bond	NSD	NSD	NSD	NSD	NSD

ROR Cash Bond	NSD	NSD	NSD	NSD	NSD
ROR Unsecured PTR	NSD	NSD	NSD	NSD	NSD
ROR Charges Dropped	*p<.05*	*p<.05*	*p<.05*	NSD	NSD
ROR Await Trial	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
ROR Agency Hold	*p<.001*	*p<.01*	*p<.05*	*p<.001*	*p<.01*
ROR Serving Sentence	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
ROR Await Sentence	*p<.001*	*p<.05*	*p<.05*	*p<.001*	*p<.01*
ROR Transport	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
ROR VOP	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Charges Dropped Surety Bond	*p<.05*	*p<.05*	*p<.05*	NSD	NSD
Charges Dropped Cash Bond	*p<.05*	*p<.05*	*p<.05*	NSD	NSD
Charges Dropped Unsecured PTR	NSD	NSD	NSD	NSD	NSD
Charges Dropped ROR	*p<.05*	*p<.05*	*p<.05*	NSD	NSD
Charges Dropped Await Trial	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Charges Dropped Agency Hold	NSD	NSD	NSD	NSD	NSD
Charges Dropped Serving Sentence	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.01*
Charges Dropped Await Sentencing	NSD	NSD	NSD	NSD	NSD
Charges Dropped Transport	*p<.001*	*p<.05*	*p<.05*	*p<.05*	NSD
Charges Dropped VOP	*p<.001*	*p<.01*	*p<.05*	NSD	NSD
Await Trial Surety Bond	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Await Trial Cash Bond	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*

Await Trial Unsecured PTR	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Await Trial ROR	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Await Trial Charges Dropped	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Await Trial Hold	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Await Trial Serving Sentence	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Await Trial Await Sentence	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Await Trial Transport	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Await Trial VOP	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Agency Hold Surety Bond	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Agency Hold Cash Bond	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.01*
Agency Hold Unsecure PTR	*p<.001*	*p<.01*	*p<.05*	*p<.05*	NSD
Agency Hold ROR	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Agency Hold Charges Dropped	NSD	NSD	NSD	NSD	NSD
Agency Hold Await Trial	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Agency Hold Serving Sentence	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Agency Hold Await Sentence	NSD	NSD	NSD	NSD	NSD
Agency Hold Transport	*p<.001*	NSD	NSD	*p<.05*	NSD
Agency Hold VOP	*p<.01*	NSD	NSD	NSD	NSD
Serving Sentence Surety Bond	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Serving Sentence Cash Bond	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Serving Sentence Unsecured PTR	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*

Serving Sentence ROR	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Serving Sentence Charges Dropped	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.01*
Serving Sentence Await Trial	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Serving Sentence Agency Hold	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Serving Sentence Await Sentence	*p<.001*	NSD	NSD	*p<.05*	NSD
Serving Sentence Transport	NSD	NSD	NSD	NSD	NSD
Serving Sentence VOP	*p<.001*	*p<.05*	*p<.05*	*p<.001*	*p<.001*
Await Sentence Surety Bond	*p<.001*	*p<.05*	*p<.05*	*p<.001*	*p<.01*
Await Sentence Cash Bond	*p<.001*	*p<.05*	*p<.05*	*p<.001*	*p<.05*
Await Sentence Unsecured PTR	*p<.001*	NSD	NSD	*p<.01*	NSD
Await Sentence ROR	*p<.001*	*p<.05*	*p<.05*	*p<.001*	*p<.01*
Await Sentence Charges Dropped	NSD	NSD	NSD	NSD	NSD
Await Sentence Await Trial	*p<.001*	*p<.001*	*p<.001*	*p<.001*	*p<.001*
Await Sentence Agency Hold	NSD	NSD	NSD	NSD	NSD
Await Sentence Serving Sentence	*p<.001*	NSD	NSD	*p<.05*	NSD
Await Sentence Transport	NSD	NSD	NSD	NSD	NSD
Await Sentence VOP	NSD	NSD	NSD	NSD	NSD
Transport Surety Bond	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Transport Cash Bond	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Transport Unsecured PTR	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Transport ROR	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*

Transport Charges Dropped	*p<.001*	*p<.05*	*p<.05*	*p<.05*	NSD
Transport Awaiting Trial	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
Transport Hold	*p<.001*	NSD	NSD	*p<.05*	NSD
Transport Serving Sentence	NSD	NSD	NSD	NSD	NSD
Transport Await Sentence	NSD	NSD	NSD	NSD	NSD
Transport VOP	NSD	NSD	NSD	NSD	NSD
VOP Surety Bond	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
VOP Cash Bond	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
VOP Unsecured PTR	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
VOP ROR	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
VOP Charges Dropped	*p<.01*	*p<.01*	*p<.05*	NSD	NSD
VOP Await Trial	*p<.001*	*p<.001*	*p<.05*	*p<.001*	*p<.001*
VOP Agency Hold	*p<.01*	NSD	NSD	NSD	NSD
VOP Serving Sentence	*p<.001*	*p<.05*	*p<.05*	*p<.001*	*p<.001*
VOP Await Sentence	NSD	NSD	NSD	NSD	NSD
VOP Transport	NSD	NSD	NSD	NSD	NSD

Based upon the foregoing, when comparing differences between the means using *post hoc* tests with the results of standard ANOVA pairwise comparisons of means, the *post hoc* tests based on an assumption of unequal population variances seem to fare a little better in terms of being able to determine which of the comparison means are different from one another in a statistically significant fashion. Accordingly, it would seem prudent to be duly diligent when it comes to assessing the

differences regarding the equality or inequality of population variances when it comes to using one type of *post hoc* test versus another. There are indeed some subtle differences in estimating efficiency between the different types of tests when it comes to evaluating the predicted outcome regarding statistically significant results when it comes to the comparison of mean differences on pairs of variables.

Testing Relationships between Variables Using Measures of Association

While useful in establishing whether there are significant differences between the means of two groups on some criterion or outcome variable, there is no way that one can determine the nature and strength of the relationship between the variables themselves, or if there are any statistical relationships at all. To ascertain the degree or strength of relationship between the different variables, some statistical measure to assess covariation, or association, needs to be employed. One typical method by which to establish the degree of association or covariation between two (or more) variables is using correlation-based statistics. Correlation, or covariation, assessment statistical techniques are the fundamental building blocks for more higher-order statistical techniques such as simple and multiple regression which are typically utilized in the development of certain types of statistical models.

Measures of correlation are typically based on the formula for a straight line which is the mathematical foundation of the general linear model. A variation of the more generic formula, $Y = f(X)$, the root, or base, formula for a correlation coefficient is typically denoted as $Y = bX + a$, where Y is the predicted value, "*b*" is the weight of the variable, X is the value of independent variable, and "*a*" is the intercept on the x-axis. Simply stated, zero-order correlations are measures of association between two, and only two, variables. The magnitude of the correlation ranges from a value of -1.0 through zero, and on to +1.0. A correlation coefficient of -1.0 describes a perfect negative

correlation while a correlation of +1.0 indicates a perfect positive correlation. In the instance of a perfect positive correlation, for every unit *increase* (or decrease) in one variable, there is an equal corresponding *increase* (or decrease) in the other variable. Both variables are moving in value in the same direction. However, in the example of a perfect negative correlation, for every unit *increase* in one variable, there is a corresponding unit *decrease* in the other one. In this situation, as the value of one variable goes up, the value of the other goes down.

In either case, whether positive or negative, the correlation coefficient indicates that for every unit change in X, there is a corresponding unit change in Y. Most importantly, correlation coefficients do not mean or even begin to suggest that variable X causes changes in variable Y, or that variable Y produces changes in variable X. The correlation coefficient simply means that the two variables, X and Y, are correlated, or associated, to some degree or extent. The correlation coefficient implies absolutely nothing about causality of X with respect to Y, or Y with respect to X. The zero-order correlation coefficient measures the relative strength and direction of association, or covariation, between two variables, X and Y, nothing more.

Zero-order correlations, while measuring the degree of association between two and only two variables, are valuable exploratory tools to discern any degree of statistical relationship between different variables. If one wishes to become more discerning, it is often useful to utilize what is known as a *partial* correlation. A partial correlation, also known as a first-order correlation, allows one to examine the relationship between two variables, X and Y, while adjusting for the effects of a third variable, say Z. The beauty of a partial correlation is that it allows for theoretically an unlimited number of "control" variables to be introduced to assess the non-spurious nature of the relationship.

The basic idea behind a partial correlation is this: if the relationship between X and Y maintains its strength even while controlling for the presence of one or more "control" variables,

then the relationship between X and Y, if undiminished statistically, is said to be non-spurious. If, on the other hand, the relationship between X and Y is diminished to the point that it is no longer statistically significant when the presence of other variables are controlled for in the model, then the original relationship between X and Y is said to be spurious. A spurious relationship, then, is a statistical relationship which appears on its face to be true, but is really false after one (or more) variables are entered into the mix as statistical controls.

The use of zero-order and partial correlations will allow us to do several things in this study. First, we will be able to assess the nature and extent of any statistical relationship between the variables in this study. Moreover, it will be substantively meaningful to examine these statistical relationships considering introducing certain control variables (such as the number of cases from each county and population size) which may diminish their overall statistical effect. This analysis will allow us to look at what happens to the statistical relationship between X and Y, when we statistically control for whether the county has an unsecured pretrial release program or not. Finally, these statistical tools will allow us to scrutinize more closely the findings that were obtained using the t-test.

To this extent, zero-order correlation and partial correlation statistical techniques will be utilized to assess the strength and magnitude of any given relationship between whether a county has a pretrial release program and a number of other correlates. As with the t-test procedures that were used earlier in this analysis, the correlation and partial correlation techniques will employ the $p<.05$ level of statistical significance (two-tailed).

One question that needs to be addressed is to what extent are the variables in the dataset related to the dependent variable (number of days spent in detention) in any meaningful and systematic fashion. In this analysis, there were twenty-one independent variables under

consideration: the sex of the detainee, the age of the detainee at the time of booking, whether the detainee was released on a surety bond, a cash bond, admitted to an unsecured pretrial release program, released on recognizance, whether the charges were dropped at some point for some reason, whether the detainee was awaiting trial, where the detainee was on some type of administrative or judicial "hold", whether the detainee was serving a sentence, or was awaiting sentencing, whether the defendant was awaiting transportation to another facility or jurisdiction, whether the defendant was charged with a violation of probation, whether the defendant was homeless, the number of felonies and misdemeanors which had been filed against the defendant, whether the detainee was white or non-white, whether the county in which the defendant was arrested had an unsecured pretrial release program, the population size of the county in which the arrest and booking occurred, and the number of release or confinement mechanisms that led to the release or detention of the defendant.

In addition, the dependent variable, the number of days in detention, was viewed in two ways. One way is to look at the raw number of days in detention which range from a minimum of one day in confinement to the maximum of 213 days. To this end, no grouping of data was involved. A second way to look at the number of days in detention was to group the data into different smaller yet theoretically meaningful categories. Accordingly, this grouping process resulted in the following breakdown of cases along thirteen different categories as shown in Table 15.

Table 15
Detention Days – Grouped
n = 1,599

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - 3 Days	830	51.9	51.9	51.9
	4 - 6 Days	90	5.6	5.6	57.5
	7 - 9 Days	69	4.3	4.3	61.9
	10 - 13 Days	53	3.3	3.3	65.2

	14 - 20 Days	71	4.4	4.4	69.6
	21 - 28 Days	72	4.5	4.5	74.1
	29 - 39 Days	86	5.4	5.4	79.5
	40 - 49 Days	55	3.4	3.4	82.9
	60 - 89 Days	58	3.6	3.6	86.6
	90 - 119 Days	39	2.4	2.4	89.0
	120 - 149 Days	91	5.7	5.7	94.7
	150 - 179 Days	51	3.2	3.2	97.9
	180 Days and Above	34	2.1	2.1	100.0
	Total	1599	100.0	100.0	

The results of the bivariate correlation analysis (Table 16) indicated that while there were a number of zero-order correlations that were statistically significant at the minimum level of $p<.05$, their actual practical or substantive utility were generally of limited or marginal value. [28] The data might indicate that the overall magnitude of the zero-order correlation coefficients are statistically significant simply because of the relatively large sample size utilized in this study. The amounts of variance explained in any of these zero-order relationships is, overall, relatively small since the magnitude of the coefficients are modest at best.

[28] As mentioned earlier, statistical significance refers to the extent to which the magnitude of the correlation merely surpasses sheer randomness. To get an estimate of the *substantive* significance of the correlation, one needs only to take the correlation coefficient, multiply it by itself, and then multiply that resulting number by 100. This gives an estimate as to the proportionate amount of variance explained in the dependent variable (Y) by the independent variable (X). That number is expressed as a percentage. The amount of variance can range from 0 percent to 100 percent. As an example, a correlation coefficient of r = .50 between X and Y indicates that X explains 25 percent of the variance in Y. We know this because (.50 *.50) *100 = 25 percent. A corollary to this is that the variance *unexplained* in Y by X equals 100 – 25, which is 75 percent. That means that 75 percent of the variance in the dependent variable is explained by some variable, other than X. Also, remember that as the sample size increases, it requires a lower magnitude relationship in order for the correlation coefficient to be *statistically* significant in a non-random basis. However, whether the relationship is *substantively* significant is another matter altogether and is better addressed in terms of examining the proportion of the variance explained in the dependent variable (Y) by the independent variable (X).

Table 16
Zero-Order Correlations [29]
Pearson's *r*
Days in Detention (Ungrouped and Grouped) by Relevant Study Variables [30]
n = 1,599

Variable	Detention Days by Detainee (Ungrouped)	Detention Days by Detainee (Grouped)
Detention Days by Detainee	1.000	.927 **
Detention Days – Grouped	.927 **	1.000
Sex	-.088 **	-.083 **
Age	.056 *	.053 *
Surety Bond	-.424 **	-.469 **
Cash Bond	-.147 **	-.176 **
Unsecured PTR	-.065 **	-.058 *
ROR	-.179 **	-.198 **
Charges Dropped	.001	.039
Awaiting Trial	.394 **	.344 **
Interagency Hold	-.088 **	.118 **
Serving Sentence	.520 **	.597 **
Awaiting Sentencing	.063 *	.080 **
Transport	.131 **	.156 **

[29] A correlation coefficient with a single asterisk beside it (*) indicates that the correlation coefficient was statistically significant at less than the .05 level while a correlation coefficient with two asterisks beside it (**) indicate that the correlation coefficient was statistically significant at less than the .01 level.
[30] There is an entire matrix of correlation coefficients not included in this document because of the sheer size of the matrix itself. The only correlations presented here are the ones that examine the relationships between the independent variables and the dependent variable (ungrouped or grouped). The correlations between the independent variables with each other are not included herein, but are available upon request.

Violation of Probation	.220 **	.257 **
Detainee Homeless	.046	.091 **
Total Number Felony Charges	.283 **	.274 **
Total Number Misdemeanor Charges	.082 **	.070 **
Detainee White or Non-White	.008	-.009
Detainee County Unsecured PTR Program	-.048	-.043
County Population Category	-.077 **	-.056 *
Number of Different Release Mechanisms	-.615 **	-.675 **
Number of Different Confinement Mechanisms	.565 **	.627 **

What the data in Table 16 do indicate, however, given the statistical significance of the zero-order correlation coefficient, are the following, regardless of whether ungrouped or grouped values were used for the dependent variable:

(1) Males spent longer periods of time in detention than did females;
(2) Defendants who were older at the time of booking spent longer time in detention than did younger defendants;
(3) Release on a surety bond, cash bond, unsecured pretrial release program, or release on recognizance translated to fewer days spent in detention;
(4) A defendant who was awaiting trial, who was on an agency hold of some type, who was serving a sentence or who was awaiting sentencing, who was awaiting transport to another jurisdiction or to another state agency, or who had a violation of probation charge spent longer time in confinement;
(5) The greater the number of felony charges or the greater number of misdemeanor charges filed against the defendant resulted longer stays in detention;
(6) The population size of the county mattered, to the extent that detainees from counties with larger populations spent fewer days in detention than did detainees from smaller-sized counties; and finally,

(7) Detainees who had more documented release mechanisms surrounding their case spent fewer days in confinement, while detainees who had more documented confinement mechanisms associated with their case spent more time in detention.

Curiously, whether the defendant was documented as being homeless was statistically significant relative to the number of days spent in detention was based on whether the ungrouped or grouped data was used to measure the dependent variable. Although the relationship between homeless status was not statistically significant when the *ungrouped* data on the dependent variable was used (r=.046, $p>.05$, NSD), the effect of homeless status was statistically significant when the *grouped* data on the dependent variable was utilized (r=.091, $p<.01$) in the analysis.

Independent variables that were related in a statistically significant fashion to the dependent variable, whether using ungrouped or grouped data categories to measure the length of detention stay, were subsequently incorporated into the development of a multivariate statistical model.

The Development of a Multivariate Statistical Model to Explain Variations in Lengths of Detention

There are several distinct statistical procedures that may be used to establish some type of predictive model that might enable us to assess the dynamic interplay between these different variables. In essence, these statistical procedures enable us to expand on the general linear model earlier identified and assess the relative impact of each of these different variables on a predicted outcome on the dependent variable.

Multiple regression is a statistical technique that enables one to identify those statistically relevant variables which when entered into the analysis can be used to predict an outcome or score. This statistical tool also allows one to determine the relative weights of these different variables and the statistical impact that they have on a predicted outcome. Multiple regression is also capable of identifying potential anomalies as far as the relationships between the different variables are

concerned, since the model holds constant the effects of multiple variables while the direct effects of any given variable are discerned. The form of the equation for regression is as follows:

$$\mathbf{Y} = b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + \ldots + b_{n-1}X_{n-1} + b_nX_n + a,$$

where **Y** is the predicted value, or outcome; X is the value of any given variable in the model; *b* is the weight of the variable (also known as the unstandardized regression coefficient), and *a* is the intercept of the regression line on the X-axis.

In a model that uses *standardized* regression coefficients as opposed to unstandardized ones, an upper-case *B* replaces the lower-case *b,* such that the equation appears as follows:

$$\mathbf{Y} = B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + \ldots + B_{n-1}X_{n-1} + B_nX_n$$

In this equation, the regression coefficients (or *B* coefficients) represent the *independent* contributions of each independent variable to the prediction of the dependent variable. Another way to express this fact is to say that, for example, variable X_1 is correlated with the *Y* variable, after controlling for all other independent variables. This type of correlation is also referred to as a *partial correlation.* As with any statistical procedure, there are a number of assumptions that guide its use. These assumptions address the issue of the normality of the distribution, restrictions on number of variables, and multicollinearity, matrix ill-conditioning, and fitting centered polynomial models. The use of multiple regression as a method of statistical analysis is based upon its overall robustness as a statistical tool.

Based upon the concept of "goodness of fit", the smaller the variability of the residual values around the regression line relative to the overall variability, the better is our prediction. For example, if there is no relationship between the *X* and *Y* variables, then the ratio of the residual variability of the *Y* variable to the original variance is equal to 1.0. If *X* and *Y* are perfectly related then there is no residual variance and the ratio of variance would be 0.0. In most cases, the ratio would fall somewhere between these extremes, that is, between 0.0 and 1.0. 1.0 minus this ratio is referred to as

R-square or the *coefficient of determination*. For example, if we have an *R-square* of 0.4 then we know that the variability of the *Y* values around the regression line is 1-0.4 times the original variance; in other words, we have explained forty percent of the original variability, and are left with sixty percent residual variability. Ideally, we would like to explain most if not all the original variability. Thus, the *R-square* value is an indicator of how well the model fits the data (e.g., an *R-square* close to 1.0 indicates that we have accounted for almost all the variability with the variables specified in the model).

Based upon the structure of the general linear model, the regression line that minimizes the squared distances between the different data points and the line itself expresses the best prediction of the dependent variable (*Y*), given the independent variables (*X*). Usually, however, there is substantial variation of the observed points around the fitted regression line. Thus, the deviation of a particular point from the regression line (its predicted value) is called the *residual* value.

In this portion of the analysis, the objective is to develop a model that will best predict the dependent, or outcome, variable using a linear combination of independent variables. The outcome variable (the dependent variable, or the variable to be predicted) is the number of days in detention. That variable was calculated by determining the number of days between the booking date and the release date. Included in the first-stage multivariate model were the following independent, or predictor, variables: the sex of the detainee, the age of the detainee at the time of booking, whether the detainee was released on a surety bond, a cash bond, admitted to an unsecured pretrial release program, released on recognizance, whether the detainee was awaiting trial, where the detainee was on some type of administrative or judicial “hold”, whether the detainee was serving a sentence, or was awaiting sentencing, whether the defendant was awaiting transportation to another facility or jurisdiction, whether the defendant was charged with a violation of probation, whether the defendant

was homeless, the number of felonies and misdemeanors which had been filed against the defendant, the population size of the county in which the arrest and booking occurred, and the number of release or confinement mechanisms that led to the release or detention of the defendant.

The beauty of using multiple regression as a statistical technique is that one can examine the singular and independent effects of every single variable in the model while holding constant the effects of all the other variables in the analysis. That means, for example, that one can examine the effects of detainee ethnic status while holding constant the effects for every other variable. In this analysis, there were two different methods used to introduce the independent variables into the multiple regression model. The first method used was to enter all the predictor variables into the model in an "all at once" fashion. The second method used was to enter the independent variables in a "step-wise" fashion whereby the highest impact predictor is entered first, the second-best predictor is entered next, and so on.

The results of the initial "all-at-once" entry are displayed in Table 17. All variables that were statistically related to the dependent variable in Table 15 were incorporated into this initial multivariate model. The results displayed in Table 17 demonstrate two separate problems. The first problem is that of multicollinearity.[31]

[31] Multicollinearity is the problem that occurs when two or more independent variables in the regression equation are highly correlated with one another. Multicollinearity can be detected by looking at the tolerance and the variance inflation factor. The variance inflation factor is the reciprocal of tolerance and is calculated as follows: VIF = (1/Tolerance). The variance inflation is always greater than or equal to 1. All other things equal, researchers desire lower levels of VIF, as higher levels of VIF are known to affect adversely the results associated with a multiple regression analysis. In fact, the utility of VIF, as distinct from tolerance, is that VIF specifically indicates the magnitude of the inflation in the standard errors associated with a particular beta weight that is due to multicollinearity.

For example, a VIF of 10 implies that the standard errors are larger by a factor of 10 than would otherwise be the case, if there were no intercorrelations between the predictor of interest and the remaining predictor variables included in the multiple regression analysis. Various recommendations for acceptable levels of VIF have been published in the literature. Perhaps most commonly, a value of 10 has been recommended as the maximum level of VIF (e.g., Hair, Anderson, Tatham, & Black, 1995; Kennedy, 1992; Marquardt, 1970; Neter, Wasserman, & Kutner, 1989). The VIF recommendation of 10 corresponds to the tolerance recommendation of .10 (i.e., 1 / .10 = 10). However, a recommended maximum VIF value of 5 (e.g., Rogerson, 2001) and even 4 (e.g., Pan & Jackson, 2008) can be found in the literature. The lower the VIF, the more conservative is the estimate since it is a more stringent way to dealing with the problem of

In this analysis, Table 17 indicates that there are five independent variables for which the problem of multicollinearity may be an issue because the VIF is greater than or equal to 4.[32] These variables include the following: whether the defendant utilized a surety bond, or cash bond as a pretrial release mechanism or was released on his/her own recognizance. In addition, the number of different release mechanisms that led to the detainee's release and the number of different confinement mechanisms that led to detention also were indicative of the problem of multicollinearity.

A closer inspection of Table 17 shows that the two variables that are systematically contributing to the problem of multicollinearity are the number of release mechanisms and the number of confinement mechanisms in two different ways: first, the zero-order correlation between these two variables is rather high (r= -.752, p<.001); and second, those two variables are transformations of the separate release and confinement mechanisms incorporated into the analysis. Thus, the simplest and most effective method to remedy the multicollinearity problem would be to remove both variables from the model.

multicollinearity. In research, any variance inflation factor that is greater than or equal to 4 is considered problematic when it comes to the question of multicollinearity in the multiple regression model.

[32] A VIF=4 corresponds to a tolerance level of .25.

Table 17

Table of Unstandardized and Standardized Regression Coefficients[a,b] Significance Levels, and Collinearity Statistics on First-Stage Model Using Disaggregated and Ungrouped Data on Dependent Variable (n=1,599)

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	35.895	5.851		6.135	.000		
	Sex of Detainee	-3.918	2.078	-.033	-1.885	.060	.982	1.018
	Age of Detainee at Time of Booking	.132	.070	.033	1.887	.059	.982	1.018
	Surety Bond Release Mechanism	-24.031	8.150	-.239	-2.949	.003	**.046**	**21.772**
	Cash Bond Release Mechanism	-14.502	8.724	-.080	-1.662	.097	**.129**	**7.727**
	Unsecured PTR Release Mechanism	-23.718	9.671	-.076	-2.452	.014	.311	3.215
	Release on Recognizance	-22.796	8.477	-.153	-2.689	.007	**.093**	10.768
	Detainee Awaiting Trial	28.808	4.523	.128	6.369	.000	.748	1.337
	Detainee on Hold By Another Agency	-44.968	4.474	-.229	-10.051	.000	.584	1.713
	Detainee Awaiting Sentencing	-48.282	7.733	-.124	-6.244	.000	.767	1.304
	Detainee Awaiting Transport to Another Agency or Jurisdiction	-31.692	5.921	-.116	-5.352	.000	.643	1.556
	Detainee Violation of Probation	-34.918	4.490	-.249	-7.777	.000	.294	3.401

	Total Number of Felony Charges Against Detainee	3.722	.462	.146	8.057	.000	.925	1.081
	Total Number of Misdemeanor Charges Against Detainee	.522	.199	.046	2.622	.009	.992	1.008
	County Population Category	-1.313	.569	-.041	-2.305	.021	.956	1.046
	Number of Different Release Mechanisms	-2.411	8.587	-.025	-.281	.779	**.037**	**26.785**
	Number of Different Confinement Mechanisms	41.712	3.656	.631	11.410	.000	**.099**	**10.125**

a. Dependent Variable: Days in Detention by Detainee

b. One variable, "Defendant Serving Sentence", was initially left out of this model because of low tolerance ostensibly produced by the Multicollinearity problem. The variable subsequently was restored to the model after the two multicollinear variables were removed.

The net effect of this strategy is shown in Table 18 wherein the two statistically troublesome multicollinear variables have been removed from the analysis. To that end, all tolerance and variance inflation factors amongst all remaining variables in the model have now returned to their nominal levels with no variance inflation factor greater than 4.

Table 18 also reveals that certain variables which were thought to be related to the number of days in detention have lost their predictive effect when entered into the multiple regression model. These include the following variables whose unstandardized regression coefficients are not statistically significant at the $p<.05$ level of statistical significance: the sex of the detainee, the age of the detainee at the time of booking, whether the detainee was on a "hold" status, and whether the detainee was awaiting sentencing, and whether the detainee was awaiting transport to another facility or jurisdiction. The model remains intact for all remaining included variables.

Table 18

Table of Unstandardized and Standardized Regression Coefficients, Significance Levels, and Collinearity Statistics for Second-Stage Model with Two Multicollinear Variables Removed Using Disaggregated and Ungrouped Data as the Dependent Variable

n = 1,599

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	35.481	5.661		6.268	<.001		
	Sex of Detainee	-3.931	2.077	-.033	-1.892	.059	.983	1.018
	Age of Detainee at Time of Booking	.133	.070	.033	1.896	.058	.983	1.017
	Surety Bond Release Mechanism	-26.137	3.191	-.260	-8.191	<.001	.299	3.339
	Unsecured PTR Release Mechanism	-25.832	6.068	-.083	-4.257	<.001	.790	1.266
	Detainee Awaiting Trial	70.751	4.616	.314	15.326	<.001	.717	1.394
	Detainee on Hold By Another Agency	-3.091	3.939	-.016	-.785	.433	.753	1.328
	Detainee Serving/Served Sentence	42.006	3.501	.334	11.997	<.001	.390	2.566
	Detainee Awaiting Sentencing	-6.513	6.933	-.017	-.939	.348	.953	1.049
	Detainee Awaiting Transport to Another Agency or Jurisdiction	10.141	5.228	.037	1.940	.053	.824	1.214
	Detainee Violation of Probation	6.845	2.554	.049	2.680	.007	.908	1.101
	Total Number of Felony Charges Against Detainee	3.723	.462	.146	8.060	<.001	.925	1.081
	Total Number of Misdemeanor Charges Against Detainee	.523	.199	.046	2.624	.009	.992	1.008
	Release on Recognizance	-24.928	3.770	-.168	-6.613	<.001	.469	2.131
	Cash Bond Release Mechanism	-16.725	3.663	-.093	-4.566	<.001	.734	1.363
	County Population Category	-1.295	.566	-.040	-2.289	.022	.968	1.033

a. Dependent Variable: Days in Detention by Detainee

With the five identified variables removed, the new model is depicted in Table 19 which shows that all variables included in this second-stage model are statistically significant at less than the .05 level.

Table 19
Table of Unstandardized and Standardized Regression Coefficients, Significance Levels, and Collinearity Statistics for Second-Stage Model Using Disaggregated and Ungrouped Data as the Dependent Variable
n = 1,599

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	36.527	3.655		9.993	<.001		
	Surety Bond Release Mechanism	-26.768	2.827	-.266	-9.468	<.001	.383	2.613
	Unsecured PTR Release Mechanism	-26.542	5.882	-.085	-4.513	<.001	.844	1.185
	Detainee Awaiting Trial	70.145	4.495	.312	15.606	<.001	.760	1.316
	Detainee Serving/Served Sentence	42.027	3.265	.334	12.873	<.001	.450	2.222
	Detainee Violation of Probation	6.707	2.550	.048	2.630	.009	.912	1.097
	Total Number of Felony Charges Against Detainee	3.728	.461	.146	8.079	<.001	.931	1.075
	Total Number of Misdemeanor Charges Against Detainee	.517	.199	.045	2.593	.010	.993	1.007
	Release on Recognizance	-25.515	3.474	-.172	-7.345	<.001	.553	1.809
	Cash Bond Release Mechanism	-17.557	3.536	-.097	-4.965	<.001	.791	1.265
	County Population Category	-1.392	.565	-.043	-2.462	.014	.972	1.029

a. Dependent Variable: Days in Detention by Detainee

Now that we have a stable model comprised of ten independent variables which are statistically significant, the question becomes what happens when we enter the variables in stepwise fashion as opposed to an "all at once" fashion? Entering the variables in a stepwise mode will enable us to use an iterative method that determines the relative proportionate impact of each independent variable in terms of its explained variance at each successive stage of variable entry.

Table 20 below shows the following sequenced order of entry of one variable at a time into the third-stage multiple regression model.[33] Because there were ten independent variables included into the model, this required ten successive steps of variable entry, one variable at a time. Thus, Table 20 shows that the following variables were entered into the model in a sequential stepwise fashion, such that each successive step includes a new variable for that step coupled with all variables included on each previous step:

	Variable Entered into Model
Step 1	Defendant Serving Sentence
Step 2	Defendant Awaiting Trial
Step 3	Number of Felonies Filed Against Defendant
Step 4	Surety Bond for Pretrial Release
Step 5	Use of Release on Recognizance as Pretrial Release Mechanism
Step 6	Use of Cash Bond as Pretrial Release Mechanism
Step 7	Use of Unsecured PTR as Pretrial Release Mechanism
Step 8	Defendant Charged with a Violation of Probation

[33] Variables were entered in a stepwise fashion based upon their statistical tolerance with respect to the multiple regression model. In multiple regression, tolerance is used as an indicator of multicollinearity. Tolerance is estimated by $\mathbf{1 - R^2}$, where R^2 is calculated by regressing the independent variable of interest onto the remaining independent variables included in the multiple regression analysis.

Step 9 Number of Misdemeanors Filed Against Defendant

Step 10 Population Category of County of Arrest and Booking

Accordingly, Table 20 shows the multiple correlation of each successive model at each successive step, the variance explained by that model (the R-square), and adjusted proportion of variance explained due to the number of variables in the model (adjusted R-square). The model further shows that the third-stage model with the ten independent variables entered in a stepwise fashion has a multiple correlation coefficient (R) of .720, which explains 51.9 percent of the variance in the model itself. The amount of shrinkage in the model based upon the number of variables in the model (10) reduces the explained variance from 51.9 percent to 51.6 percent for the overall third-stage model.

Table 20
Table of Unstandardized and Standardized Regression Coefficients, Significance Levels, and Collinearity Statistics for Third-Stage Model Using Stepwise Method of Variable Entry Using Disaggregated and Ungrouped Data on Dependent Variable
n = 1,599

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	16.756	1.199		13.974	.000		
	Detainee Serving/Served Sentence	65.492	2.689	.520	24.357	.000	1.000	1.000
2	(Constant)	10.783	1.063		10.143	.000		
	Detainee Serving/Served Sentence	69.614	2.322	.553	29.981	.000	.994	1.006
	Detainee Awaiting Trial	98.102	4.154	.436	23.615	.000	.994	1.006
3	(Constant)	7.389	1.120		6.598	.000		
	Detainee Serving/Served Sentence	67.682	2.287	.538	29.596	.000	.984	1.016
	Detainee Awaiting Trial	90.562	4.171	.402	21.710	.000	.946	1.057
	Total Number of Felony Charges Against Detainee	3.908	.474	.153	8.239	.000	.945	1.058

4	(Constant)	14.632	1.726		8.479	.000		
	Detainee Serving/Served Sentence	60.483	2.619	.481	23.091	.000	.737	1.358
	Detainee Awaiting Trial	84.069	4.300	.373	19.549	.000	.875	1.143
	Total Number of Felony Charges Against Detainee	4.068	.471	.159	8.638	.000	.941	1.062
	Surety Bond Release Mechanism	-11.610	2.118	-.116	-5.481	.000	.718	1.392
5	(Constant)	22.334	2.218		10.069	.000		
	Detainee Serving/Served Sentence	53.062	2.931	.422	18.103	.000	.578	1.731
	Detainee Awaiting Trial	77.678	4.420	.345	17.573	.000	.813	1.230
	Total Number of Felony Charges Against Detainee	4.019	.467	.157	8.609	.000	.941	1.063
	Surety Bond Release Mechanism	-18.892	2.488	-.188	-7.593	.000	.511	1.955
	Release on Recognizance	-17.423	3.195	-.117	-5.454	.000	.676	1.478
6	(Constant)	27.380	2.496		10.969	.000		
	Detainee Serving/Served Sentence	48.354	3.112	.384	15.538	.000	.507	1.973
	Detainee Awaiting Trial	73.684	4.492	.327	16.403	.000	.779	1.284
	Total Number of Felony Charges Against Detainee	3.866	.466	.151	8.304	.000	.936	1.069
	Surety Bond Release Mechanism	-22.774	2.632	-.227	-8.651	.000	.452	2.213
	Release on Recognizance	-21.827	3.337	-.147	-6.542	.000	.613	1.630
	Cash Bond Release Mechanism	-15.033	3.480	-.083	-4.320	.000	.835	1.197
7	(Constant)	32.709	2.720		12.026	.000		
	Detainee Serving/Served Sentence	43.311	3.267	.344	13.256	.000	.454	2.204
	Detainee Awaiting Trial	70.391	4.515	.313	15.590	.000	.761	1.315
	Total Number of Felony Charges Against Detainee	3.750	.463	.147	8.097	.000	.933	1.072
	Surety Bond Release Mechanism	-27.580	2.802	-.274	-9.841	.000	.393	2.542
	Release on Recognizance	-26.704	3.469	-.180	-7.699	.000	.560	1.786

	Cash Bond Release Mechanism	-18.535	3.534	-.103	-5.245	.000	.799	1.251
	Unsecured PTR Release Mechanism	-28.047	5.886	-.090	-4.765	.000	.851	1.175
8	(Constant)	31.083	2.792		11.131	.000		
	Detainee Serving/Served Sentence	42.877	3.267	.341	13.126	.000	.452	2.210
	Detainee Awaiting Trial	70.490	4.508	.313	15.637	.000	.760	1.315
	Total Number of Felony Charges Against Detainee	3.748	.462	.147	8.106	.000	.933	1.072
	Surety Bond Release Mechanism	-26.438	2.835	-.263	-9.325	.000	.383	2.610
	Release on Recognizance	-26.070	3.472	-.176	-7.508	.000	.557	1.796
	Cash Bond Release Mechanism	-17.741	3.542	-.098	-5.008	.000	.793	1.261
	Unsecured PTR Release Mechanism	-26.776	5.898	-.086	-4.540	.000	.845	1.184
	Detainee Violation of Probation	6.381	2.557	.046	2.496	.013	.913	1.095
9	(Constant)	30.706	2.792		10.999	.000		
	Detainee Serving/Served Sentence	42.432	3.266	.337	12.993	.000	.451	2.217
	Detainee Awaiting Trial	70.183	4.502	.312	15.590	.000	.760	1.316
	Total Number of Felony Charges Against Detainee	3.696	.462	.144	7.999	.000	.931	1.074
	Surety Bond Release Mechanism	-26.576	2.831	-.264	-9.388	.000	.383	2.611
	Release on Recognizance	-26.236	3.467	-.177	-7.567	.000	.557	1.796
	Cash Bond Release Mechanism	-17.977	3.538	-.100	-5.082	.000	.792	1.262
	Unsecured PTR Release Mechanism	-26.940	5.889	-.087	-4.575	.000	.845	1.184
	Detainee Violation of Probation	6.543	2.553	.047	2.563	.010	.912	1.096
	Total Number of Misdemeanor Charges Against Detainee	.506	.200	.044	2.531	.011	.993	1.007
10	(Constant)	36.527	3.655		9.993	.000		

Detainee Serving/Served Sentence	42.027	3.265	.334	12.873	.000	.450	2.222
Detainee Awaiting Trial	70.145	4.495	.312	15.606	.000	.760	1.316
Total Number of Felony Charges Against Detainee	3.728	.461	.146	8.079	.000	.931	1.075
Surety Bond Release Mechanism	-26.768	2.827	-.266	-9.468	.000	.383	2.613
Release on Recognizance	-25.515	3.474	-.172	-7.345	.000	.553	1.809
Cash Bond Release Mechanism	-17.557	3.536	-.097	-4.965	.000	.791	1.265
Unsecured PTR Release Mechanism	-26.542	5.882	-.085	-4.513	.000	.844	1.185
Detainee Violation of Probation	6.707	2.550	.048	2.630	.009	.912	1.097
Total Number of Misdemeanor Charges Against Detainee	.517	.199	.045	2.593	.010	.993	1.007
County Population Category	-1.392	.565	-.043	-2.462	.014	.972	1.029

a. Dependent Variable: Days in Detention by Detainee

Table 21

Multiple Correlation Coefficients by Model and the Amount of Variance Explained in the Model Based Upon the Stepwise Entry of Ten Final Independent Variables into Third-Stage Model Using Disaggregated and Ungrouped Data on Dependent Variable

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.520[a]	.271	.270	42.916
2	.678[b]	.460	.459	36.956
3	.694[c]	.482	.481	36.205
4	.701[d]	.491	.490	35.880
5	.708[e]	.501	.499	35.561
6	.712[f]	.506	.505	35.365
7	.716[g]	.513	.511	35.127
8	.718[h]	.515	.513	35.069
9	.719[i]	.517	.514	35.010
10	.720[j]	.519	.516	34.954

Model #1 Predictors: (Constant), Detainee Serving/Served Sentence

Model #2 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial

Model #3 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial, Total Number of Felony Charges Against Detainee

Model 4 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial, Total Number of Felony Charges Against Detainee, Surety Bond Release Mechanism

Model 5 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial, Total Number of Felony Charges Against Detainee, Surety Bond Release Mechanism, Release on Recognizance

Model 6 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial, Total Number of Felony Charges Against Detainee, Surety Bond Release Mechanism, Release on Recognizance, Cash Bond Release Mechanism

Model 7 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial, Total Number of Felony Charges Against Detainee, Surety Bond Release Mechanism, Release on Recognizance, Cash Bond Release Mechanism, Unsecured PTR Release Mechanism

Model 8 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial, Total Number of Felony Charges Against Detainee, Surety Bond Release Mechanism, Release on Recognizance, Cash Bond Release Mechanism, Unsecured PTR Release Mechanism, Detainee Violation of Probation

Model 9 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial, Total Number of Felony Charges Against Detainee, Surety Bond Release Mechanism, Release on Recognizance, Cash Bond Release Mechanism, Unsecured PTR Release Mechanism, Detainee Violation of Probation, Total Number of Misdemeanor Charges Against Detainee

Model 10 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial, Total Number of Felony Charges Against Detainee, Surety Bond Release Mechanism, Release on Recognizance, Cash Bond Release Mechanism, Unsecured PTR Release Mechanism, Detainee Violation of Probation, Total Number of Misdemeanor Charges Against Detainee, County Population Category

In addition to using ungrouped and disaggregated data on the dependent variable as was done in the first series of multiple regression models (Tables 17 – 21, inclusive), it is instructive to see

whether the substantive contents of the model changes if grouped or aggregated data are utilized. Accordingly, we have broken down the dependent variable, number of days in detention, into thirteen unique categories (see Table 15). Using the same general methodology from using ungrouped/disaggregated data, Table 22 shows the same basic content as far as the previous "first-stage" model is concerned.

Even though grouped data on the dependent variable is now being utilized, the problem of multicollinearity still persists in Table 22 with the same variables as initially identified – use of surety bond, the use of cash bond, the use of release on recognizance, or ROR, the number of release mechanisms pertaining to the pretrial release and the number of confinement mechanisms leading to detention. Table 22 also shows that the variable, Defendant Serving Sentence, was initially not included in the multiple regression model because of the low tolerance, ostensibly related to the problem of multicollinearity. As with the earlier model using ungrouped data on the dependent variable, the problem of multicollinearity disappeared after dropping the number of release mechanisms and the number of confinement mechanisms from the model. In addition, the variable of "Defendant Serving Sentence" was restored to the array or independent variables in the multiple regression model.

Table 22
Table of Unstandardized and Standardized Regression Coefficients[a,b] Significance Levels, and Collinearity Statistics on First-Stage Model Using Aggregated and Grouped Data on Dependent Variable (n=1,599)

Coefficients[a,b]

odel	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	3.941	.413		9.553	.000		
Sex of Detainee	-.224	.147	-.025	-1.526	.127	.979	1.021
Age of Detainee at Time of Booking	.009	.005	.031	1.876	.061	.982	1.018
Surety Bond Release Mechanism	-3.484	.575	-.457	-6.063	.000	**.046**	**21.785**
Cash Bond Release Mechanism	-2.990	.615	-.218	-4.860	.000	**.129**	**7.736**
Unsecured PTR Release Mechanism	-3.115	.682	-.132	-4.569	.000	.311	3.216
Release on Recognizance	-3.491	.598	-.309	-5.842	.000	**.093**	**10.770**
Detainee Awaiting Trial	.658	.319	.039	2.064	.039	.747	1.338
Detainee on Hold By Another Agency	-3.570	.316	-.239	-11.280	.000	.580	1.725
Detainee Awaiting Sentencing	-3.365	.545	-.114	-6.174	.000	.767	1.304
Detainee Awaiting Transport to Another Agency or Jurisdiction	-2.690	.417	-.130	-6.445	.000	.643	1.556
Detainee Violation of Probation	-2.932	.319	-.276	-9.207	.000	.290	3.444
Detainee Homeless	.337	.350	.016	.964	.335	.966	1.035
Total Number of Felony Charges Against Detainee	.268	.033	.138	8.207	.000	.923	1.083
Total Number of Misdemeanor Charges Against Detainee	.029	.014	.034	2.075	.038	.992	1.008
County Population Category	-.017	.040	-.007	-.416	.677	.955	1.047
Number of Different Release Mechanisms	1.333	.605	.184	2.201	.028	**.037**	**26.805**
Number of Different Confinement Mechanisms	3.686	.259	.735	14.247	.000	**.098**	**10.209**

a. Dependent Variable: Detention Days – Grouped

b. One variable, “Defendant Serving Sentence”, was initially left out of this model because of low tolerance ostensibly produced by the multicollinearity problem. The variable subsequently was restored to the model after the two multicollinear variables were removed.

Table 23 shows the results of the multiple regression model after removing the variables that were most heavily contributing to the multicollinearity dilemma. Table 23 indicates that a number of independent variables in the model are related to the number of days in detention in a statistically significant fashion. These include the following: cash bond, surety bond, unsecured pretrial program release, and release on recognizance as pretrial release mechanisms, whether the defendant was awaiting trial, serving a sentence, awaiting transport to another facility or jurisdiction, or was being held on a violation of probation charge. These are highlighted in yellow.

Table 23
Table of Unstandardized and Standardized Regression Coefficients, Significance Levels, and Collinearity Statistics for Second-Stage Model with Two Multicollinear Variables Removed Using Aggregated and Grouped Data on Dependent Variable
n = 1,599

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	4.168	.400		10.425	.000		
	Sex of Detainee	-.216	.147	-.024	-1.474	.141	.980	1.020
	Age of Detainee at Time of Booking	.009	.005	.030	1.815	.070	.983	1.017
	Surety Bond Release Mechanism	-2.320	.225	-.304	-10.299	.000	.299	3.339
	Cash Bond Release Mechanism	-1.761	.259	-.128	-6.808	.000	.733	1.364
	Unsecured PTR Release Mechanism	-1.946	.428	-.083	-4.544	.000	.789	1.267
	Release on Recognizance	-2.313	.266	-.205	-8.688	.000	.469	2.132

	Detainee Awaiting Trial	4.217	.326	.247	12.929	.000	.716	1.396
	Detainee on Hold By Another Agency	.025	.278	.002	.091	.927	.753	1.329
	Detainee Serving/Served Sentence	3.522	.248	.369	14.198	.000	.387	2.586
	Detainee Awaiting Sentencing	.288	.490	.010	.587	.557	.951	1.051
	Detainee Awaiting Transport to Another Agency or Jurisdiction	.929	.370	.045	2.512	.012	.821	1.218
	Detainee Violation of Probation	.727	.181	.068	4.021	.000	.903	1.107
	Detainee Homeless	.358	.350	.017	1.023	.306	.967	1.034
	Total Number of Felony Charges Against Detainee	.267	.033	.138	8.193	.000	.923	1.083
	Total Number of Misdemeanor Charges Against Detainee	.029	.014	.033	2.060	.040	.992	1.008
	County Population Category	-.027	.040	-.011	-.667	.505	.967	1.034

a. Dependent Variable: Detention Days - Grouped

Table 24 below shows the new multiple regression model after the variables that were *not* statistically significant were removed from the previous model. Thus, the only variables that remain in the model are statistically significant predictors of the number of days spent in detention when using grouped or aggregated data by category. These statistically significant predictors of number of days in detention include the following: release on surety bond, cash bond, release on unsecured pretrial release, and release on recognizance; whether the defendant was awaiting trial or serving sentence; whether the detainee was being held pending transportation to another jurisdiction or agency; whether the defendant was in detention because of a violation of probation; and finally, the total number of felony and misdemeanor charges filed against the defendant.

Table 24
Table of Unstandardized and Standardized Regression Coefficients, Significance Levels, and Collinearity Statistics for Second-Stage Model
Using Aggregated and Grouped Data on Dependent Variable
n = 1,599

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	4.122	.210		19.665	.000		
	Surety Bond Release Mechanism	-2.305	.211	-.302	-10.948	.000	.343	2.916
	Cash Bond Release Mechanism	-1.772	.253	-.129	-7.006	.000	.768	1.303
	Unsecured PTR Release Mechanism	-1.957	.420	-.083	-4.662	.000	.823	1.215
	Release on Recognizance	-2.303	.253	-.205	-9.103	.000	.518	1.931
	Detainee Awaiting Trial	4.313	.319	.252	13.498	.000	.747	1.338
	Detainee Serving/Served Sentence	3.593	.236	.376	15.253	.000	.429	2.329
	Detainee Awaiting Transport to Another Agency or Jurisdiction	1.001	.356	.048	2.809	.005	.885	1.130
	Detainee Violation of Probation	.694	.180	.065	3.858	.000	.911	1.098
	Total Number of Felony Charges Against Detainee	.262	.033	.135	8.066	.000	.931	1.074
	Total Number of Misdemeanor Charges Against Detainee	.028	.014	.033	2.026	.043	.993	1.007

a. Dependent Variable: Detention Days - Grouped

Table 25 shows the results of the multiple regression analysis when the variables entered in a step-by-step method. Entering the statistically significant independent variables in a stepwise fashion allows us to see which variables are being entered int the model, one by one. Table 25 below shows the following sequenced order of entry of one variable at a time into the third-stage multiple regression model. Because there were ten independent variables included into the model, this

required ten successive steps of variable entry, one variable at a time. Thus, Table 25 shows that the following variables were entered into the model in a sequential stepwise fashion, such that each successive step includes a new variable for that step coupled with all variables included on each previous step:

	Variable Entered into Model
Step 1	Defendant Serving Sentence
Step 2	Defendant Awaiting Trial
Step 3	Number of Felonies Filed Against Defendant
Step 4	Surety Bond for Pretrial Release
Step 5	Use of Release on Recognizance as Pretrial Release Mechanism
Step 6	Use of Cash Bond as Pretrial Release Mechanism
Step 7	Use of Unsecured PTR as Pretrial Release Mechanism
Step 8	Defendant Charged with a Violation of Probation
Step 9	Defendant Awaiting Transportation to Another Agency or Jurisdiction
Step 10	Number of Misdemeanors Filed Against Defendant

This sequence of stepwise entry in the regression model using grouped data on the dependent variable is only slightly different than the stepwise sequence when using ungrouped or disaggregated data for the dependent variable, number of days in detention. The first eight steps are identical between the two; the only difference being that in the second model, population category is no longer statistically significant, and is replaced by “defendant awaiting transportation” in the ninth position of entry followed by the “number of misdemeanors filed against the defendant.

Table 25
Table of Unstandardized and Standardized Regression Coefficients, Significance Levels, and Collinearity Statistics for Third-Stage Model Using Stepwise Method of Variable Entry Using Aggregated and Grouped Data on Dependent Variable
n = 1,599

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	2.760	.086		32.279	.000		
	Detainee Serving/Served Sentence	5.696	.192	.597	29.702	.000	1.000	1.000
2	(Constant)	2.353	.077		30.577	.000		
	Detainee Serving/Served Sentence	5.977	.168	.626	35.553	.000	.994	1.006
	Detainee Awaiting Trial	6.684	.301	.391	22.224	.000	.994	1.006
3	(Constant)	2.107	.081		25.987	.000		
	Detainee Serving/Served Sentence	5.836	.166	.611	35.256	.000	.984	1.016
	Detainee Awaiting Trial	6.136	.302	.359	20.322	.000	.946	1.057
	Total Number of Felony Charges Against Detainee	.284	.034	.146	8.268	.000	.945	1.058
4	(Constant)	2.787	.124		22.454	.000		
	Detainee Serving/Served Sentence	5.160	.188	.540	27.392	.000	.737	1.358
	Detainee Awaiting Trial	5.527	.309	.324	17.870	.000	.875	1.143

	Total Number of Felony Charges Against Detainee	.299	.034	.154	8.826	.000	.941	1.062
	Surety Bond Release Mechanism	-1.090	.152	-.143	-7.155	.000	.718	1.392
5	(Constant)	3.521	.158		22.228	.000		
	Detainee Serving/Served Sentence	4.453	.209	.466	21.275	.000	.578	1.731
	Detainee Awaiting Trial	4.918	.316	.288	15.579	.000	.813	1.230
	Total Number of Felony Charges Against Detainee	.294	.033	.152	8.826	.000	.941	1.063
	Surety Bond Release Mechanism	-1.784	.178	-.234	-10.041	.000	.511	1.955
	Release on Recognizance	-1.660	.228	-.147	-7.278	.000	.676	1.478
6	(Constant)	4.086	.177		23.123	.000		
	Detainee Serving/Served Sentence	3.926	.220	.411	17.818	.000	.507	1.973
	Detainee Awaiting Trial	4.470	.318	.262	14.056	.000	.779	1.284
	Total Number of Felony Charges Against Detainee	.277	.033	.143	8.407	.000	.936	1.069
	Surety Bond Release Mechanism	-2.219	.186	-.291	-11.906	.000	.452	2.213

	Release on Recognizance	-2.154	.236	-.191	-9.118	.000	.613	1.630
	Cash Bond Release Mechanism	-1.684	.246	-.123	-6.835	.000	.835	1.197
7	(Constant)	4.517	.192		23.510	.000		
	Detainee Serving/Served Sentence	3.518	.231	.368	15.241	.000	.454	2.204
	Detainee Awaiting Trial	4.204	.319	.246	13.180	.000	.761	1.315
	Total Number of Felony Charges Against Detainee	.268	.033	.138	8.183	.000	.933	1.072
	Surety Bond Release Mechanism	-2.607	.198	-.342	-13.171	.000	.393	2.542
	Release on Recognizance	-2.548	.245	-.226	-10.399	.000	.560	1.786
	Cash Bond Release Mechanism	-1.967	.250	-.144	-7.880	.000	.799	1.251
	Unsecured PTR Release Mechanism	-2.268	.416	-.096	-5.454	.000	.851	1.175
8	(Constant)	4.348	.197		22.092	.000		
	Detainee Serving/Served Sentence	3.473	.230	.364	15.084	.000	.452	2.210
	Detainee Awaiting Trial	4.214	.318	.247	13.264	.000	.760	1.315
	Total Number of Felony Charges Against Detainee	.267	.033	.138	8.209	.000	.933	1.072

	Surety Bond Release Mechanism	-2.489	.200	-.326	-12.455	.000	.383	2.610
	Release on Recognizance	-2.482	.245	-.220	-10.143	.000	.557	1.796
	Cash Bond Release Mechanism	-1.885	.250	-.137	-7.549	.000	.793	1.261
	Unsecured PTR Release Mechanism	-2.136	.416	-.091	-5.138	.000	.845	1.184
	Detainee Violation of Probation	.664	.180	.062	3.682	.000	.913	1.095
9	(Constant)	4.146	.209		19.792	.000		
	Detainee Serving/Served Sentence	3.616	.236	.379	15.354	.000	.430	2.323
	Detainee Awaiting Trial	4.328	.320	.253	13.538	.000	.748	1.337
	Total Number of Felony Charges Against Detainee	.265	.033	.137	8.157	.000	.933	1.072
	Surety Bond Release Mechanism	-2.300	.211	-.302	-10.914	.000	.343	2.916
	Release on Recognizance	-2.297	.253	-.204	-9.068	.000	.518	1.931
	Cash Bond Release Mechanism	-1.761	.253	-.128	-6.955	.000	.768	1.302
	Unsecured PTR Release Mechanism	-1.951	.420	-.083	-4.642	.000	.823	1.214
	Detainee Violation of Probation	.685	.180	.064	3.803	.000	.911	1.097

	Detainee Awaiting Transport to Another Agency or Jurisdiction	.987	.357	.048	2.768	.006	.885	1.130
10	(Constant)	4.122	.210		19.665	.000		
	Detainee Serving/Served Sentence	3.593	.236	.376	15.253	.000	.429	2.329
	Detainee Awaiting Trial	4.313	.319	.252	13.498	.000	.747	1.338
	Total Number of Felony Charges Against Detainee	.262	.033	.135	8.066	.000	.931	1.074
	Surety Bond Release Mechanism	-2.305	.211	-.302	-10.948	.000	.343	2.916
	Release on Recognizance	-2.303	.253	-.205	-9.103	.000	.518	1.931
	Cash Bond Release Mechanism	-1.772	.253	-.129	-7.006	.000	.768	1.303
	Unsecured PTR Release Mechanism	-1.957	.420	-.083	-4.662	.000	.823	1.215
	Detainee Violation of Probation	.694	.180	.065	3.858	.000	.911	1.098
	Detainee Awaiting Transport to Another Agency or Jurisdiction	1.001	.356	.048	2.809	.005	.885	1.130

	Total Number of Misdemeanor Charges Against Detainee	.028	.014	.033	2.026	.043	.993	1.007

a. Dependent Variable: Days in Detention by Detainee

Based upon the sequence of entry of all the variables entered in a step-by-step method, Table 26 shows the sequential increases in the value of the multiple correlation (R), the explained variance (R-squared), the adjusted R squared value adjusted for shrinkage, and the standard error of the estimate. Table 26 shows that the multiple correlation (R) increases in value from .597 at step one when the first variable (detainee serving sentence) is entered into the model to .765 at step ten when the last variable (total number of misdemeanor charges) is entered into the regression model.

Table 26
Multiple Correlation Coefficients by Model and the Amount of Variance Explained in the Model Based Upon the Stepwise Entry of Ten Final Independent Variables into Third-Stage Model Using Aggregated and Grouped Data on Dependent Variable

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.597[a]	.356	.355	3.061
2	.713[b]	.508	.507	2.676
3	.727[c]	.528	.527	2.621
4	.737[d]	.543	.542	2.580
5	.747[e]	.558	.556	2.539
6	.755[f]	.570	.569	2.504
7	.760[g]	.578	.576	2.481
8	.763[h]	.582	.580	2.472
9	.764[i]	.584	.581	2.467
10	.765[j]	.585	.582	2.464

Model 1 Predictors: (Constant), Detainee Serving/Served Sentence

Model 2 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial

Model 3 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial, Total Number of Felony Charges Against Detainee

Model 4 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial, Total Number of Felony Charges Against Detainee, Surety Bond Release Mechanism

Model 5 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial, Total Number of Felony Charges Against Detainee, Surety Bond Release Mechanism, Release on Recognizance

Model 6 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial, Total Number of Felony Charges Against Detainee, Surety Bond Release Mechanism, Release on Recognizance, Cash Bond Release Mechanism

Model 7 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial, Total Number of Felony Charges Against Detainee, Surety Bond Release Mechanism, Release on Recognizance, Cash Bond Release Mechanism, Unsecured PTR Release Mechanism

Model 8 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial, Total Number of Felony Charges Against Detainee, Surety Bond Release Mechanism, Release on Recognizance, Cash Bond Release Mechanism, Unsecured PTR Release Mechanism, Detainee Violation of Probation

Model 9 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial, Total Number of Felony Charges Against Detainee, Surety Bond Release Mechanism, Release on Recognizance, Cash Bond Release Mechanism, Unsecured PTR Release Mechanism, Detainee Violation of Probation, Detainee Awaiting Transport to Another Agency or Jurisdiction

Model 10 Predictors: (Constant), Detainee Serving/Served Sentence, Detainee Awaiting Trial, Total Number of Felony Charges Against Detainee, Surety Bond Release Mechanism, Release on Recognizance, Cash Bond Release Mechanism, Unsecured PTR Release Mechanism, Detainee Violation of Probation, Detainee Awaiting Transport to Another Agency or Jurisdiction, Total Number of Misdemeanor Charges Against Detainee

Defendants in Prolonged Detention - Who Are They?

The definition of the term, prolonged, is relative. In this study, instead of looking at the term in terms of an absolute definition, it was determined to be more prudent to break down the number

of days of detention into three unique categories: less than or equal to 28 days, 28 days to 99 days, and 100 or more days in detention. Comparing these three different panels of data based upon incremental time spent in detention might reveal differences on the variables included in this study, especially when compared to the measurements of the same variables as far as the *overall* sample is concerned.

Table 27 shows the differences in measures on study variables based upon three different intervals of time spent in detention: 28 days or less, between 29 and 99 days, and greater than or equal to 100 days. Although these data do overall suggest a remarkable degree of proportional consistency on several measures (proportion of male defendants, age at booking, homelessness, and proportion of population that is nonwhite), there are also some rather striking similarities amongst several variables, particularly as one moves from one time spent in custody interval to the next.

For example, Table 27 illustrates that moving through the three different confinement categories (from left to right), there is a proportionate *increase* in cases from one level to another on the amount of time spent awaiting trial, the amount of time spent on some type of "hold", the amount of time awaiting transportation to another facility or jurisdiction, and the amount of time spent in detention on a violation of probation, and the average amount of time spent in detention (both mean and median). In addition, there were observable increases in the number of detainees in the categories of all four felony categories (1, 2, 3 and 4+ felonies), no misdemeanors and four misdemeanor charges, the average total for the total bail amounts for total charges, all felony charges, and all misdemeanor charges, the proportion of the sample that is nonwhite, the population of the county in which the defendant resides (less than 500,000 persons), and the proportion of defendants that are confined.

Table 27
Statistical Profile Based on Frequency of Critical Study Variables
Broken Down the Three Different Levels of Time Spent in Detention

Variable	Category 1 28 Days or Less		Category 2 29 – 99 Days		Category 3 100 + Days		Totals Overall Sample	
	Percents	Cases	Percents	Cases	Percents	Cases	Percents	Cases
Number of Cases	73.9%	(1,181)	13.6%	(218)	12.5%	(200)	100.0%	(1,599)
Male Defendant	75.2 %	(888)	74.3%	(162)	86.5%	(173)	76.5%	(1,223)
Age at Booking	37.0		38.4		38.6		37.4	
Surety Bond	51.8%	(612)	11.5%	(25)	2.5%	(5)	40.2	(642)
Cash Bond	9.5%	(112)	1.8%	(4)	0%	(0)	7.2%	(116)
Unsecured Pretrial Release	3.0%	(35)	1.4%	(3)	0%	(0)	2.4%	(38)
Release on Recognizance	13.8	(163)	5.0%	(11)	0%	(0)	10.0%	(174)
Charges Dropped	1.0%	(12)	2.8%	(6)	0%	(0)	1.1%	(18)
Awaiting Trial	0.4%	(5)	2.8%	(6)	16.5%	(33)	2.8%	(44)
Agency Hold on Defendant	3.0%	(36)	3.7%	(8)	6.0%	(12)	3.5%	(56)
Serving Sentence	4.7%	(55)	35.3%	(77)	33.5	(67)	12.4%	(199)
Awaiting Sentencing	1.0%	(12)	3.7%	(8)	2.0%	(4)	1.5%	(24)
Transportation to Another Facility	1.7%	(20)	4.6%	(10)	7.5%	(15)	2.8%	(45)
Violation of Probation	10.1%	(119)	27.5%	(60)	32.0%	(64)	15.2%	(243)
Homeless	2.6%	(31)	7.3%	(16)	3.0%	(6)	3.3%	(53)
3 or Fewer Charges	89.4%	(1,056)	79.8%	(174)	66.0%	(132)	85.2%	(1,362)
No Felony Charges	54.4%	(643)	38.5%	(74)	11.5%	(23)	46.9%	(750)
1 Felony Charge	30.5%	(360)	37.6%	(82)	39.5%	(79)	32.6%	(521)

2 Felony Charges	8.0%	(94)	8.3%	(18)	21.0%	(42)	9.6%	(154)
3 Felony Charges	3.5%	(41)	4.1%	(9)	7.5%	(15)	4.1%	(65)
4 or More Felony Charges	3.6%	(43)	11.8%	(25)	20.5%	(41)	6.8%	(109)
No Misdemeanor Charges	27.5%	(325)	31.7%	(69)	48.5%	(97)	30.7%	(491)
1 Misdemeanor Charge	53.2%	(628)	38.5%	(84)	20.5%	(41)	47.1%	(753)
2 Misdemeanor Charges	12.1%	(143)	14.2%	(31)	13.5%	(27)	12.6%	(201)
3 Misdemeanor Charges	3.6%	(42)	9.2%	(20)	6.5%	(13)	4.7%	(75)
4 or More Misdemeanor Charges	3.6%	(43)	6.4%	(14)	11.0%	(22)	4.9%	(79)
Total Average (Mean) Bond – All Charges	$3,916		$7,104		$46,754		$9,712	
Total Average (Mean) Bond – All Felony Charges	$3,169		$6,079		$12,221		$5,186	
Total Average (Mean) Bond – All Misdemeanor Charges	$704		$925		$1,349		$814	
Average Days in Detention	Mean = 5.05 Median = 2.0		Mean = 53.75 Median = 48.5		Mean = 149.72 Median = 144		Mean = 29.73 Median = 3.0	
Proportion Nonwhite Defendants	38.6%	(456)	39.0%	(85)	41.5%	(83)	39.0%	(624)
Defendant from County with Unsecured PTR	77.6%	(916)	28.0%	(170)	70.0%	(140)	76.7%	(1,226)
Defendant on Secure Release	65.5%	(774)	19.7%	(43)	3.5%	(7)	76.7%	(824)
County Population Over 500,000 Persons	69.1%	(816)	68.8%	(150)	60.5%	(121)	68.0%	(1,087)
County Population Less Than 500,000 Persons	30.9%	(365)	31.2%	(68)	39.5%	(79)	32.0%	(512)
Percentage Defendants Released	79.1%	(934)	22.5%	(49)	2.5%	(5)	61.8%	(988)
Percentage Defendants Confined	20.9%	(247)	77.5%	(169)	97.5%	(195)	38.2%	(611)

Table 27 also shows that as one moves from one category to another (from left to right) in terms of time spent in detention, there is a proportional *decrease* in several other variables in the

study. These variables include the proportion of overall cases in each confinement category as well as the proportion of cases involving: the use of all forms of pretrial release mechanisms (surety bond, cash bond, unsecured pretrial release programs, and release on recognizance), the defendant having three or fewer charges, the defendant having no felony charges or one misdemeanor charge, the defendant being released on some type of secured pretrial release mechanism, and the county in which the defendant was arrested having a population of over 500,000 persons.

Finally, several variables in Table 27 showed a mixed trend from one confinement category to the next. There were six variables wherein the *highest* proportion of cases were in category 2, where confinement was between 29 and 99 days. These variables include: the proportion of cases where the charges were dropped or dismissed, time spent in confinement serving sentences or awaiting sentencing, the proportion of cases with two or three misdemeanors, and whether the defendant was homeless. One variable, in fact, showed the *lowest* proportion of cases in Category 2: whether the detainee was from a county that had an unsecured pretrial release program and whether the defendant was male.

Table 28 displays a rank-ordered listing of counties in the state of Florida with the highest percentage of detainees in each of the three confinement categories. Except for a few minor exceptions, the three separate lists show rather similar results from one time in detention category to the next at the 75^{th} percentile of cases.

Of the 913 cases in Category 1 of time spent in detention, five counties – Hillsborough (15%), Pinellas (13%), Palm Beach (10.7%), Polk (9.8%), and Brevard (8.1%) counties – accounted for slightly more than fifty percent of cases in this confinement category. A moderately different picture emerges in Category 2. Of the 218 cases in this category, Hillsborough (18.3%), Polk (14.7%), Pinellas (11.9%), and Lee (6.4%) counties accounted for just over fifty percent of the cases.

Finally, in Category 3, yet another picture emerges. Of the 200 cases in this confinement category, five different counties – Polk (19.5%), Hillsborough (10.5%), Hernando (9.5%), Lee (7.0%), and Pasco (6.5%) counties – accounted for slightly more than 50 percent of the cases.

Overall, Table 28 further shows that when looking at all three categories of time spent in detention, Hillsborough, Pinellas, and Polk counties appear in the "top five" three times each; Palm Beach, Pasco, and Lee counties appear in the "top five" twice; and Brevard and Hernando appear in the "top five" one time each.

Table 28
Rank-Ordered Listing of Counties with Highest Percentages of Detainees in Three Categories of Time Spent in Detention that Surpasses the 75th Percentile of All Cases in a Specific Time in Detention Category

Category 1 **28 Days or Less in Detention (n=1,181 Cases)**		**Category 2** **29 Days – 99 Days in Detention (n = 218 Cases)**		**Category 3** **100 + Days in Detention (n = 200 Cases)**	
Hillsborough		Hillsborough		Polk	
15%	177 Cases	18.3%	40 Cases	19.5%	39 Cases
Pinellas		Polk		Hillsborough	
13%	154 Cases	14.7%	32 Cases	10.5%	21 Cases
Palm Beach		Pinellas		Hernando	
10.7%	126 Cases	11.9%	26 Cases	9.5%	19 Cases
Polk		Lee		Lee	
9.8%	116 Cases	6.4%	14 Cases	7.0%	14 Cases
Brevard		Pasco		Pasco	
8.1%	96 Cases	6.0%	13 Cases	6.5%	13 Cases
Lee		Palm Beach		Pinellas	
7.0%	83 Cases	6.0%	13 Cases	6.5%	13 Cases
Pasco		Brevard		Manatee	
5.4%	64 Cases	5.5%	12 Cases	5.5%	11 Cases
Lake		Manatee		Broward	
5.0%	59 Cases	4.1%	9 Cases	5.5%	11 Cases
St. John's		Escambia		Palm Beach	
3.2%	38 Cases	3.7%	7 Cases	5.0%	10 Cases
TOTALS		**TOTALS**		**TOTALS**	
77.3%	**913 Cases**	**76.1%**	**166 Cases**	**75.5%**	**151 Cases**

22.7% 268 Cases	**23.9% 52 Cases**	**24.5% 49 Cases**

Examining the data from both Table 27 and Table 28 allows one to obtain a clearer picture of who the detainees are that are in each of the "time in detention" categories. For example, a detainee in Category 1 (28 days or less in detention) is a male, around 37 years of age, and has utilized either surety bonding or release on recognizance is the primary method of pretrial release on fewer than three charges. Furthermore, the detainee had around a ten percent chance of being confined on a violation of probation charge. This defendant had just over a fifty percent chance of having either no felony charges or thirty percent chance of having one felony charge. Alternatively, this detainee had around a thirty percent chance of no misdemeanor charges but over a fifty percent chance of having one misdemeanor charge. Average (mean) total bond for a Category 1 detainee is around $4,000 while the average (mean) felony bond is $3,200. The average (mean) bond for a misdemeanor is roughly $700 for a detainee in this category. Finally, a Category I detainee spends an average (mean) of 5.05 days in jail (median = 2 days) and is arrested and booked into a county detention facility that has a county population greater than 500,00 persons. A Category 1 detainee is four times as likely to be released as he/she is confined.

As far as a Category 2 level of confinement is concerned, the detainee is a male, typically around 38.4 years of age, and if released, has utilized surety bonding as a pretrial release mechanism. However, if confined, the detainee is probably either serving a sentence or is awaiting sentencing. Furthermore, a Category 2 level detainee has around a 25% likelihood of being confined on a violation of probation charge. Even in this time in detention category, the detainee has roughly an 80 percent likelihood of having 3 or fewer charges but a nearly 40 percent likelihood that one of the charges is a felony or one of the charges is a misdemeanor. The average (mean) bond for a detainee

in Category 2 is around $7,100 for all total charges, nearly $6,100 for all felony charges, and around $925 for all misdemeanor charges. In addition, a detainee in this category spends an average (mean) number of 53.5 days in detention (median = 48.5 days). Finally, the detainee has around a 75 percent likelihood of being arrested and booked in a county that does not have an unsecured pretrial release program in operation. At the same time, that county has a 2-1 chance of having a county population of greater than 500,00 persons. Finally, a detainee in this detention is 3.5 times as likely to be confined as he/she is released.

Turning to Category 3, a detainee in this category is again a male, around 38.6 years of age. The detainee in this category has less than a 20 percent chance of awaiting trial but a nearly 40 percent chance of either serving a sentence or awaiting a sentence being imposed. A detainee in this category is nearly three times as likely to be charged with a violation of probation than is a detainee in Category 1. A detainee in this category has a 60 percent chance of being charged with one or two felonies but a lower chance of misdemeanor charges (around 50 percent). In this category, the average (mean) total bond across all charge categories is around $47,000 while the average (mean) bond for all felony charges is $12,200. The average bond for all misdemeanor charges is $1,350. The average (mean) mount of spent in detention is 149.72 days (median = 144) per detainee. In this time in detention category, the defendant has about a 70 percent chance of being from a county with an unsecured pretrial release program in operation. Furthermore, the county in which the detained has been charged and booked is more likely than not to have a population that exceeds 500,000 persons. Finally, in this time in detention category, there is a 97.5 percent chance that the defendant will be confined in detention. No release mechanism other than surety bonding was documented as being used as a method of pretrial release.

DISCUSSION AND CONCLUSIONS

The major focus of this research attempted to determine whether there were any statistically significant predictors associated with the number of days in detention, and if so, whether these predictors were *legal*- or *extra-legal* criteria.

There were several conclusions that were derived from the analysis of 1,599 cases across the state of Florida during a three-month time period from June 1, 2021 through August 31, 2021. These data were compiled from twenty-eight counties in the state whose jails had online search and query engines wherein it could be determined how long the defendant was in detention and the mechanism by which the defendants were released or placed in some type of confinement status.

Release mechanisms included unsecured pretrial release or secured pretrial release in the form of some type of financial surety. Specific types of release mechanisms include cash bond, surety bond, unsecured pretrial release program participation, release on recognizance (ROR), and charges being dropped against the defendant. *Confinement statuses* included defendants serving sentences, defendants awaiting trial, defendants awaiting sentencing, defendant on some type of judicial "hold", defendant awaiting transportation to another facility or jurisdiction, or the defendant being charged with a violation of probation (VOP).

Of the 988 cases for which defendants were on pretrial release status, nearly two-thirds (642) of all cases on pretrial release status availed themselves of surety bonding. Cash bonding accounted for another 11.7 of the cases (116). Accordingly, 76.7 percent of those defendants on pretrial release were on some type of secured pretrial release. Unsecured pretrial release mechanisms were utilized by 21.5 percent of the defendants, while another 1.8 percent of the defendants had their charges dropped in accordance with some type of judicial process (no true bill filed, no indictment returned, *nolle prosequi*).

Of those 611 cases where detainees were in some type of confinement status, roughly 33 percent (32.5%) were serving sentences while almost forty percent had been charged with a violation of probation (39.8%). The remaining 28 percent of those in confinement were either awaiting trial (7.2%), on some type of hold (9.2%), awaiting sentencing (3.9%), or awaiting transportation to another jurisdiction or state facility (7.4%).

Overall, nearly two-thirds of the entire sample spent from between one and fourteen days in jail, while just over fifty percent (51.9%) of the sample spent between one and three days in pretrial confinement. The data also indicated that while there were differences between the amount of time spent in detention for those defendants released on a surety bond as opposed to release to an unsecured pretrial release program, the differences between the means for these two groups were not statistically significant.

However, when it comes to the question of defendants in prolonged detention, the data indicate that there were 200 cases out of the 1,599 included in the sample that were in detention for over 100 days. The reason for these defendants' confinement were violation of probation (32%, 64 cases), awaiting trial (16.5%, 33 cases), serving or awaiting sentencing (35.5%, 71 cases), awaiting transportation to an outside facility or jurisdiction (7.5%, 15 cases), and defendants who were on some type of a judicial or administration hold (2.5%, 12 cases). Only 2.5 percent of the defendants in this category of time spent in detention were in confinement for over 100 days but ultimately released on a surety bond. In addition, there were six different counties that accounted for nearly 60 percent of the cases that were in confinement for 100 days or more. These include Polk (19.5%), Hillsborough (10.5%), Hernando (9.5%), Lee (7.0%), and Pasco and Pinellas 6.5% each).

If one looks at the category of time spent in detention between 29 and 99 days, there are six different counties that account for just slightly more than 60 percent of the 218 cases in this

category. These include the counties of Hillsborough (18.3%, 40 cases), Polk (14.7%, 32 cases), Pinellas (11.9%, 26 cases), Lee (6.4%, 14 cases), Pasco (6.0%, 13 cases), and Palm Beach (6.0%, 13 cases).

What these data indicate is that there is a disproportionate concentration of detainees in several of the counties when it comes to the question of prolonged detention regardless of whether "prolonged detention" is conceptualized as being between "29 and 99 days", or greater than or equal to 100 days. When taken in the aggregate, four counties – Hillsborough. Polk, Pinellas, and Pasco – account for roughly sixty percent of the detainees in long term detention regardless of which indicator of "prolonged detention" is considered. It should be noted that of those four counties, three of them – Hillsborough, Polk, and Pinellas – have active and ongoing unsecured pretrial release programs. So the question really becomes this - if these defendants were truly languishing in jail simply and solely because of a lack of financial resources for obtaining a cash or surety bond, why weren't they simply accepted by the unsecured pretrial release program in that county for release from pretrial detention? Why were they not released on their own recognizance?

In point of fact, the argument that vast numbers of defendants are locked up in pretrial detention on the basis of a single criterion – because they cannot financially afford a cash bond or surety bond – is grossly overstated and has no systematic evidence to substantiate that claim. These detainees are in prolonged confinement, not because of their age, their sex, or their ethnicity, or because they're homeless. These detainees are in detention because of the number and type of charges filed against them, because they have committed a violation of probation, because there is an administrative hold on them, or because they are awaiting trial on serious charges. They are in prolonged detention because they are a "bad risk" for pretrial release or have a number of risk factors that make it virtually impossible for them to get released using either secured or unsecured

mechanisms for pretrial release. In other words, the data indicate there are a multitude of reasons why these detainees *are in prolonged detention for reasons other than simply that they allegedly cannot afford the cost of a cash bond or a surety bond.*

In terms of the two different multiple regression models utilized in the analysis, there were ten different variables that had a statistically significant impact on the number of days spent in confinement. In both models, regardless of whether the values on the dependent variable were grouped or ungrouped, *the same nine variables were included in both models*. These variables included: the use of surety bond, cash bond, unsecured pretrial release program, or release on recognizance, whether the defendant was charged with a violation of probation (VOP), whether the defendant was awaiting trial or serving a sentence, and the number of felonies or misdemeanors for which the detainee had been charged. Only one of two variables were included in one model but not on the other (population category of the county in which the defendant was booked and whether the detainee was awaiting transportation to an outside facility or jurisdiction).

Overall, the results that were obtained as a part of this research are certainly not groundbreaking. In fact, these results are 'remarkably unremarkable' to the extent that *they have confirmed that which we already knew, especially when it comes to the issue of the 'prolonged languishing in detention' hypothesis allegedly being experienced by large numbers of defendants. The data from this research simply do not support that contention*.

In an ideal sense, it would have been preferable to have data from all Florida counties, and not just those with online search engines that may be routinely used by the general public. A more inclusive study with wider breath from across the state from all the counties in Florida using a more expansive dataset with additional variables would go an even further distance in resolving this public policy question within the realm of the criminal justice arena.

One additional factor cannot be ignored, and that has to do with the impact of COVID-19 on the criminal justice system. In the age of COVID, one simple truth remains – *justice is slow.* According to Robert Lewis of *CalMatters*, "No one knows how many thousands of cases have been caught in the pandemic backlog. But the delays mean that many people across the state are staying behind bars for longer, waiting for lawsuits to settle, fighting for child support, battling criminal charges and, generally, struggling to get justice during the worst pandemic and economic downturn of the past century" (Lewis, 2021). https://calmatters.org/justice/2021/01/justice-courts-overwhelmed-pandemic/

Absent a predetermined and stable response to the pandemic as far as the criminal justice system was concerned, and ostensibly due to the uncertainty associated with the high transmissibility of the virus, the government was stirred to action at its highest levels. Published in September, 2021, after the data collection for this project had been completed, *"Access to Justice in the Age of COVID-19"* laid out a series of steps that could be used as mitigation strategies to ensure that the criminal justice system would continue to operate smoothly in the face of an unrelenting pandemic. The report argues:

> "While the pandemic exacerbated structural inadequacies in the civil justice system, it nearly crippled the criminal justice system, which was foundationally unprepared for the pandemic's impact. This is in part because so many criminal justice interactions – from law enforcement to court proceedings to incarceration – involve close physical interaction and little room for delay" (Legal Aid Interagency Roundtable, 2021:21).

Furthermore, when it came to the effects of the pandemic, the report was even more prescient, stating:

> "While the pandemic had a widespread impact on an already-burdened civil court system, by many accounts, the criminal legal system was even harder hit by the COVID-19 pandemic. There are over 2 million people incarcerated in the United States in crowded and congregate jails, prisons, and detention centers – environments that are highly susceptible to rapid spread of the virus. Meanwhile, court closures halted trials and other proceedings and temporarily eliminated statutory deadlines. Meaningful access to counsel was cut off for many defendants

due to restrictions on visitation and communication" (Legal Aid Interagency Roundtable, 2021:38).

Under current circumstances and collateral consequences associated with the pandemic, it is virtually impossible to reliably estimate in any meaningful quantitative fashion what net effect COVID-19 has had on criminal justice case processing functions. However, it seems reasonable to argue that COVID-19 has had a cumulative flow-through effect throughout the criminal justice system such that a time delay at "hypothetical point 1" in the system will inevitably produce a future delay at "hypothetical point 2", and so on down the line.

The net effect of a time lag as a direct function of COVID cannot be underestimated. In fact. comparing the results of this research to the results of a study by Krahl (2019), the prior research found that in 2019, defendants spent, on average, 1.99 days in detention waiting to be released on a surety bond, and 2.12 days in detention waiting to be admitted into an unsecured pretrial release program. In the current study, however, Krahl (2022) find that the average time in detention in 2021 waiting to obtain a surety bond was 6.85 days, while the time spent in detention awaiting admission to an unsecured pretrial release program in Florida was 8.45 days. This means that when comparing the current data in 2021 to the data from 2019, it took defendants, on average, 3.5 times longer to obtain a surety bond in 2021 than it did in 2019. Furthermore, in 2021, it took defendants, on average, almost four times as long to gain admission to an unsecured pretrial release program than it did in 2019.

Perhaps the order of magnitude when it comes to time differences between 2019 and 2021 results could be attributed to the fact that the sample utilized in the Krahl (2019) study was a much broader based sample that included data from an entire calendar year from October 1, 2017 through September 30, 2018. Accordingly, the sampling procedures in Krahl (2019) generated a total sample of 9,347 unduplicated cases for analysis in that research. In contrast, however, the current study

utilizes a sampling period of only 92 days, roughly corresponding to a three-month period, and has included within it a sample of 1,599 unduplicated cases. This 2021 sample size is 17 percent as large as the sample size utilized in the 2019 research.

In conclusion, and for whatever reason, the pandemic has done a lot to slow things down as far as cases moving through the criminal justice system are concerned. Certainly, the effect of time cannot be underestimated when it comes to the administration of justice. According to William Gladstone, former Prime Minister of Great Britain, "Justice delayed is justice denied." The same precept was articulated by Rev. Martin Luther King, Jr. in his now-famous "Letter from Birmingham Jail." Indeed, while time may be relative, according to Albert Einstein, it certainly does matter; and when it comes to the administration of justice, it matters a lot.

Unfortunately, under COVID, justice seems certainly to be taking its time.

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