

## TOWARD AN OPTIMAL BAIL SYSTEM

*Few decisions in the criminal justice process are as consequential as the determination of bail. Indeed, recent empirical research finds that pre-trial detention imposes substantial long-term costs on defendants and society. Defendants who are detained before trial are more likely to plead guilty, less likely to be employed, and less likely to access social safety net programs for several years after arrest. Spurred in part by these concerns, critics of the bail system have urged numerous jurisdictions to adopt bail reforms, which have led to growing momentum for a large-scale transformation of the bail system. Yet supporters of the current system counter that pre-trial detention reduces flight and pre-trial crime--recognized benefits to society--by incapacitating defendants. Despite empirical evidence in support of both positions, however, advocates and critics of the current bail system have generally ignored the real trade-offs associated with detention.*

*This Article provides a broad conceptual framework for how policymakers can design a better bail system by weighing both the costs and benefits of pre-trial detention--trade-offs that are historically grounded in law, but often disregarded in practice. I begin by presenting a simple taxonomy of the major categories of costs and benefits that stem from pre-trial detention. Building from this taxonomy, I conduct a partial cost-benefit analysis that incorporates the existing evidence, finding that the current state of pre-trial detention is generating large social losses. Next, I formally present a framework that accounts for heterogeneity in both costs and benefits across defendants, illustrating that detention on the basis of "risk" alone can lead to socially suboptimal outcomes.*

*In the next part of the Article, I present new empirical evidence showing that a cost-benefit framework has the potential to improve accuracy and equity in bail decision-making, where currently bail judges are left to their own heuristics and biases. Using data on criminal defendants and bail judges in two urban jurisdictions, and exploiting variation from the random assignment of cases to judges, I find significant judge differences in pre-trial release rates, the assignment of money bail, and racial gaps in release rates. While there are any number of reasons why judges within the same jurisdiction may vary in their bail decisions, these results indicate that judges may not be all setting bail at the socially optimal level.*

*The conceptual framework developed in this Article also sheds light on the ability of recent bail reforms to increase social welfare. While the empirical evidence is scant, electronic monitoring holds promise as a welfare-enhancing alternative to pre-trial detention. In contrast, application of the conceptual framework cautions against the expanding use of risk-assessment instruments. These instruments, by recommending the detention of high-risk defendants, overlook the possibility that these high-risk defendants may also be "high-harm" such that they are most adversely affected by a stay in jail. Instead, I recommend that jurisdictions develop "net benefit" assessment instruments by predicting both risk and harm for each defendant in order to move closer toward a bail system that maximizes social*

*welfare.*

## II CLASSIFYING THE COSTS AND BENEFITS OF PRE-TRIAL DETENTION

Designing the optimal bail system requires a social planner to balance both the total costs of detention and the total benefits of detention. As described previously, some of these costs and benefits are already accounted for in the explicitly-stated objectives of most bail statutes. As stated previously, the bail system in most jurisdictions has three main objectives: (1) to release as many defendants as possible before trial to ensure that there is no infliction of punishment prior to conviction, while (2) minimizing pre-trial flight and (3) protecting the community from danger.<sup>73</sup> These objectives present competing trade-offs that would naturally arise from a utilitarian framework. For example, as this Section will demonstrate, releasing more defendants prior to trial lowers the private and social costs of pre-trial detention. Fewer defendants face a loss of freedom and fewer lose their jobs either in the short- or long-run. On the other hand, releasing more defendants increases the risk of flight, which may drain court resources and dampen deterrence if fugitives are not apprehended. Similarly, releasing more defendants increases the risk of harm and fear to victims and the community at large.

In this Section, I provide a taxonomy of the major categories of costs and benefits that a social planner would consider in order to maximize social welfare. While I categorize these costs and benefits in terms of the pre-trial detention versus release decision, a very similar taxonomy could be applied to assess other decisions, such as the imposition of money bail. I am agnostic as to which costs and benefits a policymaker in a specific jurisdiction may choose to include, as some may be impractical for policy reasons and others may be invalid for legal reasons. Nonetheless, I include all first-order costs and benefits to provide a frame of reference.

Within each category, I also describe and evaluate the existing empirical evidence on the magnitude of each cost and benefit of pretrial detention, which are critical inputs in any cost-benefit analysis. As will be demonstrated below, there are gaps in knowledge where the literature has not thus far yielded rigorous estimates. Nevertheless, I show through a partial cost-benefit analysis that this current state of research already provides useful information to bail judges and policymakers.

### *A. Private and Social Costs of Pre-trial Detention*

The private costs of pre-trial detention encompass costs borne by the individual defendant, while social costs include costs borne by individuals other than the defendant, such as taxpayers, families, and communities. The private and social costs of pre-trial detention fall into five main categories: loss of freedom, wrongful conviction, future costs associated with the collateral consequences of detention, externalities on other members of society, and finally the administrative costs of jails.<sup>74</sup>

#### *1. Loss of Freedom*

Pre-trial detention imposes a loss of freedom on criminal defendants for the time spent incarcerated. The costs of this loss of freedom includes earnings lost while in detention, the psychic and mental costs of

being physically incapacitated, and the risk of injury or death to defendants held in jail.<sup>75</sup>

It is important to note that the degree to which the loss of freedom due to *pre-trial* detention should be incorporated into a cost-benefit analysis may depend on the time spent in *post-trial* incarceration. Specifically, a subset of defendants would serve no additional time but for pre-trial detention (e.g. defendants who have their cases dismissed or who are sentenced to probation) such that the time spent in pre-trial detention and the related loss of freedom is fully borne as a private cost. In contrast, another subset of defendants may serve additional time in prison regardless of pre-trial detention such that the time spent in pre-trial detention is merely shifted forward in time if they receive credit for time served.<sup>76</sup> For these defendants, pre-trial detention may impose no additional private costs if pre-trial detention and post-trial incarceration are perfect substitutes.<sup>77</sup> As a result, a policymaker assessing the broader general equilibrium effects of pretrial detention may choose to account for this possibility of substitution by analyzing both pre- and post-trial periods of incarceration. Specifically, a policymaker needs to ascertain the causal effect of pretrial detention not just on the number of days detained *pre-trial* but also on the *total* number of days incarcerated (pre-trial and post-trial). . .

## 2. Wrongful Conviction

As described previously, to the extent that some individuals would not have been convicted and/or incarcerated had they been released, pre-trial detention may increase the risk of wrongful convictions and wrongful case outcomes, such as receiving a more severe sanction than warranted on the basis of the evidence.<sup>86</sup>

Wrongful convictions caused by pre-trial detention may reduce social welfare for several primary reasons. First, the possibility of being wrongfully convicted as a result of detention may reduce the willingness of certain members of society to engage in innocent, socially-beneficial activity. Second, as will be described further below, pre-trial detention may yield a social benefit of deterring crime, but this deterrence value is limited to the extent that some individuals may be punished even if they do not commit an actual crime. Third, fear of wrongful convictions may perpetuate a distrust of the legal system, breeding disrespect for legal institutions in a way that can lead to lack of compliance with the law and lack of cooperation with law enforcement in identifying criminals and fighting crime.<sup>87</sup>

While there is very limited empirical evidence on the impact of pre-trial detention on wrongful conviction or case outcomes, much of the existing empirical research documents an adverse relationship between case outcomes and pre-trial detention. Since the early bail experiments of the 1960s, researchers have found a negative correlation between pre-trial detention and criminal case outcomes after controlling for other characteristics of defendants. For example, the Manhattan Bail Project, a collaboration between the Vera Institute of Justice, New York University School of Law, and the Institute of Judicial Administration, followed a sample of defendants at arraignment through case disposition. Research staff interviewed defendants and, in the treatment group, provided judges with a recommendation for whether each defendant should be released pre-trial without bail. Researchers on this project found that those who were detained pretrial were more likely to be convicted and incarcerated than those who were released, leading them to conclude that detention may impose costs that are “more than a temporary deprivation of [ ] liberty.”<sup>88</sup> Recently, several papers have exploited variation stemming from the fact that defendants in several counties are more or less randomly assigned to bail judges, who differ greatly in their propensity to detain or release defendants.<sup>89</sup> Thus, these papers

can estimate the causal impact of pre-trial detention on case outcomes because random assignment to a harsher judge effectively detains some defendants, while random assignment to a more lenient judge effectively releases others. These papers consistently find that the marginal detained defendant is significantly more likely to be convicted than the marginal released defendant, primarily through an increase in guilty pleas. However, to what extent these convictions are wrongful or erroneous is unknown.

### 3. *Collateral Consequences*

Pre-trial detention not only adversely affects defendants while incarcerated, but may also impact longer-term, non-criminal outcomes. As one bail lawyer told the *New York Times*, “[m]ost of our clients are people who have crawled their way up from poverty or are in the throes of poverty .... Our clients work in service-level positions where if you’re gone for a day, you lose your job .... People who live in shelters, where if they miss their curfews, they lose their housing.”<sup>90</sup> For example, detaining an individual pre-trial may lead to disruption, causing job or housing loss. Pre-trial detention can also adversely affect future labor market prospects through the stigma of a criminal conviction, both because employers discriminate on the basis of criminal history,<sup>91</sup> and because many states have laws banning the hiring of ex-offenders in certain professions.<sup>92</sup>

There has been little empirical evidence on the causal impact of pre-trial detention on employment and wages, likely because of how difficult it is to track labor market outcomes for defendants who are released and detained. However, my recent study links defendants to administrative tax records, which include information on W-2 earnings and reported income. In this study, we find that detained defendants are substantially less likely to be employed in the formal labor market and are significantly less likely to have any household income up to four years after their bail hearing.<sup>93</sup> In particular, the negative collateral consequences of pre-trial detention on formal sector attachment are the largest for defendants who had the strongest ties to the labor market prior to arrest and for defendants charged with misdemeanors, indicating substantial heterogeneity in costs across defendants.<sup>94</sup> This recent study suggests that the costs of pre-trial detention in terms of reduced labor market attachment are substantial, and estimates that the net present discounted value of lost earnings over the work-life of a detained defendant is over \$18,000.<sup>95</sup>

Because this lost productivity is a welfare loss for society, the magnitude of lost earnings due to pre-trial detention should be included in a cost-benefit analysis. Moreover, because the above quasi-experimental estimates measure labor market outcomes several years after both pre- and post-trial incarceration, they also account for the fact that some defendants would have been convicted or incarcerated post-trial regardless of pre-trial detention and thus may have suffered a private earnings loss regardless of detention.

Another collateral consequence of pre-trial detention is the impact on eligibility for public benefits that is especially relevant for the population of arrested offenders. Pre-trial detention may adversely affect take-up of social safety net programs, either through incarceration or conviction. For instance, during any period of incarceration, offenders cannot seek unemployment insurance (UI), or credits under the Earned Income Tax Credit (EITC) for any wages earned while incarcerated.<sup>96</sup> In many states, felony drug offenders are permanently banned from receiving food stamps and welfare.<sup>97</sup> Indeed, my recent work linking defendants to UI and EITC records finds that detained defendants are significantly less

likely to receive UI and EITC benefits up to four years after arrest compared to released defendants.<sup>98</sup> Cumulated over the lifetime of a defendant, the reduced take-up of public benefits is over \$10,000, another large private cost of pre-trial detention.<sup>99</sup>

However, unlike lost earnings, a reduction in public benefits is not fully a social loss because it represents a transfer from taxpayers to claimants. Indeed, reduced take-up of public benefits represents a social gain to taxpayers. Nevertheless, the private loss to defendants is likely not fully cancelled by taxpayers' gain to the extent that the marginal utility of \$10,000 to a taxpayer is lower than the marginal utility of \$10,000 to a defendant. Given these considerations, a cost-benefit framework should appropriately scale down the private loss of \$10,000 to reflect that some portion of this cost is a welfare-neutral transfer.

#### ***4. Externalities***

Pre-trial detention, in addition to imposing private costs on the defendant, can also impose externalities. The most prominent externality is future crime. If pre-trial detention is criminogenic, it may increase the chances that a detained defendant engages in new criminal behavior.<sup>100</sup> Theoretically, pre-trial detention may be criminogenic through two main channels. The first is a direct channel of serving time in jail. Recent evidence suggests that time served in prison may be criminogenic by exposing inmates to harsh prison conditions<sup>101</sup> and criminal peers.<sup>102</sup> Second, pre-trial detention may increase future crime because it reduces formal labor market attachment, which may shift defendants into criminal activity.<sup>103</sup>

To what extent does pre-trial detention affect future crime? The available empirical evidence suggests that pre-trial detention is indeed criminogenic, imposing long-term costs on society. While not causal, a cross-sectional comparison between detained and released defendants indicates that detained defendants are more likely to recidivate after case disposition than released defendants.<sup>104</sup> But recent quasi-experimental work also finds positive effects of pre-trial detention on measures of new criminal activity.<sup>105</sup> After case disposition, marginal defendants who are detained before trial are over ten percentage points more likely to be rearrested for a new crime up to two years after the initial arrest,<sup>106</sup> with suggestive evidence that these defendants commit new crimes because they are unable to find employment in the formal labor market.<sup>107</sup> These quasi-experimental estimates suggest that pre-trial detention, by reducing labor force attachment, imposes large externalities. To incorporate this externality into a cost-benefit analysis, the cost of future crimes can be quantified by combining crime-specific rearrest probabilities with established social costs of crime.<sup>108</sup>

In addition to affecting future criminal behavior, pre-trial detention may affect the lives of defendants' children and other family members.<sup>109</sup> While there is virtually no causal evidence of pre-trial detention on the welfare of others, cross-sectional comparisons (which may well be biased by omitted variables) indicate that children with fathers who have been incarcerated are significantly more likely to be expelled or suspended from school, and more likely to exhibit criminal behavior, potentially through mechanisms such as parental separation, loss of child custody, lack of role models, and lower parental resources following incarceration.<sup>110</sup> Pre-trial detention may also affect the welfare of other family members who may have to assume financial or caregiving responsibilities during the defendant's periods of incarceration. Outside of immediate families, pre-trial detention may affect communities to the extent that it reduces perceptions of fairness, legitimacy, and trust in legal institutions.<sup>111</sup> Studies on these social costs of pre-trial detention are practically non-existent, likely because of the difficulty of

measuring and quantifying these costs, but understanding the magnitude of these externalities is important for designing an optimal bail system.

### ***5. Costs of Jail and Bail Administration***

The fifth broad category of costs is the cost to taxpayers of administering pre-trial detention. The costs of housing and providing food to detained defendants, as well as providing for medical care, can be staggering, with the costs to county governments of detaining defendants prior to trial alone estimated to be over nine billion dollars annually.<sup>112</sup> In fact, much of the growing cost of incarceration over the past several decades can be attributed to the costs of detaining individuals before trial, given that over sixty percent of all current jail inmates are awaiting trial.<sup>113</sup> Second-order costs include the administration of the bail system, including the costs of transporting detained defendants to court appearances, as well as court resources spent on detained defendants, such as bail modification hearings.<sup>114</sup>

In determining the costs of detention, it is important for policymakers to distinguish between average and marginal costs. Most policy reforms to the bail system, such as the use of risk-assessment instruments, are changes that will impact the number of detained individuals at the margin, rather than eliminate pre-trial detention altogether, such that marginal costs are most relevant.<sup>115</sup> Average costs are likely substantially higher than marginal costs of pre-trial detention \*1429 because average costs will incorporate the large fixed costs associated with building new prisons to house detainees.<sup>116</sup> In contrast, marginal costs will more likely reflect the daily costs of housing a detainee, with estimates ranging between \$15 and \$25 per day.<sup>117</sup> These magnitudes can then be combined with the quasi-experimental evidence that pre-trial detention leads to an average of fourteen extra days spent in pre-and post-trial incarceration for the marginally detained defendant relative to the marginally released defendant.<sup>118</sup>

### ***B. Social Benefits of Pre-trial Detention***

Pre-trial detention provides social benefits that can be broadly categorized into four categories: reducing pre-trial flight, reducing pre-trial crime through incapacitation, general deterrence, and conserving court resources.<sup>119</sup>

#### ***1. Preventing Flight***

The most common rationale for detaining defendants prior to trial is to minimize the risk that defendants will fail to appear at required court appearances or flee from the jurisdiction altogether. As discussed previously, ensuring a defendant's appearance at court was historically the primary, if not exclusive, objective of the bail system.<sup>120</sup>

Flight imposes potentially large societal costs. If defendants fail to appear at trial, this failure obstructs the administration of justice, imposes delays on the courts, and forces the expenditure of government resources on tracking down and apprehending defendants.<sup>121</sup> If a defendant absconds and never returns to the jurisdiction, the case is never adjudicated, imposing costs on the court system, witnesses, potential jurors, and victims. Similarly, if some fugitives are never apprehended and punished, the deterrent effect of criminal sanctions may be diminished. Thus, pre-trial detention provides social benefits by incapacitating defendants.

The benefits associated with preventing flight are likely quite sizable given that pre-trial flight is a non-negligible occurrence among defendants who are released before trial. According to the Bureau of Justice Statistics, between 1990 and 2004, approximately 23% of released felony defendants were issued a bench warrant for failure to appear in court.<sup>122</sup> 17% of felony defendants released in 2009 missed a scheduled court appearance, resulting in a bench warrant being issued for their arrest.<sup>123</sup> Among those who were issued bench warrants for their arrest, over a quarter, or about 6% of all defendants, were classified as fugitives within the year following release.<sup>124</sup> Of course, as noted before, a concern with cross-sectional comparisons of defendants who are detained and those who are released prior to trial may be that detained and released defendants are different in many ways. For example, if bail judges disproportionately detain individuals with the highest risk of jumping bail, simple comparisons between the two groups may lead to a biased estimate of the causal impact of pre-trial detention on failure to appear.

However, recent quasi-experimental studies find that pre-trial detention leads to less pre-trial flight. For example, David Abrams and Chris Rohlfs use data from the Philadelphia Bail Experiment, in which approximately 240 defendants were randomly assigned to control and treatment groups that differed in recommended bail amounts. They find a negative and significant relationship between the recommended bail amount and both release and failure to appear.<sup>125</sup> In another recent quasi-experimental study, my coauthors and I find that the marginal released defendant is 15.6 percentage points more likely **\*1431** to fail to appear at a required court appearance than the marginal detained defendant.<sup>126</sup> Unfortunately, there are no well-known studies that approximate the costs of a defendant failing to appear, but the few estimates that exist suggest a cost of several hundred dollars per defendant, measured in terms of the private costs of recapturing a fugitive, which is, if anything, an underestimate of the true harm.<sup>127</sup> As a result, pre-trial detention may generate fairly substantial benefits in preventing missed court appearances and flight.

## ***2. Preventing Pre-trial Crime***

Through the same channel of incapacitation, prevention of new crime is another social benefit of pre-trial detention--the core idea behind "preventive detention." How common is pre-trial crime?<sup>128</sup> In a representative sample of felony defendants from the seventy-five most populous U.S. counties in 2009, sixteen percent of defendants who were released pre-trial were arrested for a new offense within a year of release.<sup>129</sup> Approximately half of all new arrests were for felony charges.<sup>130</sup> In particular, defendants who were released on violent charges were just as likely to be rearrested prior to case adjudication compared to offenders released on property, drug, or public order offenses.<sup>131</sup> In fact, defendants charged with robbery were the most likely to be rearrested pre-trial, with twenty-four percent of released defendants rearrested within one year.<sup>132</sup>

These statistics indicate that pre-trial arrests, particularly new arrests for violent crimes, are not uncommon, and may impose substantial societal costs.<sup>133</sup> In addition to preventing violent crimes, pretrial detention may also prevent crimes associated with the obstruction **\*1432** of justice, such as intimidating potential witnesses or jurors.<sup>134</sup> The correlation in these cross-sectional comparisons is also confirmed in my recent quasi-experimental research, which finds that the marginal released defendant is much more likely to be rearrested, recharged, and reconvicted for a new crime committed prior to case disposition compared to the marginal detained defendant, even for new violent offenses.<sup>135</sup>

In quantifying the effect of pre-trial release on new crime, it is important to distinguish between the type of new crime, which can range from low-level misdemeanors to violent felonies, because these crimes impose different social costs on victims and communities. Using the social costs of crimes estimated in the literature,<sup>136</sup> policymakers can quantify the social benefits associated with reducing specific types of pre-trial crime. For example, using this approach, Abrams and Rohlfs find, using a sample of defendants from the Philadelphia Bail Experiment, that for each observed rearrest prior to case disposition, society incurs approximately \$44,700 of costs, and thus society saves this amount by detaining defendants before trial.<sup>137</sup>

Once again, however, a policymaker concerned with a general equilibrium cost-benefit analysis may note that some of the benefits of pre-trial incapacitation may be simply shifted forward in time depending on what happens in the post-trial period. For example, suppose a defendant would not be incarcerated post-trial but for pre-trial detention. In this case, the gains from reducing pre-trial crime are a full social benefit. On the other hand, if a defendant would be incarcerated post-trial regardless of pre-trial detention, and the defendant is given credit for time spent in jail pre-trial, the gains from reducing **\*1433** pre-trial crime are merely shifted forward in time and should generally not be included in a cost-benefit analysis. As a result, a policymaker needs to determine the fraction of defendants for whom the pre-trial benefits are simply shifted forward in time versus those for whom the benefits are a real addition.<sup>138</sup>

### 3. General Deterrence

In addition to benefits that accrue from incapacitation, pre-trial detention may also produce general benefits for the criminal justice system. Theoretically, pre-trial detention, which increases the expected costs associated with crime, may deter future criminal activity, through general deterrence to the population of potential offenders.<sup>139</sup>

A large empirical economics and criminology literature has been devoted to measuring the impact of criminal sanctions on crime.<sup>140</sup> Particularly challenging is separating out the effects of deterrence versus incapacitation. While the overall literature is mixed with regards to deterrence, existing evidence suggests that swift and certain sanctions may have the largest impact on deterrence given the high discount rates of potential offenders.<sup>141</sup> As a result, pre-trial detention, by imposing a stay in jail prior to a finding of guilt, increases the cost of engaging in crime *ceteris paribus*, and may deter new crime. In fact, pre-trial detention may have a larger effect on reducing crime than other forms of criminal sanctions because it is arguably more certain and immediate than any post-trial punishment.<sup>142</sup>

**\*1434** On the other hand, pre-trial detention may also increase crime by reducing the opportunity cost of crime. As discussed previously, pretrial detention may cause job loss and impede attachment to the formal labor market.<sup>143</sup> If labor market opportunities (“carrots”) are more effective at reducing crime than sanctions (“sticks”), the net effect of detention may yield more costs than benefits. Unfortunately, there are no known studies that directly evaluate the deterrent impact of pre-trial detention, but the mechanism is plausible and should be considered in a cost-benefit analysis.

### 4. Conserving Court Resources



Finally, perhaps inadvertently, pre-trial detention may conserve court resources in an overburdened criminal justice system, thus generating benefits. As some have commented, “[t]he open secret is that in most jurisdictions, bail is the grease that keeps the gears of the overburdened system turning.”<sup>144</sup> By incentivizing defendants to plead guilty rather than assert their rights to a trial, pre-trial detention may allow courts to more efficiently process the millions of defendants they encounter every year.<sup>145</sup> Indeed, comparisons of felony defendants indicate that released defendants wait three times as long between arrest and case disposition compared to detained defendants.<sup>146</sup> Recent quasi-experimental work shows that this relationship is causal--that pre-trial detention reduces the time between arrest and disposition. According to a sample of defendants arrested in Philadelphia and Miami-Dade, those detained pre-trial spent approximately forty-nine fewer days awaiting disposition compared to those released due to the leniency of the assigned bail judge.<sup>147</sup> Some of the reductions in court delays may mechanically be due to the effect of speedy trial rules, which often mandate a quicker time to trial for individuals who are already in custody.<sup>148</sup> Other time and resource savings may be due to increases in guilty pleas among those who are detained. \*1435 Unfortunately, I am unaware of any study that quantifies the court savings achieved through speedier dispositions of cases.

Of course, the quick disposition of cases does not mean that courts are achieving the “right” outcomes in those cases.<sup>149</sup> To the extent that the bail system “keeps the gears” of the criminal justice system turning by inducing wrongful pleas, the bail system may generate many of the substantial private and social costs documented above, without yielding many of the social benefits.

### *C. Combining (Known) Costs and Benefits*

Having classified the major costs and benefits of pre-trial detention, I now combine the available estimates from the empirical literature to illustrate how they can be used to conduct a partial cost-benefit analysis. In Table 1, I present estimates of many of the previously discussed costs and benefits relying largely on the estimates from the Dobbie et al. study.<sup>150</sup> Column 1 presents empirical estimates and columns 2 and 3 present lower and upper bound ranges on the magnitude of the costs and benefits.

I begin by characterizing the known evidence on three types of costs mentioned in Section II.A: the loss of freedom, lost earnings and social assistance, and cost to the state of detaining individuals. For example, the marginal detained defendant spends a total of 14.4 extra total days incarcerated compared to the marginal released defendant. Using the previously described willingness to pay estimates and wrongful conviction statutes as a lower and upper bound on the daily cost of loss of freedom, I estimate that for the marginal defendant, pre-trial detention imposes a private loss of \$158 to \$2,015. To quantify the lost earnings and social assistance, I take pre-existing estimates that indicate the marginal detained defendant loses roughly \$948 per year in formal sector earnings, \$293 in UI income, and \$209 in EITC income. Following Chetty et al.,<sup>151</sup> I assume that the percentage gain in earnings remains constant over the working lifecycle and discount annual earnings at a three percent discount rate back to age thirty-four, the mean age in the sample. Under these assumptions, the marginal detained defendant loses approximately \$18,960 in earnings \*1436 and \$10,041 in UI and EITC benefits over a lifetime relative to the marginal released defendant. Finally, to calculate the administrative costs of detaining an individual, I assume that the average marginal cost of an additional day in jail is \$20. Taking causal estimates on the number of days incarcerated for the marginal detained defendant versus the marginal released defendant (14.4 days more in total) implies that detaining the marginal defendant costs taxpayers \$288 in direct administrative costs.

I then quantify two of the benefits of pre-trial detention previously discussed: reductions in flight and future crime. Monetizing the cost of apprehending a defendant who fails to appear in court at approximately \$1,185,<sup>152</sup> I estimate that the expected benefit of preventing failures to appear is \$185 for the marginal detained defendant (\$1,185 multiplied by 15.6 percentage points). I also utilize a range of social costs of crime from the pre-existing literature<sup>153</sup> to estimate the net impact of pre-trial detention on future crime. Here, I combine the short-run incapacitation benefits of pre-trial detention with longer-term criminogenic costs of pre-trial detention. Multiplying these social costs by the change in the probability of being rearrested for each specific type of crime, I estimate that the expected crime cost of pre-trial detention ranges from \$26,123 to \$70,104, indicating that on net, the criminogenic costs of pre-trial detention outweigh the incapacitation benefits.

A comparison of these private and social costs and benefits allows us to partially assess the optimality of pre-trial detention on the margin. Based on these values, the lower-bound net cost of detention for the marginal individual is \$55,385 and the upper-bound net cost is \$101,223. These estimates suggest that pre-trial detention may generate net welfare losses due to the over-detention of marginal defendants. Intuitively, the large net cost of pre-trial detention is driven by the significant collateral consequences of having a criminal conviction on labor market outcomes and the relatively low costs of apprehending defendants who fail to appear in court.

These speculative estimates are by no means conclusive evidence that pre-trial detention is suboptimal on the margin. There are several **\*1437** important caveats. First, the estimates in column 1 of Table 1 arise from a study of the bail systems in particular jurisdictions so external validity is a concern. Second, many of the estimates are not entirely precise and, as a result, the confidence interval surrounding the cost-benefit calculation is potentially large. Third, rearrests, as discussed previously in Section II.B.2, may underestimate actual criminal behavior depending on the degree of underreporting for marginal detained defendants relative to marginal released defendants. Fourth, as discussed previously in Section II.A.4, the loss of government and social benefits should be deflated to the extent that such loss represents a welfare-neutral transfer. Fifth, any of the short-run incapacitative benefits of pre-trial detention (such as reducing pre-trial crime) are inflated to the extent that some defendants would have served this time in post-trial incarceration.<sup>154</sup> Finally, there are many unmeasured benefits and costs, such as the general deterrence benefits of pre-trial detention or the costs of detention on families and communities.<sup>155</sup>

However, even with these caveats, a partial cost-benefit analysis may still be useful in several ways. First, it provides a rational framework to guide decision-making, focusing policymakers on the importance of accounting for both costs and benefits to pre-trial detention. Second, it highlights potentially overlooked costs and benefits, and in doing so, may spur further required research. Indeed, much more empirical evidence is needed to fill in some of our current gaps in knowledge as well as to tighten our understanding in areas where we currently have some evidence. Finally, a partial cost-benefit analysis may already provide some guidance to policymakers. If, for instance, one believes that the net costs of pre-trial detention are approximately \$55,385 to \$101,223, these estimates would suggest that any potentially unmeasured benefits to pre-trial detention would have to be at least this large in order to justify the current state of detention, in a form of “break-even” analysis. Thus, the partial cost-benefit analysis suggests that unless there are large unmeasured benefits to pre-trial detention, such as general deterrence effects, releasing more defendants on the margin will likely increase social welfare.

**\*1438TABLE 1. PARTIAL COST-BENEFIT CALCULATION**

	<b>CAUSAL ESTIMATE</b>	<b>LOWER BOUND</b>	<b>UPPER BOUND</b>
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>
<i>Loss of Freedom</i>			
Total Days Incarcerated	14.391	\$11	\$140
<i>Lost Earnings and Social Assistance (Thousands)</i>			
Earnings	-0.948	-	-
UI	-0.293	-	-
EITC	-0.209	-	-
<i>Costs of Jail</i>			
Total Days Incarcerated	14.391	\$20	\$20
<i>Pre-trial Flight</i>			
Failure to Appear	-0.156	\$1,185	\$1,185
<i>Future Crime (Pre- and Post-trial) (Counts)</i>			
Murder	0.009	\$4,301,817	\$11,559,713
Rape	-0.004	\$187,680	\$343,859
Robbery	-0.062	\$73,196	\$333,701
Assault	-0.066	\$41,046	\$109,903

Burglary	-0.076	\$21,617	\$50,291
Theft	-0.053	\$9,598	\$9,974
Drug Crime	0.272	\$2,544	\$2,544
DUI	-0.037	\$25,842	\$25,842

## V USING THE CONCEPTUAL FRAMEWORK TO EVALUATE POLICY ALTERNATIVES

Not only can a cost-benefit framework improve equity and consistency in bail decision-making, it can also be used to assess various bail practices and proposed reforms. In this section, I discuss how the cost-benefit framework developed in Sections II and III can be used to assess money bail, used in most jurisdictions. I then consider how the framework can be used to evaluate two prominent reforms in the recent debate: electronic monitoring and the use of risk-assessment instruments.

### A. Money Bail

The conceptual framework developed above can easily be extended to allow for money bail, or the practice of requiring a defendant to pay money in order to secure release before trial, which is dominant in the U.S. bail system.<sup>221</sup> The use of money bail has become increasingly prevalent over the last few decades, with the percentage of pre-trial releases among felony defendants involving financial conditions increasing from 37% in 1990 to 61% in 2009.<sup>222</sup>

In theory, the practice of money bail is premised on the idea that, by requiring defendants to post money, defendants have an increased incentive to abide by release conditions, such as appearing at trial.<sup>223</sup> However, since the 1960s, critics have noted that money bail may lead to the over-detention of low-income individuals because a defendant's ability to pay is not tied to guilt or risk.<sup>224</sup> For instance, many jurisdictions use fixed bail schedules set to the charged offense, which precludes any consideration of ability to pay.<sup>225</sup> As a result, certain bail practices that have led to the detention of poor defendants, without a consideration of ability to pay, have recently been challenged as unconstitutional,<sup>226</sup> leading some jurisdictions to consider the elimination of money bail.<sup>227</sup>

How can the conceptual framework developed previously be utilized to assess the use of money bail? Extending the previous framework where the social planner was deciding between detention or release, suppose that now the social planner decides what type of bail to set. To illustrate, for simplicity, assume that there are two options: non-money bail (or simple release) versus money bail. Analogous to before, a welfare-maximizing social planner assesses whether the benefits of money bail exceed the costs of money bail relative to nonmoney bail for each defendant.

What are the possible costs to money bail? For one, assigning money bail rather than simply releasing a defendant on non-money bail imposes the very same social and private costs associated with detention,

as previously described, for defendants who are unable to pay. In addition, for defendants who are able to post bail and secure release, either directly or through a bondsman, the assignment of money bail may impose financial hardships.<sup>228</sup> For instance, if a defendant who secures release is found to have violated a condition of release, he or she is then liable for the full bail amount, which may affect a defendant's ability to satisfy other financial obligations. Furthermore, if a defendant is unable to pay the full judgment on a release violation, the court may issue a judgment for a bond default, which may appear in credit reports, potentially affecting access to future credit and even employment.<sup>229</sup> Another potential cost of money bail is increased inequality along socioeconomic lines if defendants with fewer financial resources are less likely able to post bail and thus more likely to be detained before trial.

On the other hand, money bail may yield some benefits relative to alternatives like release with no conditions. First, defendants unable to pay money bail are detained before trial, likely reducing new crime and pre-trial flight. Second, unlike simple release, money bail may be beneficial if, conditional on posting bail, money bail incentivizes defendants to abide by release conditions. For example, if released defendants assigned money bail are more likely to appear at required court appearances because they do not want to forfeit any bail deposit already paid, the use of financial conditions may increase social welfare by reducing court delays and government expenditures spent to track down failures to appear.

Recently, some scholars have concluded that money bail is not cost-justified.<sup>230</sup> For example, some researchers have highlighted the large potential costs imposed by money bail and argue that the benefits are minimal, noting that the difference in pre-trial misconduct rates between defendants released on recognizance (without conditions) and those released on money bail are fairly small, such that "the system tolerates a relatively high level of failure as compared to the alternative of jailing all individuals, which would guarantee nearly perfect appearance rates."<sup>231</sup>

But the conclusion that the money bail system is unjustified from a cost-benefit perspective is premature. First, without measuring the benefits of money bail and comparing them against the costs of money bail, one cannot definitively state that money bail is not cost-effective. For instance, even if pre-trial misconduct rates are only modestly lowered with money bail, if the quantifiable social costs associated with new crime and flight are large, it is conceivable that the expected benefits of money bail are non-trivial. Second, past conclusions rely on studies based on simple comparisons of misconduct rates between defendants who are released on recognizance and those released with some sort of money bail.<sup>232</sup> These studies are almost surely biased because defendants released on recognizance and those released on money bail likely differ in important dimensions, such as risk. For example, an oft-cited statistic is that, in a sample of released felony defendants across the 75 largest U.S. counties, 34% of defendants released on recognizance engaged in some form of pre-trial misconduct, such as being rearrested or failing to appear in court.<sup>233</sup> In contrast, approximately 30% of defendants who were required to post money bail directly or indirectly through a surety engaged in pre-trial misconduct.<sup>234</sup> These statistics have been employed to argue that money bail is not particularly effective at reducing pre-trial misconduct among released defendants.<sup>235</sup> But defendants assigned and released on money bail are likely higher risk than defendants released on recognizance. As a result, these simple comparisons do not tell policy-makers the real parameter of interest--the causal estimate of the impact of money bail on pre-trial misconduct.

Ideally, one would want to compare misconduct rates across similar defendants--one randomly assigned non-money bail and one randomly assigned money bail. Indeed, recent evidence exploiting this type of

quasi-random variation to estimate causal effects finds stronger evidence that money bail reduces pre-trial misconduct compared to past cross-sectional research. In some jurisdictions, the marginal defendant assigned money bail is less likely to fail to appear and less likely to be re-arrested compared to a defendant assigned nonmoney bail, mostly because defendants assigned money bail are substantially less likely to secure release.<sup>236</sup> Studies of the bail bonding industry yield similar conclusions: that higher bail amounts do deter pre-trial flight.<sup>237</sup> These results highlight the important point that while money bail is likely costly, it also has potentially non-negligible social benefits, emphasizing the need for a cost-benefit analysis.

### ***B. Electronic Monitoring***

I next apply the conceptual framework to the more recent use of electronic monitoring, which has been utilized as an alternative to pretrial detention in the United States and Europe since the 1980s.<sup>238</sup> While electronic monitoring is a generic term that encompasses many release options, broadly speaking, electronic monitoring uses some form of radio or GPS device to track a defendant's movement, and is often combined with other conditions, such as curfew or home confinement.<sup>239</sup>

Within the United States, the first jurisdiction to test a home detention program that utilized electronic monitoring equipment was Palm Beach County, Florida in 1984.<sup>240</sup> Over the next several years, the use of electronic monitoring rapidly increased, with more than 12,000 individuals being monitored in almost every state across the United States by early 1990.<sup>241</sup> While electronic monitoring was initially used primarily for convicted defendants as an alternative to imprisonment, during the 1980s, jurisdictions also began to experiment with using electronic monitoring explicitly as an alternative to pre-trial detention. For example, during this time, Marion County, Indiana began proscribing electronic monitoring for those who could not pay their bail and those that did not qualify for release on recognizance.<sup>242</sup>

Today, there are two broad types of electronic monitoring used in the United States: passive and active. Passive electronic monitoring downloads information about a defendant's whereabouts a couple times every 24 hours.<sup>243</sup> Passive monitoring is often used in conjunction with other conditions of release, such as home confinement, and is primarily used to enforce the conditions of release.<sup>244</sup> Active electronic monitoring, on the other hand, uses a cellular communications network to provide continuous information throughout the day, allowing pre-trial services officers to detect or even prevent release violations.<sup>245</sup> In recent years, active electronic monitoring has been made easier by the advent of GPS satellite tracking devices.<sup>246</sup> As many have pointed out, active systems offer distinct advantages to passive systems: Continuous tracking allows government officials to deter flight as it is happening and locate fugitives sooner,<sup>247</sup> and if used independently of other release conditions such as home confinement, active tracking can be less restrictive on defendants awaiting trial. However, active monitoring is limited by the fact that it depends on the availability of a cellular network.<sup>248</sup>

The promise of electronic monitoring has led to its use in some form within many states, although the criteria for implementing electronic monitoring as a viable method of pre-trial monitoring vary across states, with some states utilizing electronic monitoring on its own, while others use it in combination with house arrest.<sup>249</sup> Nevertheless, the use of electronic monitoring is expected to become even more widespread as an alternative to pre-trial detention in the near future, both in the United States and abroad.<sup>250</sup> For example, Belgium is currently investigating whether electronic monitoring could supplant or replace pre-trial detention altogether and serve as a solution to prison overcrowding.<sup>251</sup>

As jurisdictions consider whether electronic monitoring should be used as an alternative to pre-trial detention and how it should be applied, the conceptual framework developed in Parts II and III can provide a helpful guide. To illustrate, recall that the original conceptual framework allowed for two options: release or detention. Now suppose that the social planner has a third, intermediate option of electronic monitoring, and in assessing whether to impose electronic monitoring, considers how the costs and benefits of electronic monitoring compare to the costs and benefits of pre-trial detention, relative to release with no conditions.

How might the relative benefits and costs compare? In terms of benefits, recall that pre-trial detention creates social benefits by reducing flight and pre-trial crime through incapacitation of offenders. How do these preventive benefits stemming from detention compare to the benefits that might arise from electronic monitoring? Most likely, the preventive benefits of electronic monitoring are smaller than the preventive benefits stemming from detention. After all, defendants released on electronic monitoring cannot be fully incapacitated, potentially leading to greater pre-trial misconduct.

Unfortunately, there has been relatively little rigorous empirical work testing the causal impact of electronic monitoring on pre-trial misconduct.<sup>252</sup> For instance, in a well-known study, Timothy Cadigan compares the failure to appear and re-arrest rates for federal defendants placed on electronic monitoring and finds generally higher misconduct rates among these defendants compared to national averages of defendants released with no conditions--a finding which a policymaker might naively interpret as evidence that electronic monitoring is ineffective at reducing pre-trial misconduct.<sup>253</sup> But Cadigan rightfully notes that these comparisons are not definitive proof that electronic monitoring does or does not work because the differences in the populations being compared are substantial.<sup>254</sup> That is, defendants placed on electronic monitoring are greater risks of flight and/or danger than defendants released with no conditions, which can lead to an underestimate of the effectiveness of electronic monitoring relative to release when making simple comparisons.<sup>255</sup> In another study, the Department of Justice used administrative data from the Florida Department of Corrections and compared the pre-trial misconduct rates of offenders placed into electronic monitoring and those not placed in electronic monitoring.<sup>256</sup> Controlling for many observable characteristics, the study concludes that electronic monitoring reduces defendants' probabilities of failure by 31 percent, with larger results for defendants assigned to GPS monitoring compared to radio frequency monitoring.<sup>257</sup> These results suggest that certain forms of more active electronic monitoring technologies may prevent many instances of pre-trial misconduct, albeit likely not as effectively as pre-trial detention. However, this study is unable to account for selection on unobservable factors between defendants who receive electronic monitoring and those who do not, and thus does not provide us with a causal estimate of the impact of electronic monitoring on pre-trial misconduct.

Nevertheless, there is reason to be cautiously optimistic about the welfare gains that might be generated from the use of electronic monitoring. The promise of this technology lies in its ability to reduce social and private costs relative to pre-trial detention. First, electronic monitoring imposes smaller costs on society than detaining individuals.<sup>258</sup> Compared to the marginal daily cost of housing a detainee, which ranges between \$15 and \$25 per day,<sup>259</sup> the costs of electronic monitoring are substantially lower, with active systems ranging between \$2.77 and \$9.04 and passive systems ranging between \$2.47 and \$3.03.<sup>260</sup> If anything, the costs of electronic monitoring will likely decrease over time with the advent of technological improvements.<sup>261</sup> Second, in addition to smaller social costs,<sup>262</sup> the private costs to

defendants under electronic monitoring are also likely to be substantially lower relative to the costs imposed by pre-trial detention. Defendants who are released on electronic monitoring may be less likely to plead guilty, reducing the likelihood of wrongful conviction and incarceration. In addition, electronic monitoring programs may allow defendants to maintain or seek employment, unlike pre-trial detention, which completely incapacitates defendants. Finally, electronic monitoring may also reduce future crime compared to pre-trial detention to the extent that prison is criminogenic.<sup>263</sup>

While electronic monitoring likely lowers these aforementioned costs compared to pre-trial detention, one critique of electronic monitoring has been its implications on privacy and the increased risk of government surveillance.<sup>264</sup> Indeed, the Supreme Court has stated that some forms of electronic monitoring are searches protected by the Fourth Amendment,<sup>265</sup> and several federal courts have found that the mandatory imposition of electronic monitoring for certain offenses is unconstitutional.<sup>266</sup>

However, short of constitutional violations, the privacy implications of electronic monitoring are not fatal to its use if the objective is to maximize social welfare, at least in the context of bail. First, as others have noted, defendants would almost certainly prefer electronic monitoring over pre-trial detention, which is arguably much more invasive than monitoring.<sup>267</sup> Second, the relevant question is not whether electronic monitoring imposes any costs, as implicated by reduced privacy and potential net-widening (which it probably does), but whether these costs are large enough such that physically incarcerating people in jail prior to trial is a better and more justified option.<sup>268</sup>

For example, to illustrate, consider again a simple, stylized numerical example, where a social planner is deciding between electronic monitoring or pre-trial detention, versus pure release. In this example, the total benefits and total costs of electronic monitoring are lower than the benefits and costs of pre-trial detention, to reflect the fact that electronic monitoring is most likely less effective at completely preventing pre-trial misconduct, but also imposes lower social and private costs than imprisoning someone before trial.

**EXAMPLE 6**

	<b>BENEFIT</b>	<b>COST</b>	<b>NET BENEFITS</b>	<b>OPTIMAL DECISION</b>
High-Risk N=10				
Detention	100	70	30	Detention
Electronic Monitoring	60	40	20	
Medium-Risk N=60				
Detention	50	50	0	Electronic



Electronic Monitoring	40	30	10	Monitoring
Low-Risk N=30				
Detention	40	50	-10	Release
Electronic Monitoring	20	25	-5	

In this hypothetical, the optimal decision is to detain high-risk individuals because the net benefits of detention are higher than the net benefits of electronic monitoring, to use electronic monitoring for medium-risk defendants, and to release low-risk defendants with no conditions. In fact, by allowing for electronic monitoring as a third option, social welfare is increased relative to a world in which pre-trial detention is the only option.

Ultimately, the case for or against the use of electronic monitoring as an alternative to pre-trial detention is still inconclusive. Much remains to be done in terms of rigorously evaluating both the costs and benefits of electronic monitoring and until then, a cost-benefit analysis of electronic monitoring is largely speculative. Yet, for the reasons described above, electronic monitoring holds potential as a viable, politically feasible, and welfare-increasing alternative to pretrial detention.<sup>269</sup>

### ***C. Risk-Assessment Tools***

Another policy that has received substantial attention in recent debates is the use of risk-assessment instruments, data-driven mechanisms that claim to “accurately sort defendants into categories showing their likelihood of having a successful pretrial release.”<sup>270</sup> In the context of bail, the risk level assigned to a particular defendant can help determine whether he or she should be released or detained, and aids in the assignment of appropriate release conditions such as pre-trial supervision. Unlike electronic monitoring, a risk-assessment instrument is not an alternative to pre-trial detention in and of itself.<sup>271</sup> Instead, it can be thought of as a tool or supplement that might aid judges in deciding which individuals should be detained versus released.<sup>272</sup>

The use of pre-trial risk-assessment tools in the United States has its origins in the Manhattan Bail Project.<sup>273</sup> The model associated with the project, created by the Vera Institute, used a point scale based on the strength of defendants’ family and community ties, and reflected the notion that defendants with sufficient familial and community ties would be more likely to reappear at court, and thus should be recommended for release without monetary conditions.<sup>274</sup> In the decades that followed, many jurisdictions developed their own pre-trial risk-assessment instruments, but only some are empirically validated such that they are tested using real data.<sup>275</sup> Today, approximately ten percent of all courts use a risk-assessment instrument at the pre-trial stage, including several states and the federal government.<sup>276</sup> While the goal of each of these tools is to predict which defendants are at a high risk of engaging in pre-trial misconduct, the instruments differ in the factors they use to predict risk, although common factors include pending charges and previous convictions.<sup>277</sup>

In 2015, the Laura and John Arnold Foundation launched its own risk-assessment instrument, the “Public Safety Assessment” (PSA), which has since been implemented in over 30 jurisdictions.<sup>278</sup> Unprecedented in its scale, the PSA uses data on over 1.5 million cases drawn from over 300 jurisdictions and was created to address the concern that “too many low- and moderate-level offenders were being needlessly detained before trial.”<sup>279</sup> The instrument differentiates between low-, moderate-, and high-risk defendants on the basis of nine factors.<sup>280</sup> Unlike many other risk-assessment instruments, the PSA removes factors that could be discriminatory, such as race, gender, level of education, socioeconomic status, and neighborhood.<sup>281</sup>

Why have these risk-assessment instruments flourished? Advocates of these risk-assessment tools argue (rightfully so) that they increase predictive accuracy in ensuring public safety. In the absence of risk-assessment tools, bail judges often use their own subjective judgments to make predictions about pre-trial success. And while they are often instructed to consider a list of relevant factors, there is little guidance on which factors are more predictive than others or the appropriate weight to give each factor, leading some to conclude that “judges would often make decisions that may have been no better (and perhaps sometimes worse) than flipping a coin.”<sup>282</sup>

In fact, empirical work suggests that judges are not detaining individuals with the highest predicted risk of re-arrest. For example, Baradaran and McIntyre find, using a sample of felony defendants, that “about half of those detained have a lower chance of being rearrested pretrial than many of the people released,” leading them to conclude that “we would be able to release 25% more defendants while decreasing pretrial crime levels” based on their statistical model.<sup>283</sup> Similarly, Ludwig et al. find, based on a similar sample of felony defendants, that predictive algorithms are superior to judges in making bail decisions. Holding the number of releases constant, they estimate that a machine algorithm could reduce pre-trial misconduct by 20 percent.<sup>284</sup>

These studies indicate that bail judges are making imperfect decisions even when they have the information necessary to make more accurate decisions, highlighting the potential benefit of predictive algorithms. Indeed, early results suggest that risk-assessment instruments substantially reduce the pre-trial detention rate and increase court appearances in jurisdictions that implement the tool, with no differential release rates by gender or race.<sup>285</sup> As a result, jurisdictions across the country are contemplating the use of risk-assessment tools at the pre-trial stage.<sup>286</sup> For example, in June 2016, the federal government launched the Data-Driven Justice Initiative (DDJ) with a bipartisan coalition of 67 local governments, aimed at using data-driven strategies to, among other things, “change approaches to pre-trial incarceration, so that low-risk offenders no longer stay in jail simply because they cannot afford a bond.”<sup>287</sup>

### ***1. The Missing Component***

But these instruments exclude a critical component.<sup>288</sup> Noticeably missing from risk-assessment instruments is any consideration of the costs of pre-trial detention as borne by the government, individual defendant, or third parties, and how those costs vary across defendants. These risk-assessment tools do not attempt to differentiate between defendants who may be more and less adversely impacted by pre-trial detention, despite the fact that the purported goal of these tools is to “reduce the social harm of unnecessary pretrial detention.”<sup>289</sup> Instead, the sole focus of these instruments is to predict appearance

at court and the likelihood of committing new crimes while out on bail--in sum, the objective of these instruments is to ensure public safety and thus, the social benefits to pre-trial detention. Moreover, explicit in the use of risk-assessment tools is the assumption that judges should detain defendants with a high risk of pre-trial misconduct and release defendants with a low risk.<sup>290</sup>

But how can we be sure that detaining high-risk defendants maximizes social welfare and reduces the social harm from unnecessary pre-trial detention? In other words, can we be sure that the benefits of detaining high-risk defendants exceed the harms imposed by pre-trial detention? No, we cannot. The conceptual framework developed in Section III illustrates that in order to maximize social welfare, policymakers must take into consideration both benefits *and* costs of pretrial detention. By failing to take both into account, decision-makers utilizing risk-assessment instruments may be lowering social welfare, counterproductive to the stated goals of these tools.

To illustrate, consider again Example 4 from Section III:

	<b>BENEFIT</b>	<b>COST</b>	<b>OPTIMAL DECISION</b>	<b>RISK-ASSESSMENT DECISION</b>
High-Risk N=10	100	115	Release	Detain
Medium-Risk N=60	50	70	Release	Detain
Low-Risk N=30	40	5	Detain	Release

In this hypothetical, the optimal bail decision is to release high- and medium-risk defendants while detaining low-risk defendants. In contrast, in a risk-assessment world, judges may be instructed to release low-risk defendants, while detaining or imposing conditions on release for medium- and high-risk defendants.<sup>291</sup> As can easily be seen from this example, risk-assessment instruments may actually lower total social welfare by instructing judges to detain individuals whose lives are especially affected by pre-trial detention.

And there exists empirical evidence suggesting that the pattern of costs and benefits in this example (e.g. positively correlated costs and benefits) are not impossible. For example, in my recent study, my coauthors and I found that defendants charged with drug offenses are more likely than other defendants to fail to appear in court or be rearrested prior to case disposition. These same defendants are also more likely to plead guilty and less likely to be employed in the formal sector as a result of pre-trial detention, such that these defendants are both high-risk and “high-harm.”<sup>292</sup> While far from definitive, these results simply suggest that release decisions on the basis of risk-assessment may be suboptimal.

## ***2. An Improved “Net-Benefit” Assessment Tool***

By recommending pre-trial decisions solely on the basis of risk, current risk-assessment instruments take

a one-sided approach. The instruments elevate the goal of ensuring public safety to the exclusion of other well-established goals of the bail system, such as minimizing unnecessary harm to defendants. Indeed, these instruments reinforce the current and arguably misguided notion in the bail system of exclusively considering the social benefits to pre-trial detention, with no consideration paid to the private and social costs.

However, the framework of evidence-based practices can be reimagined to maximize social welfare in the bail setting. In addition to using data to predict the likelihood of pre-trial misconduct upon release, jurisdictions that choose to employ evidence-based practices could also use data to predict the likelihood of harms associated with detention. For example, data on detained defendants can be used to identify factors that are most predictive of agreed-upon harms: whether someone is wrongfully convicted, whether someone loses their home, whether someone is unable to find employment in the formal labor market, and whether someone commits crime in the future. Indeed, there is already a recognition that certain defendants are more vulnerable to a stay in jail before trial.<sup>293</sup> For example, the harms of pre-trial detention appear to be relatively larger among defendants with a limited criminal history and defendants who were employed prior to arrest, potentially because these defendants have “more to lose” prior to detention.<sup>294</sup> Other work estimating the adverse impact of post-trial incarceration finds that income and employment prior to arrest is a positive predictor of the magnitude of harms experienced in the formal labor market post-release.<sup>295</sup> Finally, predictive factors from a related literature on wrongful convictions can also be informative.<sup>296</sup> For instance, researchers who compared wrongful conviction cases against “near miss” cases found ten factors that were predictive of a wrongful conviction, including a younger age, a criminal history, a weak prosecution, and lying by a non-eyewitness, among others.<sup>297</sup>

How might a jurisdiction design such a data-driven tool that incorporates both costs and benefits of detention? As an initial step, jurisdictions would need to track criminal defendants and obtain information on additional outcomes of interest such as employment and housing, in addition to information on new crimes and failures to appear. Having then collected data on both costs and benefits of pretrial detention, jurisdictions can then use econometric techniques to predict both “risk” and “harm.” One could imagine these algorithms closely tracking the structure of current risk-assessment tools. For example, jurisdictions can predict risk using information on the sample of individuals who are released before trial, and analogously, predict harm using information on the sample of individuals who are detained before trial.

One question might be whether the factors that are most predictive of “harm” may reinforce existing inequalities (e.g. by classifying offenders who have “more to lose” on the basis of certain statuses like having a job or owning a home). While an important concern, there is no reason *ex ante* to assume that existing inequalities (racial, socioeconomic, or otherwise) will necessarily be exacerbated by using predictions of both “risk” and “harm” to aid in pre-trial release decisions. For one, judges may already be using factors like employment and housing status in making bail decisions, and there is good reason to believe that a more objective, evidence-based assessment of those factors can lead to more equitable outcomes. Furthermore, policymakers could always impose certain equality constraints in the construction of predictions of “harm.” For example, if one is concerned that higher-income defendants are privileged over lower-income defendants in the event of a job loss, one would easily design a risk-assessment instrument that predicted the probability of job loss *per se*, rather than the amount of lost income, or one could impose statutorily fixed ceilings on the amount of lost income considered.

In the end, the impact of using both “risk” and “harm” predictions on disparities in bail is an empirical question, but there is reason to be hopeful. In practice, a data-driven algorithm has tremendous promise in reducing unnecessary harms to defendants and society. For example, the most recent machine learning techniques implemented in the setting of bail, which currently only predict the risk of pre-trial misconduct, can lower jail populations and new crime rates, while simultaneously decreasing racial disparities in bail.<sup>298</sup> Machine learning techniques that predict both “risk” and “harm” may yield even larger improvements to social welfare.

Ultimately, by using data to predict both the costs and benefits of pre-trial detention for each defendant, jurisdictions could create “net-benefit” assessment tools using largely the same set-up already employed for risk-assessment tools. Moreover, there is reason to be cautiously optimistic that jurisdictions and the actors within them, including prosecutors, defense counsel, and bail judges, will be amenable to these “net-benefit” assessment tools. As discussed previously, in jurisdictions that have adopted the use of risk-assessment tools, judges are already incorporating the information provided by the risk assessments and interestingly, following recommendations to release defendants such that release rates have fallen with no subsequent rise in pre-trial misconduct. Indeed, a “net-benefit” assessment instrument may even alleviate the political and reputational pressures that bail judges face by giving judges objective recommendations that can shield their bail decisions from public scrutiny.

Importantly, however, this Article makes no strong claims about the ultimate political feasibility of this recommendation. Nor does it make any claims about how bail decisions might change if a jurisdiction were to adopt such a tool, an important question that would need to be addressed through the implementation of pilot programs before any large-scale rollout. Rather, it simply makes the conceptual point that “net-benefit” tools, by giving equal and due consideration to costs and benefits, are much more likely to result in socially optimal bail decisions, and thus ought to be considered as a possible policy alternative. . .

## CONCLUSION

Bail reform is on the horizon and the consequences of any reform are likely extensive, as reforms to our existing bail system have the potential to affect the millions of defendants who are detained every year before trial. This Article argues that a cost-benefit framework can aid policymakers in designing a better bail system. Currently, without explicit guidance on how to weigh the competing objectives of the bail system, bail judges are left to their own heuristics and likely biases, particularly if they overlook the less visible costs of pre-trial detention to defendants, their families, and their communities. The framework in this Article stresses the importance of considering both costs and benefits of pre-trial detention, some of which are already grounded in statutory bail directives, in order to maximize social welfare. In contrast, current bail practices largely ignore private and social costs, instead recommending detention on the basis of “risk” alone, a practice that is potentially generating massive welfare losses.

The cost-benefit framework developed in this Article is also a useful tool to assess policy reforms. In light of the framework, the most promising reforms are alternatives to pre-trial detention that lower private and social costs relative to detention, while also providing some protection against flight and danger. While substantially more empirical research is needed, a preliminary assessment suggests that the use of electronic monitoring may be welfare-improving.

In contrast, the approach calls into question the use of risk-assessment instruments to increase social welfare. These instruments, while improving the accuracy of risk predictions, do nothing to predict the harms associated with pre-trial detention. As mounting evidence indicates that high-risk defendants may also be most adversely affected by a stint in pre-trial detention, I argue that jurisdictions employing evidence-based practices should estimate both costs and benefits for each defendant. In doing so, policymakers can better ensure that detention is not based solely on ensuring public safety, but gives due weight to the short- and long-term consequences of pre-trial detention on defendants and society.