Negligent Hiring:
Recidivism and Employment with a Criminal Record *

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Abstract

This paper uses theoretical and empirical methods to understand the most common reason employers report reluctance to hire workers with a criminal record: legal liability generated by the tort of negligent hiring. While the purpose of the tort is ostensibly to protect and make whole those harmed when an employee misbehaves in a foreseeable manner, I find that, in practice, the tort as most commonly structured generates additional criminal behavior and worsens employment outcomes. I first provide a survey of the current doctrine across the states and trace the origins of the tort through the common law. Using a difference-in-difference strategy, I examine state legislation clarifying the negligent hiring standard and reducing the likelihood that an employer will be found liable. I use survey and administrative data from over a dozen states to compare employment and recidivism rates in the states that changed their negligent hiring law increased employment for people with criminal records by 3 to 5 p.p. (↑ 5 to 9%) and lowered reincarceration for a new criminal offense by 2 p.p. (↓ 10%).

Keywords: Criminal justice, recidivism, employment
JEL classification codes:

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1 Introduction

There is substantial evidence that employers are less willing to hire applicants with criminal records (Holzer, LaLonde, et al., 1999; Society for Human Resource Management, 2018). Research has demonstrated that decreased employment for this population damages the returning citizens, hampers national productivity, exacerbates racial income inequality, increases crime rates, and causes a host of other problems (Abraham & Kearney, 2020; Mueller-Smith & Schnepel, 2021; Schnepel, 2018). However, we know less about precisely why employers are less likely to hire from this pool of potential workers. This lack of knowledge makes improving employment opportunities for this population more difficult. This paper seeks to answer three major questions: 1) how much of the employment declines caused by a person having an observable criminal record are due to employer liability under state tort law for negligent hiring, 2) how did the adoption of tort liability for negligent hiring change criminal behavior, and 3) how did later statutory clarifications that reduced the risk of negligent hiring liability impact criminal and employment behavior? This paper presents evidence that the tort of negligent hiring ultimately results in more criminal behavior and explains a significant portion of the gap in earnings between those with and without a criminal record. I analyze employment and criminal behavioral changes around state-wide tort recognition as well as behavioral changes around a series of statutory changes that limit and clarify negligent hiring liability. It finds that lowered liability increases earnings and reduces recidivism for returning citizens impacted by the reforms.

The footprint the criminal justice system has on the labor market is substantial. Contact with the criminal justice system carries with it a host of collateral consequences beyond the punishment initially assigned by a court. While these consequences are sprawling and varied, this paper will focus on just one: the formal and informal hindrances to labor market opportunities. These consequences are not distributed equally but rather fall predominantly on black men. In 2017, 622,400 prisoners were released from state and federal prisons (Bronson & Carson, 2019). Many of these returning citizens are of working age. Shannon et al. (2017) estimate that eight percent of all adults and thirty-three percent of the Black adult male population have a felony conviction. Given that similar collateral consequences can extend to individuals who have less severe contact with the criminal justice system (such as an arrest or a conviction without imprisonment), these percentages underestimate the impacted population. There are also likely important intergenerational consequences to having a parent or caregiver who has contact with the criminal justice system. Finlay et al. (2022) show that

nine percent of children with parental prison involvement, eighteen percent with a parent with a felony conviction, and thirty-nine percent with a criminal charge (sixty-two percent for Black children), consequences of the criminal justice system reach a vast proportion of the population.

People who have been criminally convicted are substantially more likely to be unemployed (Couloute & Kopf, 2018). Examining raw correlations between criminal justice exposure and employment outcomes does not tell us whether contact with the criminal justice system causes worse labor market outcomes. While more work needs to be done, there is substantial and growing evidence that criminal records cause a large earnings gap between those with and without criminal justice histories (A. Agan & Starr, 2017; Decker et al., 2015; Leasure, 2018; Leasure & Stevens Andersen, 2017; Pager, 2003, 2008; Pager et al., 2009). Many of these studies use individual longitudinal surveys (analysis following this approach is presented in the appendix) to estimate employment, wage, and earnings gaps (Allgood et al., 1999; Freeman, 1991; Grogger, 1992; Raphael, 2007; Richey, 2015; Western, 2002, 2006; Western & Beckett, 1999). Other studies have used different methodologies and more comprehensive administrative data (Dobbie et al., 2018; Grogger, 1995; Harding et al., 2018; Kling, 2006; Lalonde & Cho, 2008; Manudeep et al., 2020; Mueller-Smith & Schnepel, 2021; Nagin & Waldfogel, 1998a; Pettit & Lyons, 2007; Waldfogel, 1994). For instance, Mueller-Smith and Schnepel (2021) find that avoiding a felony conviction causes recidivism rates to be halved, quarterly employment to increase by fifty-three percent (or eighteen percentage points), and quarterly earnings to grow by sixty-four percent. In other words, a person who just avoids a felony conviction (in this case due to a randomly assigned deferred adjudication) works almost two more years over the next ten years and earns about $60,000 more than if they had received a guilty verdict.

There are many reasons to care about the employment prospects for people with criminal histories, but one especially relevant for this paper is that better employment opportunities may lower recidivism (and criminal behavior generally). For instance, Yang (2017) found that A one percent increase in the average wages of non-college educated men in the county of release reduces the quarterly hazard rate by about one-half percent. Similar effects are found for those released into areas with higher employment growth. Together these results suggest that exiting prison in average labor market conditions (instead of a recession) lowers recidivism by almost seven percent. Many researchers have cited employment for people with criminal convictions as a critical component of reentering society, decreasing future offending and reliance on the social safety net (Raphael, 2007; Redcross et al., 2011).

While the evidence that exposure to the criminal justice system hurts employment prospects is substantial, less is known about the precise reasons for these gaps. Understanding what mechanisms are at work is essential to policymakers seeking to implement changes. Potential explanations are plentiful. For instance, employers might be engaging in statistical discrimination, exploiting differences in average productivity, defined in terms of both output and job turn-over, between individuals with and without criminal justice histories; that is, employers might believe workers with felony convictions perform worse on the job. Employers may have an aversion to working with ex-felons, or alternatively framed, a desire to punish individuals with a criminal record more heavily than the criminal justice system has done thus far. Licensing and other legal restrictions may formally prohibit employers from hiring individuals with felony histories for particular categories of work, effectively shutting off certain sectors of the economy to returning citizens. Employers may fear harm to their reputations from subsequent harmful actions by employees with criminal histories. Finally, employers may be reluctant to hire this population for fear of potential liability for an employee's harmful actions under the common law doctrines of *respondeat superior* and negligent hiring, regardless of the applicants' potential productivity.

The best available evidence on the mechanisms driving employer demand for workers with a criminal record is from Cullen et al. (2023) which uses experimental methods in the context of hiring workers with criminal records on a temporary worker staffing platform. This work finds an eleven percentage point increase in businesses willing to work with individuals with a criminal record when businesses are offered crime and safety insurance, a single performance review, wage subsidy, or a limited background check covering just the past year. I build on this work by using quasi-expiremental evidence across a broad array of employment relationships (including both temporary workers hired through application such as the Cullen et al. (2023) setting, but others as well) but focuses on the importance of the under-explored employer liability channel.

While little is known about the relative magnitude of the mechanisms that drive employer reluctance to hire from the returning citizen population, employers do self-report that the chief reason they inquire into applicants' criminal backgrounds is potential liability for employee actions. For instance, survey data shows that most organizations report that reducing legal liability for negligent hiring is the primary reason for running a background check. Follow-up surveys have confirmed that the single most salient concern HR and business managers have about hiring workers with a criminal record is legal liability. In addition, social scientists studying the impact of criminal records on employment have frequently sug-

gested that negligent hiring is likely to reduce employment rates for people with criminal records significantly and is a good target for reform (A. Agan, 2017; Bushway & Kalra, 2021; McElhattan, 2022).

Unfortunately, little data is available to study the frequency and size of negligent hiring suits, so the employer survey is the best evidence on the subject to date. Studies focused on written opinions available via traditional legal research aggregators like Westlaw or Lexis are unlikely to generate accurate measures of the risk of potential litigation and how it has evolved (Boyd et al., 2020). Using data from aggregators is an especially poor measure in this setting because many service-based companies have varied their policies regarding compelled arbitration and non-disclosures in negligent hiring cases over time.[1] The most cited survey in this area suggest that employers lose 72% of negligent hiring cases with an average settlement of more than $1.6 million dollars; another survey suggests a lower employer loss rate of 66% and damages averaging over $600 thousand (Minor et al., 2018). However, there have been some large and well-publicized judgments, suggesting that an employer's fear of negligent hiring liability may be associated with real costs and generate behavioral changes. For instance, news coverage of Wal-mart's adoption of wide-spread background checks ties the decision to recent negligent hiring cases against the company (Zimmerman, 2004).

The remainder of the paper studies the relationship between the evolution of negligent hiring doctrine, employment, recidivism, and reported criminal offenses. Section 2 provides relevant background on the tort of negligent hiring. Section 3 frames negligent hiring liability to a stylized contracting model in a limited liability framework. Section 4 presents evidence connecting changes in negligent hiring liability to labor market outcomes and criminal records. Finally, section 5 provides additional context regarding how negligent hiring can relate to other policies and concludes.

2 Background on employer liability

What gives rise to employer liability for worker behavior? The two most common sources of employer liability in this context (both of which are common law doctrines and thus vary by state) are *respondeat superior* and negligent hiring. The doctrine of negligent hiring seeks to encourage employers to fill job openings with appropriate employees and independent contractors. In contrast, the doctrine of *respondeat superior* imposes liability on the employer

[1]For instance, see "Uber, Lyft Talk Responsibility on Assaults but Deny in Court" (2020) which details that Uber "previously ended its mandatory arbitration program for assault victims."

for the torts of its employees based on the understanding that the worker acts on behalf of the employer. While *respondeat superior* may be a worry for some employers, it only applies to torts committed 1) by their employees, 2) for actions in the course of employment, and 3) regardless of an employer's fault.[2]

In general, *respondeat superior* imposes vicarious liability on the employer for the torts of its employees without distinguishing between those with and without criminal histories. Thus, this channel of liability will only cause gaps in employment outcomes between those with and without criminal records to the extent that employers believe that criminal history is relevant information about a potential employee's propensity to incur civil liability through actions directly related to their employment. Whether workers with criminal histories are more likely to commit misconduct is an open question, as are employers' perceptions of these risks. Evidence from New Zealand suggests that, at least in that setting, employees with a criminal conviction before entering the workforce were less likely than other workers to fight or steal at work (Roberts et al., 2007). Lundquist et al. (2018) present evidence from the U.S. military looks at the performance of those with felony records and those without, finding that those with felony records are more attached to their jobs and perform better on several performance measures. In a study of over 10,000 workers in the U.S., Minor et al. (2018) find workers with criminal convictions in sales jobs had a somewhat elevated risk for job separation due to misconduct. In contrast, those in customer support jobs did not. The empirical results I present do not provide evidence regarding this source of liability.

The same conduct performed by two employees may generate differential employer liability if one employee has a criminal record while the other does not. Negligent hiring establishes direct liability of the employer for a wider array of employment arrangements and worker behavior than *respondeat superior*. For instance, recovery under *respondeat superior* is limited when a worker is an independent contractor, while recovery under negligent hiring is not. Additionally, intentional torts of the employee (such as an assault) are fre-

[2]An example here is helpful. Consider a pizza delivery driver employed full-time by a firm who negligently runs a red light, causing a traffic accident and injuring a bystander. Here, regardless of the driver's previous driving and employment record, the firm will be liable under *respondeat superior* for the injuries caused by the driver's negligence because it occurred in the course of his duties as a driver. Of course, such a firm might avoid hiring drivers with poor driving records to minimize its liability risk for future accidents. Still, the firm's liability for such accidents under *respondeat superior* does not turn on whether the firm behaved unreasonably in hiring its drivers. However, suppose the pizza driver was an independent contractor. Here, there is likely no liability on *respondeat superior*. However, the driver's history may well matter in determining employer liability for negligent hiring. If the driver had a history of DUIs and criminal traffic offenses at the time he was hired, then the defendant could bring this evidence to bear on the issue of whether the firm was negligent in hiring the driver to deliver pizza

quently excluded from *respondeat superior* because the employee misconduct was outside the scope of employment. But the employer may still be liable for its own negligence in hiring the employee in such a case, as the employer is deemed to have failed to exercise reasonable care towards the victim by hiring an employee who committed a second assault. States have occasionally attempted to place statutory limits on what criminal records a plaintiff can introduce as evidence in negligent hiring cases. These statutes require the records to be of the same type of misconduct as the misconduct in the current case. It is worth noting that this type of legislation, as well as case law making a similar argument, is typically relying on an implicit premise of crime-type specialization (that people who are convicted of a particular type of crime are more likely to repeat the behavior alleged in the crime). Whether this type of specialization is empirically supported is not well-known, but some of the best evidence out there suggests that it is not (Bushway & Kalra, 2021; Shen et al., 2020). However, more often than not, the question of how much evidentiary value a specific criminal record has is often left up to the jury.

A recent review of the case law concluded that "[s]tate courts are inconsistent at best in applying these general standards of liability to employers who have hired dangerous employees. . . . [and] the inconsistencies across states are even greater." Succinctly, "the law in this area is not clearly defined and is highly dependent on the individual facts of the case." (Hickox, 2010) Several representative cases are discussed in **??** and additional details on how different courts conceptualize the tort are provided in **??**. Additionally, employers have difficulty insuring against negligent hiring liability. There has been substantial ambiguity over whether negligent hiring is covered under general liability insurance, as most policies exclude intentional acts (Martin, 2002). When negligent hiring is insurable, it tends to be limited, expensive, and infrequently used; it is most commonly excluded from policies (Pager & Western, 2009).[3]

In sum, it is difficult to discern a clear pattern to these decisions beyond the feature that criminal records increase liability risk, and therefore difficult for employers to predict their exposure to negligent hiring liability when they hire employees with criminal records.

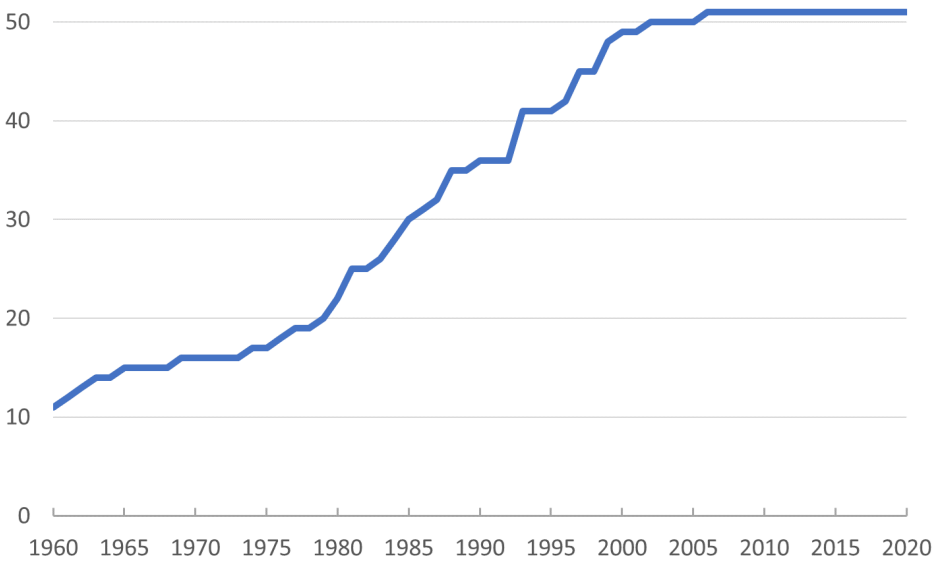
[3]A representative quote from Pager and Western (2009) illustrates that "The manager of a courier company, discussing his reluctance to hire anyone with a history of violent crime, touched on similar themes, though couched as an insurance concern: It's an insurance problem. I can't, I can't get insurance coverage. . ."

2.1 Changes to liability

This paper studies two changes to negligent hiring liability: (1) judicial adoption through common law of negligent hiring liability in states ("negligent hiring recognition") and (2) recent laws passed by several state legislatures aimed at limiting employer liability and clarifying what criminal record evidence plaintiffs can bring in negligent hiring claims ("negligent hiring reform").

In general, how courts judge what amounts to negligent hiring varies widely across states, making it a bit challenging to identify precisely when such a cause of action emerged. Negligent hiring has been recognized broadly across the states (Vance, 2014). Table A1 provides a systematic survey the case-law across the United States, coding when the highest court in that jurisdiction formally recognizes liability for negligent hiring. Figure 1 plots the number of states that have recognized the tort by each year.

Figure 1: Jurisdictions Recognizing Negligent Hiring Cause of Action



Source: Review of published cases in Westlaw and Lexis.

While some states like Massachusetts and Indiana recognized negligent hiring as a cause of action in the early 1900s, the tort did not emerge to prominence in other states, like South Carolina, Wisconsin, and South Dakota, until nearly a century later. For many states, recognition occurred in the mid-1980s to 1990s, coinciding with the rise in mass incarceration. Between 1980 and 2000, the state and federal prison population increased from 315,974 inmates to 1,331,278, and about half of the states formally recognized the tort

of negligent hiring-generating increased liability for the potential employers of the quickly growing released population.

Recent legislation has lowered employer liability and provided guidance for what factors should determine negligent hiring liability. Colorado, Texas, Minnesota, New York, New Jersey, Louisiana, D.C, Indiana, Arizona, and Iowa have all clarified how an employee's criminal record should be considered in assessing negligent hiring liability. Legislation is currently under consideration in Illinois and has been previously proposed in Arkansas. These bills were popular in the state legislatures, generally enjoying near-unanimous support.[4]

While these bills have some variations in their approaches and precise limitations to employer liability, they share certain common features. They do not remove employer liability for crimes that are directly associated with previous offenses, but they do restrict the use of criminal histories more generally and/or raise the standard to gross negligence. The statutes set a standard for admissibility of evidence of a criminal record that requires the historical criminal behavior to be more closely related to the offense than was permitted under the common law standard before the legislation. Many states provide more guidance regarding how closely related the previous conviction must have been to the current offense for the harm to be considered foreseeable. Prior convictions that do not meet this standard are then excluded from evidence.

The Texas bill provides a representative example: "House Bill 1188 amends the Civil Practice and Remedies Code to prohibit a cause of action from being brought against an employer, general contractor, premises owner, or other third party solely for negligently hiring or failing to adequately supervise an employee, based on evidence that the employee has been convicted of an offense." The bill provides an exception "when (2) the employee was convicted of: (A) an offense that was committed while performing duties substantially similar to those reasonably expected to be performed in the employment, or under conditions substantially similar to those reasonably expected to be encountered in the employment, taking into consideration the factors listed in Sections 53.022 and 53.023(a) , Occupations Code, without regard to whether the occupation requires a license; (B) an offense listed in Section 3g, Article 42.12, Code of Criminal Procedure; or (C) a sexually violent offense, as defined by Article 62.001, Code of Criminal Procedure." The discussions surrounding these

[4]A list of the bills that states have passed to limit employer liability follows Colorado, 2005 (House Bill 10-1023), Texas, 2013 (H.B. 1188), Minnesota, 2009 (Statute Â§181.981), New York, 2008 (N.Y. EXEC. L. Â§ 296), Louisiana, 2015 (HOUSE BILL NO. 505), D.C. Re-entry Act of 2012, New Jersey, 2015 (A-1999) Indiana, 2017 (Indiana SB 312, signed as Public Law 210), Arizona, 2018 (H.B. 2311), and Iowa 2019 (Iowa HF 650).

bills explicitly recognize the trade-offs discussed above and indicate that the state legislatures were attempting to lower employer liability. The ultimate goal was to improve access to labor markets for released individuals and decrease recidivism. Consistent with this goal, the bills almost invariably contain language such as "this section does not create a cause of action" and "the protections provided by this bill to employers." These legislative efforts also work to increase certainty.[5]

3 Economic intuition and model

There are many overlapping groups potentially impacted by the imposition of the tort: (1) employers and consumers, (2) victims of the harm caused by negligently hiring, (3) victims harmed by people who cannot get jobs because negligent hiring liability limits their employment prospects, and (4) job applicants with criminal records. Note that while these are helpful conceptual categories, they are not mutually exclusive.

First, consider employers. Additional negligent hiring liability imposes additional costs on employers, including more protracted and costlier searches as employers conduct additional screening and hire a smaller fraction of job applicants. Additionally, employers sued for negligent hiring will bear additional legal costs regardless of whether they win or lose. These costs will ultimately be shared with consumers (although the incidence of this cost will depend on relative supply and demand elasticities).

Second, consider victims of the harm caused by negligent hiring. A marginal expansion of employer liability will have two effects. First, it will allow other injured parties compensation for their injuries. They would otherwise not have viable paths to recovery against judgment-proof employees. Second, because employers behave more carefully in their hiring practices, there may be fewer potentially actionable behaviors from employees, thus lowering the number of victims. Whether there will be more or fewer successful negligent hiring claims after expanding employer liability depends on which of these effects is larger.

As discussed above, the lack of employment opportunities causes an increase in criminal activity, especially for those with a history of criminal behavior. An increase in negligent

[5]These bills also seek to provide additional guidance regarding when plaintiffs can introduce criminal records as evidence of negligent hiring. For instance, Texas House Bill 1188 Sections 53.022 and 53.023(a) explicitly list the factors relevant to evaluating proximate cause. These factors largely mirror guidance from the EEOC. They include the nature and seriousness of the crime, the extent to which employment might offer an opportunity to engage in further criminal activity of the type previously committed, the extent and nature of the person's past criminal activity, the age of the person when the crime was committed, and the amount of time that has elapsed since the person's last criminal activity.

hiring liability makes employers less likely to hire folks with criminal records, thus decreasing the employment opportunities for applicants with criminal records and thereby increasing recidivism and tortious behavior.

Suppose employers cannot perfectly identify the applicants who will commit misconduct for which they will be responsible as de facto insurers via the negligent hiring tort. In that case, a rational employer will form an estimate of their expected liability from hiring the applicant. This estimate will be based on the perceived compounded probabilities that an employee will offend while employed and that the employer will be found liable for the offense, scaled by the average cost of the negligent hiring settlement or judgment. Both of the estimated probabilities will likely increase with the length and severity of an applicant's criminal record since employers believe that juries and courts are more likely to find an employer negligent when the employee has a longer record. As employer estimates of perceived liability or uncertainty of liability increase, employers may be less willing to hire individuals with criminal histories for fear of later being found negligent, even if they personally believe that such a hire was not negligent at the time of hiring.

Translating the impacts across these groups to aggregate behavioral changes is challenging. Additional employer negligent hiring risk may increase or decrease the number of total offenses. Employers will take more precautions when they think they are more likely to be found liable. This suggests there will be fewer offenses by employees. But if the employer chooses not to hire an applicant because of his criminal record, the applicant does not disappear. Instead, the applicant may remain unemployed and thus be at more risk of offending. If the decreased rate of offending related to negligent hiring is less than the increased offending rate because of unemployment, the absolute number of offenses will increase.

Of course, we do not only care about the gross number of offenses but also about the harm they generate. Altering negligent hiring liability may influence the frequency of criminal behavior and the nature of offenses committed. Being employed may change the type of criminal opportunities available to a person. For instance, employment in a customer-facing job may increase the number of person-to-person interactions. Perhaps someone not hired due to an increase in negligent hiring liability would have committed an assault on the job but instead committed a burglary off the job. Certain employment may place workers inside other people's homes or in charge of supervising other people's possession. The subsequent analysis will be able to speak to these changes in behavior. However, other differences are more difficult to measure. For instance, perhaps being harmed by an employee who is implicitly in a position of trust is inherently more damaging than being injured in other

contexts. The type of person who is the victim of the offense is also likely to change. Negligent hiring may provide deeper pockets for victims of torts, providing a compensation function.

Employers provide an uncompensated benefit to society by reducing criminal offenses generated by unemployment and transferring wealth to victims of offenses who are dealt an unexpected painful life event. This externality could be solved by providing a separate incentive to hire workers with a criminal record so that employers are fully compensated for the benefit they provide in preventing other offenses. Alternatively, the state could accomplish this insurance function through victim funds or transfer programs. State insurance may also have the attractive feature of fully compensating all injured parties, rather than just those who happened to be harmed by employed tortfeasors.

3.1 Limited Liability Framework

In this subsection I present a toy contracting model to help provide more structure and intuition for the problem. I model the problem as a contracting model between the employer and employee, with observable "effort," (where more effort is associated with less criminal behavior) however, the agent has limited liability. This alters and builds on earlier work applying such modeling of vicarious liability and principal-agent contracting Bisso and Choi (2008). I abstract away from formally modeling the value of insurance by simply leaving generic harm functions from each category of offense and leave further exploration this element for later work (one could also justify such an abstraction by noting that if the policy preference is for insuring victims, the current structure could be replaced with a government payout system funded by general taxes that does not generate the behavioral distortions displayed below).

Abstracting to a single agent (worker with a criminal record) and a single employer (principal). Call the worker's utility function $H(w, e) = U(w) - g(e)$, where w is the wage earned, e is the action/effort exerted by the worker, $U(\cdot)$ is a concave utility function, $g(\cdot)$ is a convex effort cost and $g(e_L) = 0$, ψ is the outside option, and π is output/revenue. Output is a function of both effort and a random term, θ, $\pi(e, \theta)$. Applying some additional structure to illustrate the mechanisms at play, let there be two possible effort values $a \in \{e_L, e_H\}$. When the worker chooses e_L, they commit a criminal offense while employed with a higher probability (they spend some of their time shirking in the illicit market). For convenience, assume two possible output values $\pi \in \{\pi_L, \pi_H\}$ where $F(x|e_H) = \pi_H$ with probability p_H and $F(x|e_L) = \pi_H$ with probability p_L and $F(x|e_L) = \pi_L$ with probability $1 - p_L$. Further

assume $p_H > p_L$, that is, when the agent exerts more effort at work, they are less likely to offend. $\pi = \pi_H$ represents an employment relationship that ends without a negligent hiring payout, while $\pi = \pi_L$ represents the firm being found liable and can be written as as $\pi_L = \pi_H - N$ where N represents the total cost to the firm of a negligent hiring case. I also assume that the firm can choose a payout of 0 if no contract is formed.

The contract proceeds in the following order. First the firm offers a contract s. The agent accepts or rejects the contract. A rejection gives outside utility $\bar{u}$. If the agent accepts he chooses effort a. Nature draws θ, determining $x(a, \theta)$ and the worker receives payment $s(\pi)$

In this case we are working in a limited liability environment, meaning that the firm is unable to privately punish the worker beyond what the criminal justice and tort system already do. This means that $s(x) \geq L$, where L is the limited liability constraint. In this case we set $s(x) = \{w_H, w_l\}$

$$\max_{z, w_L, w_H} \{z\{p_H(\pi_H - w_H) + (1 - p_H)(\pi_H - N - w_L)\}$$
$$+(1 - z)\{p_L(\pi_H - w_H) + (1 - p_L)(\pi_H - N - w_L)\}\} \qquad s.t.$$
$$p_H w_H + (1 - p_H)w_L - g(e_H) \geq \psi \tag{IR}$$
$$p_H w_H + (1 - p_H)w_L - g(e_H) \geq p_L w_H + (1 - p_L)w_L \tag{IC}$$
$$w_0, w_1 \geq L \tag{LL}$$

From this contracting problem, we can generate the following conditions (assuming the limit to liability binds). If the firm chooses to hire, but does not attempt to generate high effort ($z = 0$), say by choosing to screen and monitor (i.e. to simply accept liability), the wage offer will be $w_L, w_H = \psi$. The worker will choose any new offenses that comes along such that $\psi \leq j(Y + L) + (1 - j)(Y + L - f)$ where j is the probability of offending without being caught, Y is the income from criminal activity, f is the criminally imposed penalty, all of which can be interpreted as functions of θ (drawn by nature), and there is no civil penalty imposed on the worker due to the limited liability constraint. Assuming some arbitrary, unobserved probability distribution over Y generates some probability of offenses which will be deemed o_n. This can then be mapped back into the θ term described above, and the firm will be found liable in $o_n * (1 - j)$ cases where it hires carelessly. Further assume that the harm caused by activity Y to the victim is $H(Y) > Y$ and $H'(Y) > 0$. If the liability system

fully compensates victims, $N = H(\cdot)$.

The profit from a potentially negligent hire is $p_L(\pi_H - \psi) + (1 - p_L)(\pi_H - N - \psi)$ which simplifies to $\pi_H - N - \psi + P_L N$. If, however, $\pi_H - N - \psi + P_L N < 0$, then it will be unprofitable for the firm to hire the applicant without care. In this case the offense condition is $0 < j(Y') + (1 - j)(Y' - f)$, where $0 < \psi$. Here the opportunities to offend are allowed to vary based on whether or not the agent has been employed. Again, assuming some arbitrary, unobserved probability distribution over Y' generates some probability of offenses which will be deemed o_u. Here Y' is allowed to follow a different distribution than Y. If, for instance, the crimes available to an employed agent are more profitable than one might impose first order stochastic dominance of Y over Y'. Because little is known about these distributions, they are left in general terms here.

In order for the firm to satisfy the constrained optimization problem above and induce effort, $z = 1$ (i.e. if it wants to supervise/screen it's hires), the firm will choose $w_L = L$ and $w_H = L + g(e_H)/(p_H - p_L)$. This means that in expectation the worker receives $p_H w_H + (1 - p_H)w_L = L + p_L g(e_H)/(p_H - p_L)$. In this case the offense condition is $j(L + g(e_H)/(p_H - p_L)) + (1 - j)L < j(Y) + (1 - j)(Y - f)$. For completeness, assume a similar offense function in the monitored problem, with offense $\hat{Y}$ at rate o_s (one could model the supervision as shifting the distribution of $\hat{Y}$ lower or as a shift to o_s).

The firm profit if non-negligent hire is $p_H(\pi_H - L - g(e_H)/(p_H - p_L)) + (1 - p_H)(\pi_H - N - L)$ which simplifies to $g(e_H)/(p_H - p_L) + \pi_H - N - L + P_H N$. Thus the firm will only find it profitable to do so if the following inequality holds: $g(e_H)/(p_H - p_L) + \pi_H - N - L + P_H N > 0$. When considering this option compared to a negligent hire, the following conditions must hold for the firm to prefer to hire more carefully: if $p_H < 1$ and $\frac{-P_H g(e_H)}{(P_H - P_L)(P_L - P_H)} + \frac{\psi - L}{P_L - P_H} \leq N \leq \frac{\pi_H - L}{1 - p_H} - \frac{P_H g(e_H)}{P_H - P_L}$ and if $p_H = 1$, then the same lower bound holds for N but $\pi_H \geq \frac{-g(e_H)}{1 - p_L} + L$. Thus by increasing N, or the liability a firm faces for its employees offending, the firm is more likely to choose the monitoring contract. However, as N increases less contracts are struck since the required revenue generated by a firm match is higher. Assuming match revenue is distributed across randomly across applicants, there will also be some distribution across contract types: label S_u the share who are unemployed, S_n the share in potential negligent matches, and S_s the share in non-negligent matches.

How much harm is being generated by these offenses? In the negligent contract some fraction o_n offend with harm $H(Y)$, so offense harm is $o_n H(Y)$. In the unemployment contract it is $o_n H(Y')$, and in the supervised scenario $o_s H(\hat{Y}) < o_n H(Y')$ (in other words if firms were constrained to hire everyone, imposing negligence liability reduces the harm

of offenses). Increasing N or decreasing p_L, increases the proportion of contracts that fall into either the unemployed or supervised contract structure and decreases the number of contracts in the negligent bucket, i.e. $S_s < S_s^*; S_u < S_u^*; S_n > S_n^*$. The change in harm is thus $(S_s - S_s^*) * o_s H(\hat{Y}) + (S_u - S_u^*) o_u H(Y') + (S_n - S_n^*) o_n H(Y)$, or a shift in weighting of the average harm dealt by each category of contract. The first two of these terms are negative, while the last is positive; thus the amount of harm is ambiguously signed and is dependent on the relative shifts in shares and the distribution of Y, $\hat{Y}$ and Y' (something that can be studied by examining the composition of criminal behavior after a change in N). In the simple model a shift into the supervised category unambiguously lowers recidivism rates. However, whether a shift from negligent hiring to unemployment increases recidivism rates depends on whether $o_u > o_n$. If, after N increases recidivism increases, then the share of unemployed must offend more frequently than those who are negligently employed by an amount that is greater than the reduction of recidivism rates driven by the lower recidivism rates from supervised employees.[6]

The next section of this paper will address these empirical question directly by examining the impact on recidivism and employment outcomes in a number of states which have changed the standard for negligent hiring over time. It focuses on reforms reducing p_0 and measures outcomes by looking at responses in offense rates $\sum_{i=u,n,s} O_i$ and attempts to proxy for changes to $\sum H(\cdot)$ by studying changes to the composition of offense type.

4 Evidence on the Impact of Changes to Negligent Hiring Liability

The theoretical concerns laid out above suggest that changes to negligent hiring liability will impact the number and type of criminal offenses as well as a host of other labor market outcomes. This section analyzes the impact of statutory changes to negligent hiring. In particular, it will focus on ten states that have passed statutes that limit employer liability for hiring individuals with criminal records. It will also study the impact of tort recognition (increasing risk of liability) on offending.

While these bills all aim to reduce and/or clarify employer liability for the tort of negligent hiring, they do not remove liability entirely (in terms of the model, this is akin to lowering p_L but not setting it to 0). These legislative acts do not remove liability for crimes that are directly associated with previous offenses but do restrict the introduction of criminal

[6]Notably absent from this simple model are welfare considerations generated by the transfer payment acting as insurance to harmed third parties. This is akin to assuming risk-neutral third parties, but is an assumption that should be studied further.

records in negligent hiring cases. This restriction is consistent with legislatures wanting to encourage employers to hire workers with criminal records but not to provide these new hires with additional criminal opportunities.

The following subsections suggest that individuals with a criminal record are more likely to be employed in states after they have enacted negligent hiring reform. There are lower new-crime recidivism rates after lowering negligent hiring liability, especially from the groups of released individuals most likely to be impacted by the reforms. There are, if anything, fewer criminal offenses after a state passes negligent hiring reform and more criminal offenses after a state recognizes the tort. Employment opportunities for people with criminal records is a plausible causal channel through which these reforms lower recidivism.

4.1 The Impact of Negligent Hiring Reform on Labor Market Outcomes

Data linking criminal justice exposure and labor market outcomes has been a challenge in this literature, although substantial efforts are being made to improve the state of data availability. Existing studies that study the interplay between labor markets and criminal activity has relied on either 1) administrative records from one or two jurisdictions or 2) survey data with broader geographic coverage but a small sample of respondents with criminal histories. However, massive improvements to criminal justice data in recent years allow the following analysis to combine administrative court and prison records covering nearly half of the U.S. population with Census survey data.

Criminal histories are measured using the Criminal Justice Administrative Records System (CJARS), which compiles and harmonizes criminal justice records from many jurisdictions and agencies and matches this with a rich set of socio-economic data from the American Community Survey (ACS)(Finlay & Mueller-Smith, 2021). This paper focuses on criminal court charges, classified by type (e.g., property, drug, or violent) and gravity (e.g., misdemeanor or felony) and incarceration data from prison records.

Although CJARS offers massive improvements over previously available data, it does not cover all jurisdictions of interest over all relevant times. As CJARS continues to expand its data holdings, follow-up analysis can be conducted to expand the sample of both treated and control states. This follow-up work is important, especially given the relatively low number of treated jurisdictions available for study.[7] To generate estimates over comparable samples,

[7]Another potential limitation of this approach is that respondents to the ACS may be representative of people with criminal records. Future work in this area would benefit on focusing on administrative records of earnings, especially in the panel setting to address both the representativeness of the sample and allow

I divide the data in three ways and present an analysis over each subsample. First, the "prison sample" includes 11 states with sufficient data on prison entries and exits to construct criminal histories over the analysis sample (2005-2019): Arizona, Colorado, Florida, Illinois, Michigan, Nebraska, North Carolina, Pennsylvania, Texas, Washington, and Wisconsin (with Arizona, Colorado, and Texas enacting reforms). An alternative "court sample" includes all states with sufficient adjudication records: Arizona, Florida, Maryland, Michigan, New Jersey, North Carolina, North Dakota, Oregon, Wisconsin, and Texas (with Arizona, New Jersey, and Texas enacting reforms). A final "pooled sample" is the union of these two sets composed of 14 states and 4 adopting states. The pooled sample has the advantage of a larger sample but potentially less comparable criminal record coverage.

In order to make these results as comparable as possible to the literature, I make the following sample restrictions. First, I keep only the states with CJARS coverage (listed above). I also restrict to U.S. citizens between the ages of 25 and 64 who are Black, white, and/or Hispanic.[8] In these states, respondents with and without a criminal record are used in the analysis (although it is unlikely that the tort reforms will significantly impact employment rates for the population without criminal records).

Merging the ACS and CJARS allows for the study of the full population as well as people with criminal justice involvement. I use a rich set of information collected by the ACS including self-reported race/ethnicity categories, age, years of education, whether a person is currently enrolled in school, the Core-based Statistical Areas (CBSAs) of residency, whether the person is working, the person's yearly earnings, whether or not the are working in the same state as their residence, whether they have moved states in the last year, and date of interview. Linking this information to CJARS allows me to construct information about a respondents criminal record. I code the relevant criminal record as present if the relevant condition is met (a prison sentence, a conviction of a certain type) prior to the ACS interview date. I also code the amount of time that has passed since first criminal-justice exposure as a categorical variable taking different values if the person has no criminal record, had their first event within the past year, had their first event between 1 and 3 years, had their first event between 3 and 5 years, or had their first event longer in the past.

The model unambiguously predicts that employment for workers with criminal records will increase when employer liability for their future actions decreases. To test whether this occurs, I use difference-in-differences and event studies to compare the outcomes for people

for within individual identification.

[8] I code race/ethnicity as Black non-Hispanic, white non-Hispanic, or Hispanic.

with criminal records in states after the states enacted negligent hiring reform to similarly situated people in states that did not reform the tort. For this approach to measure the causal impact of negligent hiring reform, I need to assume that people with criminal records in reformed and non-reformed states would have had similar employment trajectories absent the reform. One way to build confidence in this assumption is to show that prior to a liability change, the difference in labor market outcomes between treated and untreated states does not follow a clear trend and is near 0. To evaluate this assumption and generate estimates of the impact of the reform, I estimate the equation below, which parallels other works in the literature (Doleac & Hansen, 2020).

$$\begin{aligned} Outcome_i = \alpha + \beta_1 * \text{Reform}_{m,t} + \beta_2 * \text{Criminal Record} + \beta_3 * \text{Reform} \times \text{Criminal Record} \\ + \theta_D * \mathbf{D} + \lambda_{t \times \text{region}} + \delta_{CBSA} + \delta_{CBSA} \times t + \epsilon_i \quad (1) \end{aligned}$$

The subscript m indexes Core-based Statistical Areas (CBSAs), i indexes individuals, and t indexes months. From this, I estimate the impact of the reform on the employment outcome of interest for the whole population (β_1) and on the population of interest, people with criminal histories (β_3), while controlling for a criminal record (β_2), a vector of individual characteristics D, including race/ethnicity categories, age fixed effects, fixed effects for years of education, and an indicator for whether the individual is currently enrolled in school, CBSA and regional fixed effects, and CBSA time-trends. The core specifications allow the various controls to vary by criminal record (interacting criminal record with the various controls, e.g. race, age, although state –rather than cbsa–, etc.), but the results are qualitatively quite similar if common controls (no criminal record by control interactions) are imposed (see Appendix Table A4 for results on the pooled sample without this interaction).

The impact of negligent hiring reform likely varies by state and time (heterogeneous treatment effects), and states implemented the reform in a staggered manner. In the presence of these two features, a standard statistical approach, two-way fixed effects, will not yield estimates of the causal relationship of interest (Callaway & Sant'Anna, 2021; De Chaisemartin & d'Haultfoeuille, 2020; Gardner, 2022; Goodman-Bacon, 2021). To account for this, I follow Gardner (2022) and implement an imputation estimation procedure. This first stage is used to predict counterfactual outcomes in all periods and residualize the observed outcome. To do so, untreated (or not-yet-treated) observations are used to estimate each coefficient (except for the treatment). Then the residualized outcomes are regressed on negligent hiring

reform-either indicators for years relative to reform enactment for the event studies or an indicator for before/after reform for the overall difference-in-differences estimate, and the standard errors are adjusted to account for the imputation. However, results are similar if estimated using a TWFE strategy or a stacked difference-in-difference strategy (Cengiz et al., 2019; Deshpande & Li, 2019).

Table 1 shows simple before and after summary statistics of reforming and non-reforming states, pre and post reform. Conditional on approval, this table will show the mean employment rates, education, race, age, migration in the last year, and out of state work. The effects of negligent hiring are hinted at in the raw data; increased employment rates for people with criminal records after these reforms.

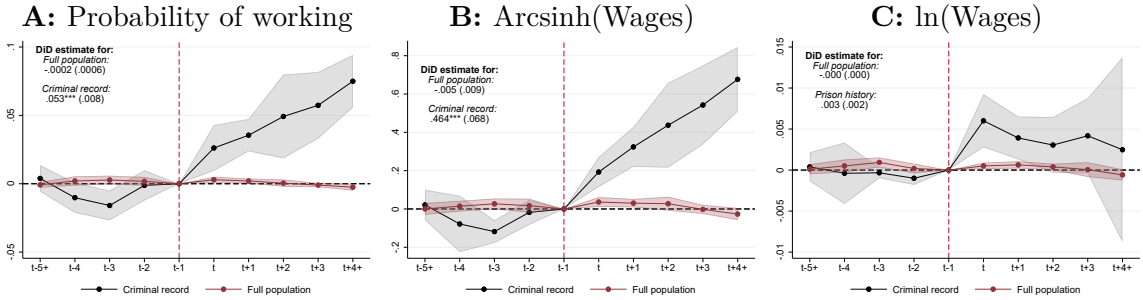
Table 1: Summary statistics (Pooled Sample)

	Mean of people with a felony conviction or prisons stay:		
	Never reformed	Pre NH reform	Post NH reform
Employed	0.56	0.59	0.63
Black	0.24	0.24	0.22
Hispanic	0.06	0.29	0.31
Younger	0.24	0.27	0.22
Mid-age	0.57	0.58	0.55
< High School	0.2	0.24	0.21
< College	0.86	0.88	0.86
Out of state	0.02	0.01	0.01
Migrated last year	0.02	0.02	0.01
Employed - private	0.46	0.48	0.51
Employed - public	0.03	0.04	0.04
Employed - self	0.07	0.07	0.08
Count	208000	68500	48500

Source: ACS and CJARS (2020).
Notes: Any views expressed are those of the authors and not those of the U.S. Census Bureau. The Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product. This research was performed at a Federal Statistical Research Data Center under FSRDC Project Number 2295. (CBDRB-FY22-P2295-R9926) and (CBDRB-FY23-P2295-R10669).

Figure 2 shows three event studies depicting the evolution of employment outcomes before and after negligent hiring liability is reformed in the prison sample. Three different outcomes are shown: in panel (A) the extensive margin (whether a worker worked in the past week) and in panel (B) the impact on both employment and earnings (the inverse hyperbolic sine transform of wage earnings), and (C) the intensive margin which shows the impact on log(wages) and restricts the sample to those who are working. These figures demonstrate that workers with criminal records had similar employment probabilities in states that would eventually reform negligent hiring and those that never reformed the tort. We verify this pattern by noting that the solid black line (which, in Panel A, displays the probability of

Figure 2: Event Study - Negligent Hiring Reform and Employment (Pooled Sample)



Source: ACS and CJARS (2020).
Notes: Any views expressed are those of the authors and not those of the U.S. Census Bureau. The Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product. This research was performed at a Federal Statistical Research Data Center under FSRDC Project Number 2295. (CBDRB-FY22-P2295-R9926) and (CBDRB-FY23-P2295-R10669).

working in reform states minus the probability of working in non-reform states) is near zero before reform implementation (denoted by t-1 and the vertical, red-dashed line). Before the reform, the 95% confidence interval (the gray shaded area) consistently includes 0 and does not exhibit any evidence of differing pre-trends. However, in states that reformed negligent hiring, people with criminal records are more likely to be employed and earn higher wages after the reform (the solid black line increases from t to the end of the sample). The impact of the reform can be seen immediately upon enactment and seems to grow over time, perhaps as employers gain greater knowledge of the law. While there appears to be some impact on the intensive margin, it is very modest and the results are primarily driven by the extensive margin.[9]

These results can also be translated to point estimates, as shown in Table 2, which considers the results for the prison sample. Panel A shows several estimation approaches focused on employment status over the past week as the outcome of interest. Panel B uses similar estimation approaches but focuses on a transformation of wage earnings (the inverse hyperbolic sine of wage earnings over the past year). Columns 1 and 2 show two-stage difference-in differences (2SDID) estimated over the full sample and two-way fixed-effects, respectively. Both approaches suggest that reforming negligent hiring liability had little impact on overall employment but significantly improved employment for workers with criminal records by between two and six percentage points. For context, in the sample considered, workers with prison records are about twenty-one percentage points less likely to be employed. This means that negligent hiring reform reduces the gap in employment rates between those with and without prison records by between ten and twenty-five percent.

[9]Note there may be a composition question here. If the workers induced into the labor force by the reform are entering at lower wages, this would appear as more muted ln(earnings) changes.

In 2008, the ACS slightly altered how the employment question was asked. Thus, some of the results could be influenced by changes in survey design. To address this technical measurement concern, columns 3 and 4 start the sample in 2008. The results are qualitatively similar when the starting year is varied. Finally, as discussed in additional depth later, a contemporaneous policy, Ban-the-Box, was often tied with negligent hiring reforms. The final columns control for Ban-the-Box adoption. Columns 5 and 6 suggest that controlling for Ban-the-Box legislation does not significantly change the estimated effect of negligent hiring reform. In panel B, the impact on wages is explored. Details regarding the impact of Ban-the-Box are discussed in A11. All estimation samples show an increase in earnings by thirty-four to forty percent.

Table 2: Negligent Hiring Reform on Labor Market Outcomes (Prison Sample)

Panel A: Outcome - Employment

	(1)	(2)	(3)	(4)	(5)	(6)
Negligent Hiring Reform	-0.002	-0.008	-0.002	-0.008	-0.001	-0.001***
	(0.001)	(0.005)	(0.001)	(0.005)	(0.001)	(0.002)
Reform x Criminal History	0.061***	0.041***	0.058***	0.039***	0.059***	0.019***
	(0.008)	(0.009)	(0.009)	(0.007)	(0.005)	(0.01)
Estimation	did2s	twfe	did2s	twfe	did2s	twfe
Sample	prison	prison	prison	prison	prison	prison
Start year	2005	2005	2005	2005	2008	2008
BTB Control	no	no	yes	yes	yes	yes
Obs	10940000	10940000	10940000	10940000	8841000	8841000

Panel B: Outcome - Inverse Hyperbolic Sine (wage earnings)

	(1)	(2)	(3)	(4)
Negligent Hiring Reform	-0.02	-0.04	-0.02	-0.043***
	(0.009)	(0.047)	(0.009)	(0.053)
Reform x Criminal History	0.518***	0.385***	0.521***	0.377***
	(0.151)	(0.072)	(0.164)	(0.059)
Estimation	did2s	twfe	did2s	twfe
Sample	prison	prison	prison	prison
Start year	2005	2005	2005	2005
BTB Control	no	no	yes	yes
Obs	10940000	10940000	10940000	10940000

Panel C: Outcome - ln(wage earnings)

	(1)	(2)	(3)	(4)
Negligent Hiring Reform	-0.003***	-0.001**	-0.001***	-0.001*
	(0.000)	(0.001)	(0.000)	(0.001)
Reform x Criminal History	0.007*	0.008***	0.007*	0.008***
	(0.004)	(0.001)	(0.004)	(0.001)
Estimation	did2s	twfe	did2s	twfe
Sample	court	court	court	court
Start year	2005	2005	2005	2005
BTB Control	no	no	yes	yes
Obs	8271000	8271000	8271000	8271000

Source: ACS and CJARS (2020).

Notes: State clustered robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p< 0.01. Any views expressed are those of the authors and not those of the U.S. Census Bureau. The Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product. This research was performed at a Federal Statistical Research Data Center under FSRDC Project Number 2295. (CBDRB-FY22-P2295-R9926) and (CBDRB-FY23-P2295-R10669).

Next, I consider how robust the results are to sample construction and look at the court sample for people with felony convictions in Table 3. While two things are changing between the two samples (felony convictions do not necessarily require a prison sentence and a different selection of states), we see that negligent hiring reform increases employment by a slightly lower four to five percentage points. However, people with criminal records are

about seventeen percentage points less likely to be employed than workers without records. Here again, negligent hiring reform accounts for about twenty-five percent of the gap between workers with and without criminal records. These results are again robust to sample start year, estimation approach, and Ban-the-Box controls.

Table 3: Negligent Hiring Reform on Labor Market Outcomes (Court Sample)

Panel A: Outcome - Employment

	(1)	(2)	(3)	(4)	(5)	(6)
Negligent Hiring Reform	-0.001**	-0.011***	-0.001**	-0.011***	0	-0.001
	(0.001)	(0.004)	(0.001)	(0.004)	(0.000)	(0.002)
Reform x Criminal History	0.054***	0.045***	0.051***	0.043***	0.049***	0.022***
	(0.007)	(0.012)	(0.008)	(0.011)	(0.004)	(0.006)
Estimation	did2s	twfe	did2s	twfe	did2s	twfe
Sample	court	court	court	court	court	court
Start year	2005	2005	2005	2005	2008	2008
BTB Control	no	no	yes	yes	yes	yes
Obs	9575000	9575000	9575000	9575000	7728000	7728000

Panel B: Outcome - Inverse Hyperbolic Sine (wage earnings)

	(1)	(2)	(3)	(4)
Negligent Hiring Reform	-0.008	-0.075	-0.008	-0.077***
	(0.004)	(0.033)	(0.004)	(0.036)
Reform x Criminal History	0.498***	0.380***	0.476***	0.367***
	(0.06)	(0.082)	(0.064)	(0.07)
Estimation	did2s	twfe	did2s	twfe
Sample	court	court	court	court
Start year	2005	2005	2005	2005
BTB Control	no	no	yes	yes
Obs	9575000	9575000	9575000	9575000

Panel C: Outcome - ln(wage earnings)

	(1)	(2)	(3)	(4)
Negligent Hiring Reform	0	-0.002**	0	-0.002**
	(0.000)	(0.001)	(0.000)	(0.001)
Reform x Criminal History	0.005***	0.007***	0.005***	0.007***
	(0.001)	(0.001)	(0.001)	(0.001)
Estimation	did2s	twfe	did2s	twfe
Sample	court	court	court	court
Start year	2005	2005	2005	2005
BTB Control	no	no	yes	yes
Obs	7235000	7235000	7235000	7235000

Source: ACS and CJARS (2020).

State clustered robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p< 0.01. Any views expressed are those of the authors and not those of the U.S. Census Bureau. The Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product. This research was performed at a Federal Statistical Research Data Center under FSRDC Project Number 2295. (CBDRB-FY22-P2295-R9926) and (CBDRB-FY23-P2295-R10669).

Finally, I pool the samples across states with either sufficient prison or court data in Table 4. Given the results of the prison sample and the felony conviction sample combining the two samples may yield similar results with more precision. While the results are broadly similar in the pooled sample, they are somewhat more variable ranging between 4 and 7 percentage points for employment and 35 to 50 percent increases in earnings. Here again, as shown by Panel C, the extensive margin is doing much of the work, as the ln(wage) has relatively modest response to negligent hiring reform. In Appendix Table A3, I present a similar version merging any charge and prison.

Table 4: Negligent Hiring Reform on Labor Market Outcomes (Pooled Sample)

Panel A: Outcome - Employment

	(1)	(2)	(3)	(4)	(5)	(6)
Negligent Hiring Reform	0.000	-0.003	0.000	-0.003	0.000	0.002
	(0.001)	(0.004)	(0.001)	(0.004)	(0.000)	(0.002)
Reform x Criminal History	0.053***	0.042***	0.05***	0.089***	0.056***	0.09***
	(0.008)	(0.012)	(0.008)	(0.005)	(0.009)	(0.006)
Estimation	did2s	twfe	did2s	twfe	did2s	twfe
Sample	pooled	pooled	pooled	pooled	pooled	pooled
Start year	2005	2005	2005	2005	2008	2008
BTB Control	no	no	yes	yes	yes	yes
Obs	12880000	12880000	12880000	12880000	10400000	10400000

Panel B: Outcome - Inverse Hyperbolic Sine (wage earnings)

	(1)	(2)	(3)	(4)
Negligent Hiring Reform	0.005	-0.01	0.005	-0.01
	(0.009)	(0.038)	(0.009)	(0.042)
Reform x Criminal History	0.464***	0.355***	0.446***	0.342***
	(0.068)	(0.083)	(0.073)	(0.071)
Estimation	did2s	twfe	did2s	twfe
Sample	pooled	pooled	pooled	pooled
Start year	2005	2005	2005	2005
BTB Control	no	no	yes	yes
Obs	12880000	12880000	12880000	12880000

Panel C: Outcome - ln(wage earnings)

	(1)	(2)	(3)	(4)
Negligent Hiring Reform	0.000	-0.001	0.000	-0.001
	(0.000)	(0.001)	(0.000)	(0.001)
Reform x Criminal History	0.003	0.006***	0.003	0.006***
	(0.002)	(0.002)	(0.002)	(0.001)
Estimation	did2s	twfe	did2s	twfe
Sample	pooled	pooled	pooled	pooled
Start year	2005	2005	2005	2005
BTB Control	no	no	yes	yes
Obs	9782000	9782000	9782000	9782000

Source: ACS and CJARS (2020).
State clustered robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p< 0.01. Any views expressed are those of the authors and not those of the U.S. Census Bureau. The Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product. This research was performed at a Federal Statistical Research Data Center under FSRDC Project Number 2295. (CBDRB-FY22-P2295-R9926) and (CBDRB-FY23-P2295-R10669).

I repeat the analysis in Tables 2 and 4 using a stacked difference-in-difference strategy (Cengiz et al., 2019; Deshpande & Li, 2019). To implement this I first construct several sets of clean experiments (a data set with one treated state and the set of untreated control states). I then stack each experiment into one large data set (including an indicator for each experiment). I fit the model to the stacked data interacting the coefficients with the

sub-experiment indicator. Following Wing (2021), I then cluster the standard errors at the state level to account for duplicated observations. To account for the low number of treated clusters, I also take a randomization inference approach, following recent advances in the literature by Alvarez and Ferman (2023) and described in greater detail in A.1. Table 5 shows that the results from the stacked regressions are largely similar to the 2SDID and TWFE approaches. The improved inference from Alvarez and Ferman (2023) indicates that while the clustered standard errors were modestly to small, the results (except for one specification), remain significant at conventional levels.

Table 5: The Impact of Negligent Hiring Reform on Work (Stacked Regression)

Panel A: Prison sample

	Outcome: Employment			Outcome: Arcsinh(Wage)	
	(1)	(2)	(3)	(4)	(5)
Negligent Hiring Reform	-0.009**	-0.01**	-0.002	-0.063*	-0.071*
	(0.004)	(0.004)	(0.002)	(0.036)	(0.04)
Reform x Criminal History	0.04***	0.039***	0.019*	0.385***	0.377***
	(0.009)	(0.009)	(0.011)	(0.082)	(0.074)
Alvarez/Ferman p	0.003	0.1	0.418	0.021	0.001
Estimation	stacked	stacked	stacked	stacked	stacked
Sample	prison	prison	prison	prison	prison
BTB Control	no	yes	yes	no	yes
Start Year	2005	2005	2008	2005	2005
Obs	10940000	10940000	8841000	10940000	10940000

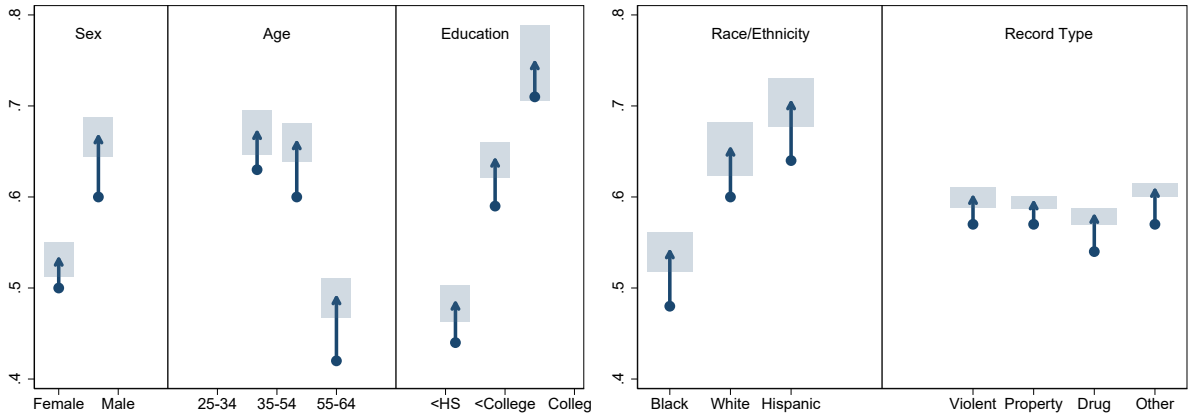
Panel B: Pooled - Prison and Felony Sample

	Outcome: Employment			Outcome: Arcsinh(Wage)	
	(1)	(2)	(3)	(4)	(5)
Negligent Hiring Reform	-0.004	-0.004	0.001	-0.021	-0.024
	(0.004)	(0.004)	(0.003)	(0.037)	(0.038)
Reform x Criminal History	0.045***	0.045***	0.031*	0.39***	0.387***
	(0.014)	(0.014)	(0.006)	(0.068)	(0.065)
Alvarez/Ferman p	0.006	0.006	0.001	0.001	0.001
Estimation	stacked	stacked	stacked	stacked	stacked
Sample	pooled	pooled	pooled	pooled	pooled
BTB Control	no	yes	yes	no	yes
Start Year	2005	2005	2008	2005	2005
Obs	12880000	12880000	10400000	12880000	12880000

Source: ACS and CJARS (2020).
State clustered robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p< 0.01. P-values calculated using Alvarez and Ferman (2023) are also displayed. Any views expressed are those of the authors and not those of the U.S. Census Bureau. The Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product. This research was performed at a Federal Statistical Research Data Center under FSRDC Project Number 2295. (CBDRB-FY22-P2295-R9926) and (CBDRB-FY23-P2295-R10669).

Negligent hiring reform might impact different populations in different ways. The increase in employment for workers with criminal histories should correspond with the employer's per-

Figure 3: Heterogeneous Employment Impact of Negligent Hiring Reform



Source: ACS and CJARS (2020).
Notes: Solid dots are group mean employment rates, arrows represent estimated effect size, and the shaded area are 95% confidence intervals. Any views expressed are those of the authors and not those of the U.S. Census Bureau. The Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product. This research was performed at a Federal Statistical Research Data Center under FSRDC Project Number 2295. (CBDRB-FY22-P2295-R9926) and (CBDRB-FY23-P2295-R10669).

ception of reduced risk. This perception is a function of the probability a potential employee offends on the job (which should remain constant before and after the reform), the harm generated by the offense (unchanged), and the probability the employer is found liable for the offense (changed). The last element (the likelihood of being held responsible) may vary depending on the nature of the potential employee's criminal record. Thus, negligent hiring reform may impact different groups to different degrees. Additionally, because the liability term is interacted with the expected amount of liability, the reform may have heterogeneous impacts based on employer perception of the perceived underlying risk of offending. I consider the effect of the reform on various subpopulations in Appendix Table A5. To do so I run several specification where the treatment is allowed to vary by fixed characteristics (interacting the treatment and controls with the subgroups in question– e.g. running $\beta_{1a} * \text{Reform}_{m,t} * \text{Male} + \beta_{1b} * \text{Reform}_{m,t} * \text{Female} + \beta_{2a} * \text{Male} * \text{Criminal Record} + \beta_{3a} * \text{Male} * \text{Criminal Record}+ \text{Controls}$). Figure 3 shows the results of five different regression. Each dot shows the mean employment rate for each supgroup with a criminal record (so females with a criminal record are employed at a 50 percent rate and men at a 60 percent rate). The arrow and shaded areas are the point estimates and the 95% confidence intervals to document the impact of the reform across different groups (the β_3's).

This evidence suggests that the reform's effect on the probability of employment for people with a violent felony conviction, a property felony conviction, or a drug felony conviction. The reform has the largest effect on people with drug and public order/other felony convictions. The remaining columns show the varying impact of reform by sex, age, education, and

race. Overall, these results suggest larger reform effects for workers with records that would be most likely to be disallowed under the reforms (older workers tend to have older records, and drug/public order offenses are less likely to be admissible evidence after reforms) or for workers employers perceive as more at risk to recidivate (male and less educated).

These results suggest that the reform increased employment most substantially for Black men who are somewhat older and less educated. For instance, the reform increases employment for people who are Black and have a felony or prison record by more than 12% (six percentage points) compared to about 8% (five percentage points) for white people with a similar criminal record.

Table 6 several other outcomes in the 2SDiD framework (all results are using the pooled sample from 2005-2019). Columns 1-3 include dependent variables that take the value of 1 if that respondent is both actively working and working for a private, public, or self employer respectively. As one might expect given the nature of the tort liability, the largest impacts are for private employers, with more muted impacts for public and self-employers.[10] Columns 4 and 5 help us better understand if differential migration and working across state lines are driving the results. Neither appears to be the case, as negligent hiring reform appears to have small impact on these relatively infrequent outcomes. Column 6 uses a quasi-poisson approach (in the TWFE set-up) to assess untransformed wages. This approach shows about an 8% increase in take-home earnings following the reforms.

[10]Because employers who hire independent contractors (the self-employed), may still be liable for the contractor's actions under negligent hiring, it is reasonable to expect some modest increase in self-employment.

Table 6: Negligent Hiring Reform on Other Outcomes (Pooled Sample)

	Private employer (1)	Public employer (2)	Self employment (3)	Worked out of state (4)	Migrated into state (5)	Employment Income (raw) (6)
Negligent Hiring Reform	-0.001	0.002	0.000	0.002	0.000	0.01***
	(0.001)	(0.001)	(0.000)	(0.002)	(0.000)	(0.009)
Reform x Criminal History	0.049***	0.001	0.004*	0.001	-0.007***	0.079***
	(0.006)	(0.003)	(0.002)	(0.002)	(0.002)	(0.023)
Estimation	did2s	did2s	did2s	did2s	did2s	Poisson
Sample	pooled	pooled	pooled	pooled	pooled	pooled
Start Year	2005	2005	2005	2005	2005	2005
BTB Control	no	no	yes	yes	yes	yes
Obs	12880000	12880000	12880000	12880000	12880000	12880000

Source: ACS and CJARS (2020).
Notes: State clustered robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p< 0.01. Any views expressed are those of the authors and not those of the U.S. Census Bureau. The Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product. This research was performed at a Federal Statistical Research Data Center under FSRDC Project Number 2295. (CBDRB-FY22-P2295-R9926) and (CBDRB-FY23-P2295-R10669).

4.2 The Impact of Negligent Hiring Reform on Recidivism

Whether reformed or not, the tort of negligent hiring imposes additional liability for re-offending but not for first-time offenders. Lowering the employer's negligent hiring liability reduces the cost of hiring individuals with a criminal record but leaves the cost of hiring those without a criminal record the same. If employers are more likely to hire workers with a criminal record after the reforms, and if being employed lowers the probability of recidivating, we expect recidivism to decrease after the reform to a greater extent than overall offenses. Recidivism rates are challenging to measure for various reasons, including a lack of longitudinal data, differences in definitions and time frames across studies, and many other reasons. To measure the impact of negligent hiring reform on recidivism, I use data from the National Corrections Reporting Program (NCRP).[11] While the data collection efforts underlying the NCRP began in 1983, I use the publicly available data from 1991-2019 containing information regarding prison admissions, prison releases, and year-end prison population counts. Not all states report to the NCRP each year. Therefore, I restrict this analysis to the years after 2005, when the number of reporting states has stabilized and

[11]Note that West Virginia and Louisiana do not report sufficient data over the time period and are thus dropped. Further discussion of NCRP data issues are available in Prescott et al. (2020). The NCRP is a valuable data set in that it covers a large number of individuals and a large number of states. The NCRP data used in the following analysis comes from the Inter-university Consortium for Political and Social Research (ICPSR). Data is available from https://www.icpsr.umich.edu/icpsrweb/NACJD/studies/37021/datadocumentation#.

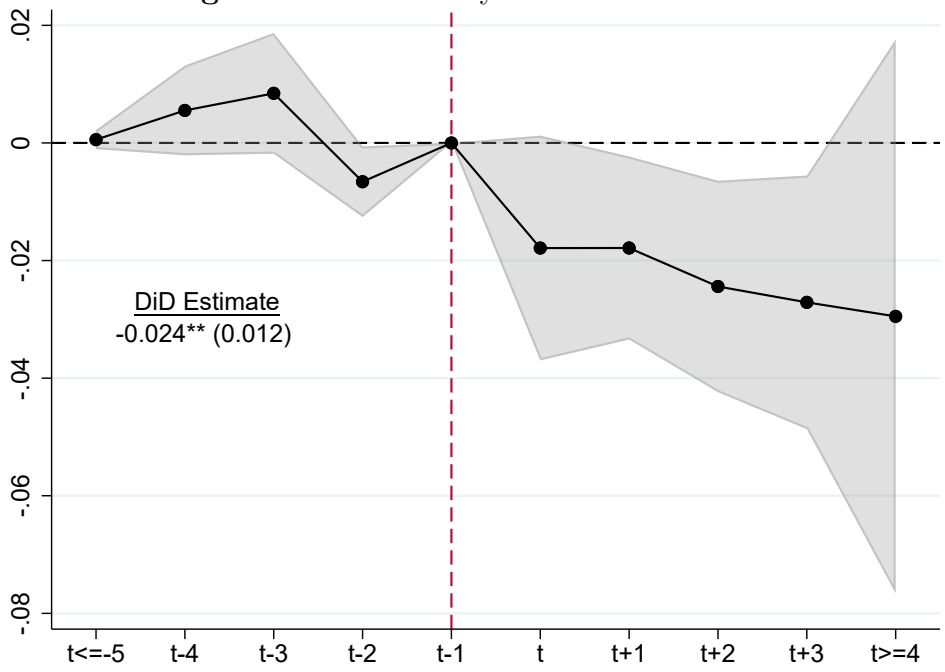
to match the sample considered in the ACS. I construct the recidivism rates based on a unique identifier created by Abt Associates Inc. (the organization that is the collector of the NCRP data on behalf of the BJS) and consider a recidivism event to occur if an individual is re-imprisoned for a new charge after being released.

Limitations of this data include that one cannot observe individuals who re-offend across different states, that one must rely on potentially inconsistent voluntary state reporting, and that the NCRP uses public data where individuals are matched across observations by a third party. In addition, there are some potential challenges with defining recidivism as a court commitment for a new crime, as certain states in the NCRP may conflate new crime prison commitment and technical parole violations. However, results are robust to restricting to states where previous research has suggested the highest quality measurement. Despite these limitations, the NCRP is a commonly used source (A. Y. Agan & Makowsky, 2018; Neal & Rick, 2014; Pfaff, 2011; Yang, 2017). I count an event as recidivating if the NCRP reports that the individual has been admitted to prison as a "new court commitment" within three years of release and the individual is recorded as having been in prison before in the sample.

The identification strategy here is similar to the previous subsection. The outcome variable is a binary for recidivism, which is defined as three-year prison re-entry from time of release. Each unit of observation is a person released from prison. I also include controls to parallel the employment regression (although here the sample is only those with criminal records). The specification is for this analysis can be similarly represented to the previous sections (although all observations in the data set have a criminal record, removing the triple differences component): $Recidivism_i = \alpha + \beta_1 * \text{Reform}_{s,t} + \theta_D * \mathbf{D} + \delta_s + \delta_s \times t + \epsilon_i$. I include state and year fixed effects (where s indexes states and t years), state specific time trends, and a vector of observable controls $\mathbf{D}$ (last offense type, number of previous offenses and its square, race, gender, admission/release year, time served squared, release type, and sentence length). I again use a two-stage difference-in-difference technique but results are robust to various techniques including stacked regressions or TWFE.

Figure 4 shows the evolution of prison reentry recidivism rates around negligent hiring reform. Estimates to the left of 0 represent periods leading up to reform implantation. The year before enactment is omitted to have 0 relative difference between reform and non-reform states. As can be seen from the figure, recidivism rates for returning citizens were evolving in parallel across states before the reform, as the point estimates to the left of 0 display no clear trend and are statistically indistinguishable from 0. However, after negligent hiring

Figure 4: Event Study - 3 Year Recidivism



Source: NCRP.
Notes: Shaded area is 95% confidence interval using (Gardner, 2022). Recidivism is defined as three-year prison re-entry. Controls: state and year fixed effects, last offense type, number of previous offenses and its square, race, gender, admission/release year, time served squared, release type, and sentence length. Data from 2005-2019.

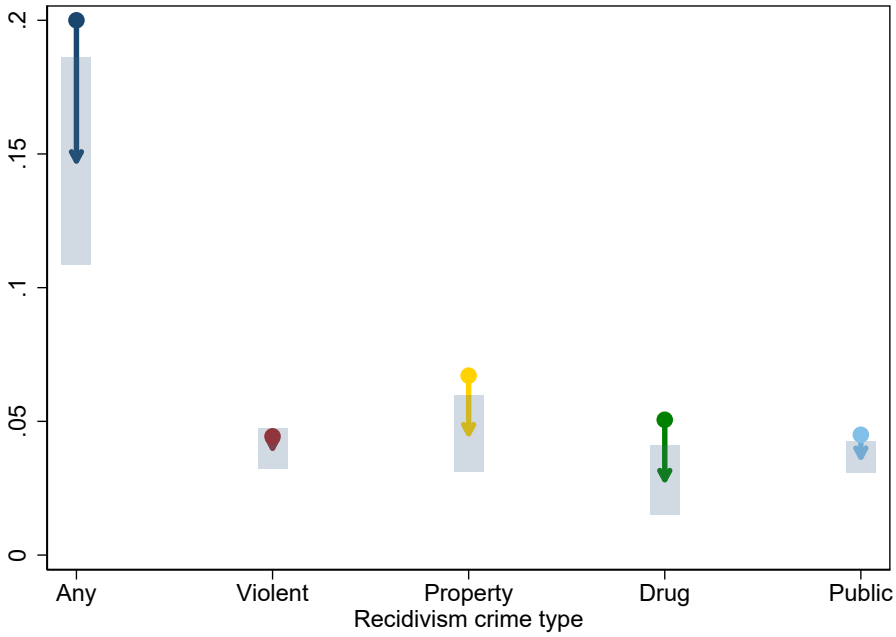
was enacted, recidivism rates for people released in reforming states began to steady decline relative to non-reform states. This steady decline (from about one percentage point lower in the year of reform to about five percentage points lowers a few years after reform and almost eight percentage points in the longer run) suggests that the impact of the reform may grow over time. This pattern could be because employers learn about the lower liability over time, or it could be due to the interaction of employment and the timing of recidivism events (e.g., work is more likely to prevent recidivism that occurs more than one year after release).

Figure 5 and Table A8 shows the comparison between the probability an individual recidivated in states which passed and states which did not pass negligent hiring reform after controlling for other characteristics of the released population. It controls for as many factors relating to the individual's release as possible in the data (but does not control for other state factors such as the state's unemployment rate at the time of release). Negligent hiring reform is associated with a statistically significant 2.4 percentage point lower recidivism rate (this corresponds to over a 10% reduction to a base rate recidivism rate of about 20%, where recidivism is a new crime re-incarceration within three years of release).[12] These results

[12]Only individuals whose release occurs in a year in which negligent hiring reform is or has been enacted are considered "treated" or impacted by the policy. Notably, this excludes some of the population who is partially treated in that released individuals who return in the year prior to the enactment of the reform (or

are robust to a variety of estimation approaches, including stacked event studies or TWFE. This decline is driven primarily by lower recidivism through new property, public order, and drug crimes. While there is some minor evidence that violent crime is also lower, this is a much smaller effect and not statistically significant. Previous research has suggested that stable employment decreases the likelihood of property crimes (as a substitute source of income) but has a less pronounced effect on violent crime (which is less likely to be financially motivated). Thus, these results are consistent with the theory that negligent hiring reform increases employment for individuals with criminal histories and that this employment decreases property and drug crimes (and has less of an impact on violent offending). Notably, there is no evidence that negligent hiring generates a substitution into more harmful violent crimes, as violent crime recidivism appears, if anything, to decline after negligent hiring reform occurs.

Figure 5: The Impact of Negligent Hiring Reform on Crime-type of Recidivism



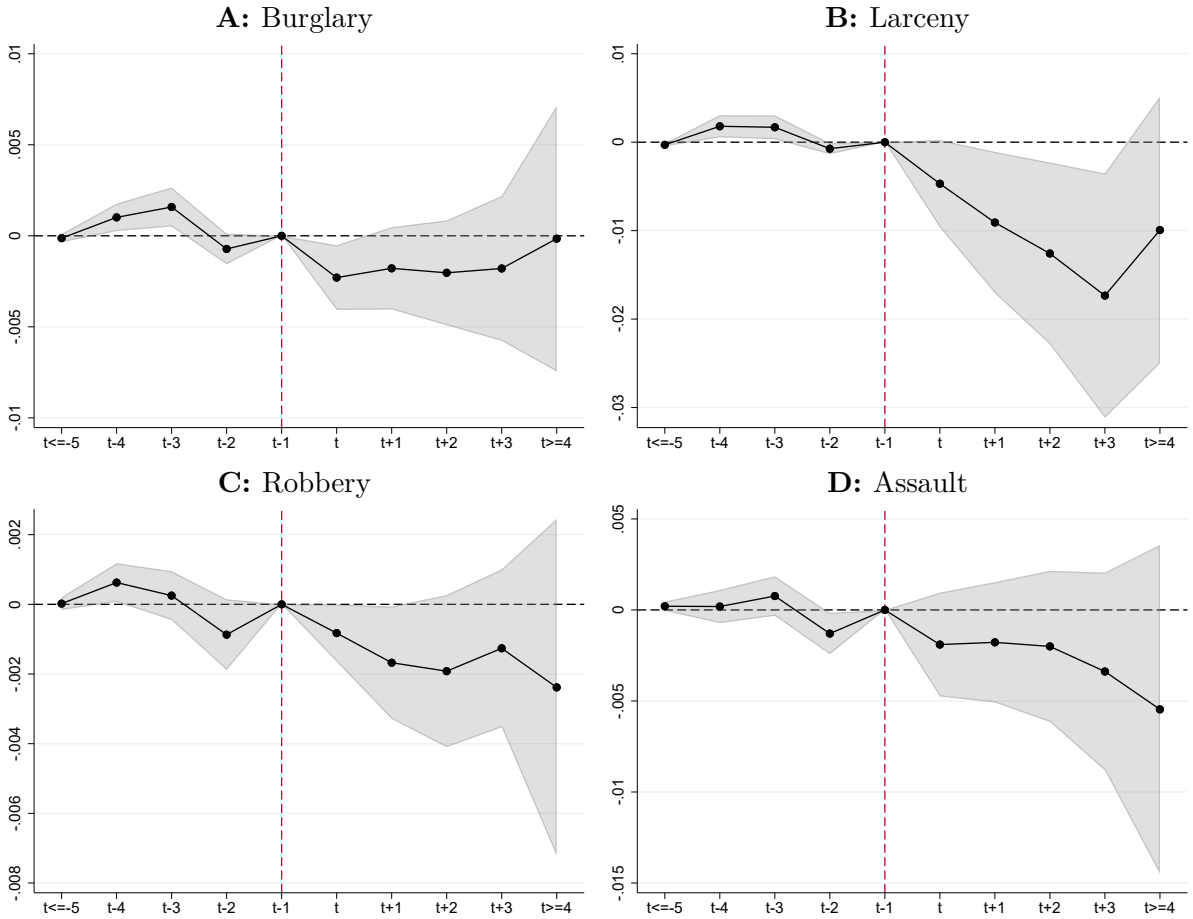
Source: NCRP.
Notes: Shaded area is 95% confidence interval using (Gardner, 2022). Recidivism is defined as three-year prison re-entry. Controls: state and year fixed effects, last offense type, number of previous offenses and its square, race, gender, admission/release year, time served squared, release type, and sentence length. Data from 2005-2019.

Figure 5 and A8 shows large and significant declines in recidivism via a new crime of burglary and larceny. Some violent crimes more often associated with income generation,

whose three-year recidivism window overlaps with some portion of the reform years) will benefit from the reform as well. Given this is the case, the estimates are likely biased somewhat towards finding no effect of the reform.

like robbery, exhibit signs of decline after negligent hiring reform. However, other violent crime-specific recidivism, like homicide and rape, does not show clear evidence of decline. These findings are consistent with the theory that lowering negligent hiring increases employment opportunities for people released from prison, which leads to a substitution away from income-generating criminal activity. A lack of decline or even a slight increase in certain other non-income generating violent crimes is also consistent with the underlying economic theory, as employment may generate an equal or greater number of person-to-person interactions.

Figure 6: Event study - Negligent Hiring Reform and Recidivism by New Offense Crime Type



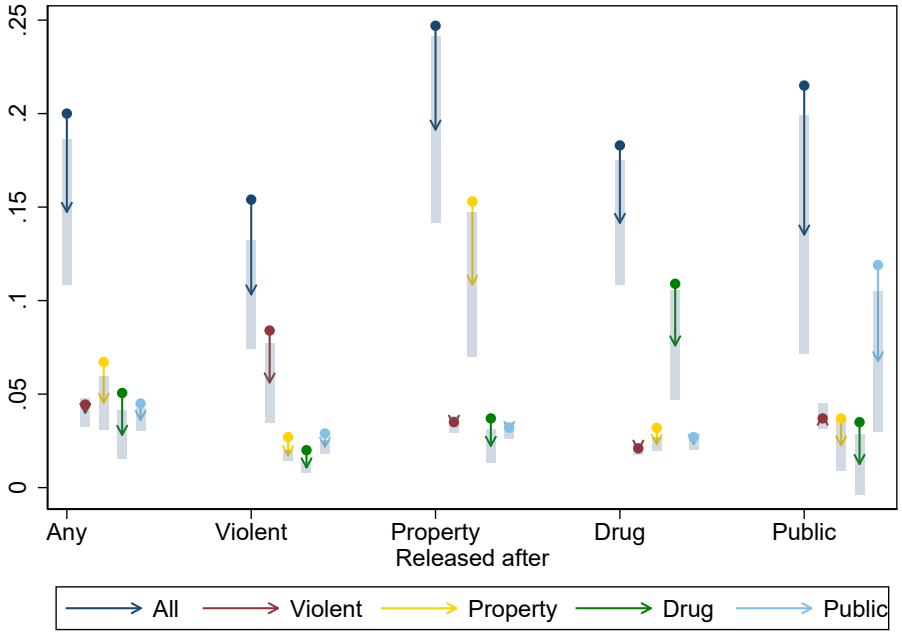
Source: NCRP.
Notes: Shaded area is 95% confidence interval using (Gardner, 2022). Recidivism is defined as three-year prison re-entry. Controls: state and year fixed effects, last offense type, number of previous offenses and its square, race, gender, admission/release year, time served squared, release type, and sentence length. Data from 2005-2019.

Recall that some of the policy concerns driving the laws aimed at clarifying and narrowing negligent hiring liability standards involve the crime-type of the first offense and the nature of re-offense. The reforms also clarify that a tighter connection between previous and subsequent offenses must be present for the employer to be liable. A drug possession incar-

ceration would be unlikely to be relevant to a future homicide conducted by an employee, at least after the reforms are in effect. The proposed mechanism for recidivism reduction is increased employment. Comparing the groups that see reductions in recidivism to those with greater increases in employment, it becomes apparent that groups with larger employment gains after the reform also have larger declines in recidivism rates (e.g., people released after public order and other offenses).

Figure 7 (and Appendix Tables A8 and A9) is similar in design to Figure 5. However, it adds additional granularity by breaking out the analysis by the crime for which the individual was released. The columns partition the released population by the most serious conviction they were imprisoned for, and the rows partition by the rate at which a specific recidivism conviction occurs. For example, in column (1), the coefficient on property crime (-.027) indicates that people returning after a property crime conviction recidivate about 2.7 percentage points (or about 11 percent) less frequently after negligent hiring reform is enacted. Recall that the studied reforms do not remove liability entirely but are focused on limiting liability to new misbehavior that is particularly similar to the past conviction. The lowered recidivism rates appear widespread across release types, with the largest absolute decreases being in the recidivism of people released after public order and property incarceration spells. The reductions in recidivism from these returning citizens are consistent with the fact that these offenses are unlikely to be particularly relevant to a negligent hiring case, and their criminal histories are more likely to be barred as evidence after negligent hiring reforms. The fact that some reforms carve out certain serious violent convictions from liability protections does not seem to dampen the impact of the reforms in aggregate, even in the broader categories containing these offenses. One element of the negligent hiring reform is to tighten the required connection between previous criminal behavior and the triggering event for the negligent hiring cause of action. After these reforms are enacted, employers appear to feel more comfortable with their ability to match releasees to appropriate (non-liability-inducing) jobs.

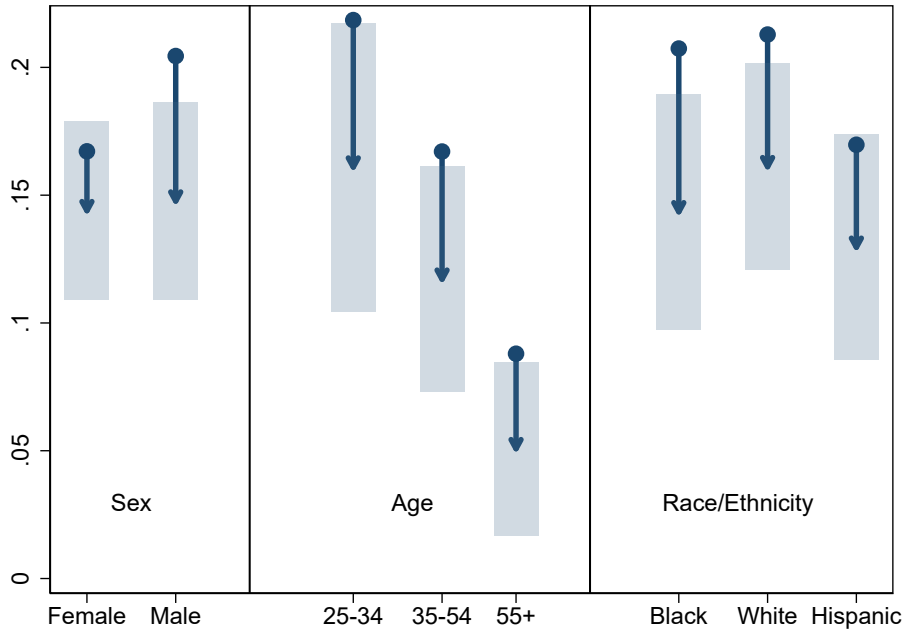
Figure 7: The Impact of Negligent Hiring Reform on Recidivism



Source: NCRP.
Notes: Shaded area is 95% confidence interval using (Gardner, 2022). Recidivism is defined as three-year prison re-entry. Controls: state and year fixed effects, last offense type, number of previous offenses and its square, race, gender, admission/release year, time served squared, release type, and sentence length. Data from 2005-2019.

I consider the effect of the reform on various subpopulations for recidivism mirroring the employment heterogeneity presented in Appendix Table A5 and Figure 3. Figure 8 and Appendix Table A10 detail the impact of a DiD specification where the treatment is allowed to vary by fixed characteristics. Each dot shows the mean recidivism for each supgroup and the arrow and shaded areas are the point estimates and the 95% confidence intervals to document the impact of the reform across different groups. The groups that experienced the largest employment gains also seem to have the largest recidivism declines (with men having larger recidivism reductions than women, 2.5 vs 1.7, and Black people having the largest recidivism reductions, 3.5 vs 2.2 for White and 1.4 for Hispanics).

Figure 8: The Impact of Negligent Hiring Reform on Recidivism by Subgroup



Source: NCRP.
Notes: Shaded area is 95% confidence interval using (Gardner, 2022). Recidivism is defined as three-year prison re-entry. Controls: state and year fixed effects, last offense type, number of previous offenses and its square, race, gender, admission/release year, time served squared, release type, and sentence length. Data from 2005-2019.

4.3 The Impact of Negligent Hiring Reform on Offense Rates

Given measurement and identification questions, evidence in this section is somewhat more speculative than the previous sections. Negligent hiring liability balances competing interests. It is possible that when states decrease employer liability, more or more harmful offenses will occur. It is also possible that "reduced crime due to more employment" will dominate the "new criminal opportunity" effect, and on balance, fewer offenses, or less harmful offenses, will occur. Offense levels will measure reported crime rates broadly. While measures of the number of offenses will encompass recidivism events, they will also include first-time offenders. However, negligent hiring liability and the statutes reforming it are most targeted at repeat offenders. Thus, relative to recidivism, we might expect to see a smaller effect on total offenses. One advantage of looking at offenses is better data coverage across states for generic offending than recidivism.

Studying offenses may better capture general equilibrium effects than the more obviously impacted recidivism rates. Measuring accounts for the possibility that potential offenders are forward-looking enough to consider future employment prospects at the time of the first offense. A related form of this worry would be that over time the common wisdom amongst

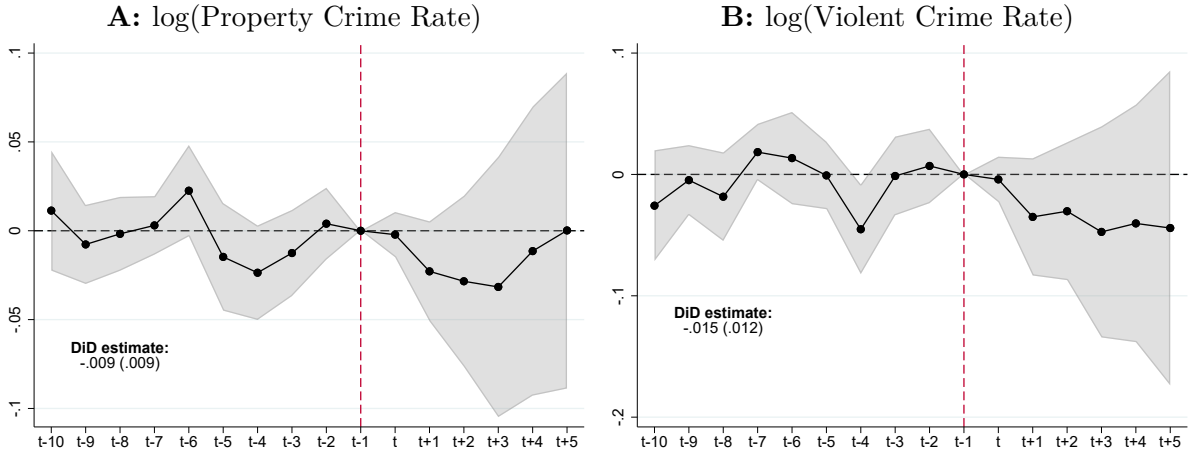
potential offenders is that the expected punishment for a given crime is lower. If the calculus for the profitability of an initial offense changes (due to changes in future employability driven by changes to negligent hiring), this would be captured in the offense rates but not necessarily in recidivism statistics. A final reason to study offenses is to assess the possibility that by hiring workers with criminal records after negligent hiring reform, employers are displacing other marginal hires who then offend as first-time offenders.

The thought experiment performed here is a simple one: first, did states that passed negligent hiring reform experience fewer criminal offenses in the years following the legislation? To test this relationship, I estimate the relationship between the crime rate and negligent hiring reform using a difference-in-differences identification strategy. Given the longer sample and lack of individual-level data, I estimate this relationship using the doubly-robust methodology of Callaway and Sant'Anna (2021). Specifically, this approach controls for state and year-specific effects, with the outcome of interest being the natural log of crime rate per 100,000 people as reported in the UCR (where property, violent, and finer crime rate measures are considered). While pre-treatment controls are not included in the primary analysis, the results are robust to their inclusion.

As with the other difference-in-differences exercises, to be a valid estimate of the impact of changes to negligent hiring liability, the states that change their negligent hiring policies must have similar trends in the outcome of interest as unchanged states but for the change in liability. In this case, that means that absent recognition or reformation of the tort, the offense rates in states that altered employer liability would have evolved similarly to offense rates in other states. One way to build confidence in this assumption is to show that prior to a liability change, the difference in offense rates does not follow a clear trend and is near 0.

First, I show that before negligent hiring reform, reform and non-reform states had similar trends in offense rates. However, reform states had consistently lower offense rates after reforming negligent hiring liability compared to states that never reformed negligent hiring liability (although this is not statistically insignificant). Figure 9 shows the impact of negligent hiring reform on each subsequent period's crime rate. This figure demonstrates that before passing negligent hiring reform, the states were roughly comparable, a fact that is supported by the blue line bouncing around the gray dashed line in all periods before time 0 when the reform takes place (and the standard error bars around the line always include zero as a point estimate showing that the effect is statistically indistinguishable from zero). There is no evidence that states that reformed negligent hiring were on different crime trajectories

Figure 9: Event study - Negligent Hiring Reform and Offense Rates Event Studies



Source: UCR.

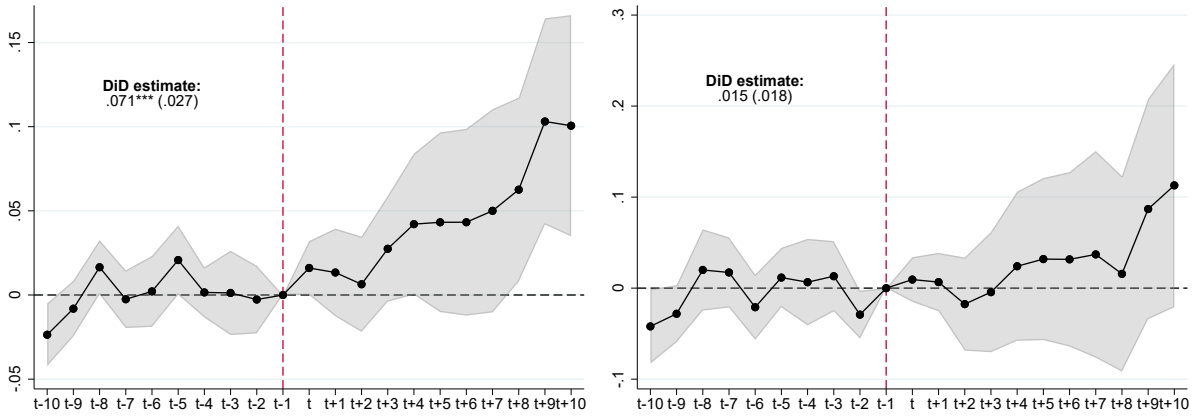
than non-reform states. However, in the six years after passing the negligent hiring reform, the states that passed the reform have consistently lower levels of offenses than the states that did not pass reforms. Both property crime and violent crime appear to decline. The event study analysis presents some weak evidence that suggests that reducing and clarifying negligent hiring liability lowers criminal activity. This indicates that many states may have more (or at least less clear) liability standards than the offense minimizing point and rules out significant increases in offending due to negligent hiring reform.

Since the UCR data extends back to 1960, it is possible to study changes in offense rates after the tort is widely recognized in a state. To construct a measure of state court recognition, I build upon previous scholarship and review case law to code when the highest court in a given jurisdiction first recognized the tort. Figure 10 shows that states had similar offending rates before increasing employer liability. After negligent hiring becomes more widely recognized in a jurisdiction, offense rates begin to grow. The number of offenses grows over time, suggesting that additional criminal behavior occurs as people are forced out of the labor market.

Taken as a whole, this evidence suggests that increasing negligent hiring liability does not, in aggregate, protect people from crime. Lowering barriers to employment for people with criminal records appears to also help public safety. Notably, the offense level analysis suggests that lowering negligent hiring reform does not decrease recidivism at the cost of increasing first-time offending. If reducing liability primarily results in substitution between workers who might otherwise resort to criminal activity absent employment, we would not expect to see the relationship observed. These findings suggest that decreasing and clarifying

Figure 10: Event study - Negligent Hiring Recognition and Offense Rates Event Studies

A: log(Property Crime Rate) **B:** log(Violent Crime Rate)



Source: UCR.

liability improves outcomes (or at least does not worsen) for workers with criminal histories as well as other individuals who might be marginal criminal offenders.

5 Discussion and Conclusion

While no one piece of evidence is definitive in the above analysis, the evidence is broadly supportive of the idea that limiting and clarifying the cause of action and appropriate evidence for negligent hiring is likely to improve several important outcomes. Novel administrative data from CJARS and the ACS suggests that the proposed employment mechanism is, in fact, the mechanism at play since individuals with a history of incarceration are more likely to be employed after release in states which have enacted negligent hiring reform. The NCRP recidivism exercises suggest that this is driven, at least in part, by lower recidivism rates, especially from the groups of released individuals most likely to be impacted by the. Finally, the UCR indicates that offenses are, if anything, more likely to decrease after a state passes negligent hiring reform, and property crimes increased after the tort was recognized. These various pieces of evidence suggest that the risks to employers imposed by the common law tort standards for negligent hiring result in more criminal offenses and worse labor market outcomes for potential workers with criminal histories.

The evidence and theory presented in this paper suggest that previous efforts to reform state tort law governing liability for negligent hiring policies have improved public safety and employment outcomes. These reforms contain much of the same language in model legislation by the American Legislative Exchange Council. However, these reforms have been limited

to a handful of states. Additional efforts to limit and clarify employer liability for promising returning citizens, such as certifications of employability and expungement, may be expected to have similar positive effects on the targeted populations (both sets of reforms lower p0, the probability of being found responsible for negligently hiring an employee, for a subset of returning citizens).

The theory suggests that alternative approaches, such as capping damages or lowering reputational damage from negligent hiring (lowering N), may also be available. Note that these first two categories of reforms (lowering liability and capping damages) reduce the compensation paid to victims. If the current level of transfers to victims is to be maintained, an additional transfer payment would be needed. One alternative reform supported by the theory of negligent hiring, but for which additional empirical work is necessary, is an expansion of the tax credit available to employers who employ workers with criminal histories (raising R, the expected revenue generated by a hire). If a hiring subsidy fully internalizes the positive externality from employment, imposing liability for offenses gets the monitoring incentives right and preserves the expressive aspects of the tort system toward negligent actions.

The bills that generated the variation used in the empirical work limited employer liability by clarifying and restricting the type of evidence that claimants can introduce in attempting to establish that an employer was negligent in hiring the employee in question. Why does this reform work? In the theoretical analysis, this type of reform was predicted to encourage employers to be more willing to hire (and perhaps pay higher wages to) people with criminal records. This increase is because many of these criminal records will no longer be relevant in a negligent-hiring case should it arise, and thus the employers will face a lower liability risk. In practice, this appears to happen.

There is some theoretical concern that weakening the employer's screening incentive too far will generate more or worse criminal behavior as more dangerous employees are hired into positions that allow them greater opportunities to offend. Before this paper, there was no evidence regarding whether we are currently at the level of liability where changing the screening incentive imposed by negligent hiring liability would increase or decrease the number of offenses and recidivism. However, the evidence presented here suggests that the states that enacted the reform had too much liability (or too low a hiring subsidy). Additionally, lowering employer liability led to the same or less criminal behavior, as both recidivism and offense rates either exhibited no change or declined in the states that narrowed the scope of negligent hiring claims.

Limiting negligent hiring liability to offenses of similar types is not the only way to lower risk. For example, this could be accomplished by barring arrest records, especially those not leading to a conviction, from being used as evidence. Some states have taken an alternative, but perhaps complementary, route by creating a presumption against negligent hiring liability if the employee had received a certification of employability from the state. This policy is a complementary reform but requires prior action by the released individual and thus may be limited in scope and administratively burdensome. In the compensation framework presented in the theoretical analysis earlier in this work, the certification policy moves the employer out of the compensator role. It substitutes the government agency issuing the certifications as an additional screening mechanism. This approach is similar to negligent hiring reform if employers and the government can screen at relatively similar costs, although it does not provide a transfer payment to the victims. In practice, those who receive certificates are more likely to be employed and less likely to recidivate. However, it is unclear how much, if any, of this effect is driven by employers' lowered concern with liability as opposed to pre-existing differences between individuals that receive certificates and those that do not.

Another approach to limiting liability under negligent hiring would be to impose a damage cap in negligent hiring cases (in terms of the model, this is akin to lowering N for a given $H(.)$. Several states have similar legislation in the medical malpractice context. However, a number of these caps have been found unconstitutional, limiting the effectiveness of such a policy. While this lowers employers' expected liability, it does not have the same effect as reducing who qualifies as a negligent hire, in that it caps employers' liability regardless of how clear their negligence was. It thus dulls the incentive for employers to screen employees for previous offenses and to monitor their behavior at work. While it may increase the hiring of released prisoners, it does so in a less targeted manner than the other potential reforms.

The Work Opportunity Tax Credit (WOTC) allows employers to claim a tax credit for people who are on welfare programs or have barriers that discourage workforce participation (this would be akin to a shift of R, which is the revenue received from a hire). Employers who hire people with felony records can claim this credit. To encourage hiring, continued employment, and higher wages, the size of the credit is based on the number of hours worked and qualified wages. The evidence presented above suggests that employers behave too cautiously regarding which released prisoners they are willing to hire. The labor market for workers with criminal histories can be expanded by lowering the employer's liability or increasing the revenue the employer receives due to the worker's employment. Increasing the

attractiveness of the tax incentives for hiring this population is analogous to increasing the revenue. However, as currently structured, the tax credit appears too small and difficult to obtain to offset an employer's liability (and other concerns).[13]

Tort liability for negligent hiring is designed to encourage employers to screen and supervise their employees and compensate victims of misbehavior for their injuries. By allowing evidence of previous criminal behavior to establish employer liability, negligent hiring doctrine discourages employers from hiring workers with criminal records. In theory, this liability results in firms hiring workers with a lower perceived risk of reoffending and more closely supervising working environments to protect consumers from potential tortious employee conduct. However, it also results in firms hiring fewer workers with criminal histories, which generates additional offenses because these workers cannot find jobs. The act of "negligently hiring" thus has a theoretically ambiguous impact on criminal behavior. By failing to fully consider the lowered probability of offending as a consequence of employment, this liability may currently generate sub-optimal outcomes. These results do not imply that removing negligent hiring liability is necessarily optimal. However, they suggest that, on the margin, there may be some benefits to statutes similar to those enacted in states like Colorado and Texas, which clarify and narrow the role of criminal records in negligent hiring cases.

The experience of the states that have recently clarified and lowered employer liability for negligent hiring suggests that moving to a lower liability regime resulted in higher rates of employment and wages for people with criminal histories, as well as lower rates of recidivism. There is no evidence that the offenses that did occur became more harmful. This suggests that employment is an important mechanism driving these results. The empirical evidence is imperfect and better data may yield different results, especially given the small number of states that have enacted reforms and the relatively short follow-up periods available for study. Still, both theory and data suggest that narrowing and clarifying liability for negligent hiring reduces crime and allows additional workers access to the labor market.

[13]Using application-level data obtained by a Freedom of Information Act request to Virginia's Department of Labor, I find that only 3,272 credits were approved between 2018 and 2020 for workers with a felony conviction out of over 18,000 requested credits (an approval rate of eighteen percent, which is about twenty-five percent lower than the overall approval rate for WOTC requests). Moreover, of these 3,000 or so credits, a small number of employers make up a large share of approved requests (the top 10 employers make up twenty-five percent of the credits), suggesting that knowledge and ability to obtain these credits is low. In addition to lowering the costs of applying for the credit, one can increase program usage and effectiveness by making it more attractive. For example, in a recent RAND survey, expanding the tax credit from twenty-five percent to forty percent and doubling the cap to $5,000 increased the number of employers willing to consider hiring an individual with a felony conviction by over thirty percent.

6 Citations

Abraham, K. G., & Kearney, M. S. (2020). Explaining the decline in the us employment-to-population ratio: A review of the evidence. *Journal of Economic Literature*, *58*, 585–630.

Agan, A. (2017). Increasing employment of people with records. *Criminology & Pub. Pol'y*, *16*, 177.

Agan, A., & Starr, S. (2017). Ban the box, criminal records, and racial discrimination: A field experiment. *The Quarterly Journal of Economics*, *133*(1), 191–235.

Agan, A. Y., & Makowsky, M. D. (2018). *The minimum wage, eitc, and criminal recidivism* (tech. rep.). National Bureau of Economic Research.

Allgood, S., Mustard, D. B., & Warren Jr, R. S. (1999). The impact of youth criminal behavior on adult earnings. *manuscript, University of Georgia*.

Alvarez, L., & Ferman, B. (2023). Extensions for inference in difference-in-differences with few treated clusters. *arXiv preprint arXiv:2302.03131*.

Bhuller, M., B. Dahl, G., LÃžken, K., & Mogstad, M. (2019). Incarceration, recidivism and employment.

Bisso, J. C., & Choi, A. H. (2008). Optimal agency contracts: The effect of vicarious liability and judicial error. *International Review of Law and Economics*, *28*(3), 166–174.

Boyd, C. L., Kim, P. T., & Schlanger, M. (2020). Mapping the iceberg: The impact of data sources on the study of district courts. *Journal of Empirical Legal Studies*, *17*(3), 466–492.

Bronson, J., & Carson, E. A. (2019). Bureau of justice statistics (bjs), us department of justice, office of justice programs & unites states of american. prisoners in 2017. *Age*, *500*, 400.

Bushway, S. D., & Kalra, N. (2021). A policy review of employers' open access to conviction records. *Annual Review of Criminology*, *4*, 165–189.

Callaway, B., & Sant'Anna, P. H. (2021). Difference-in-differences with multiple time periods. *Journal of Econometrics*, *225*(2), 200–230.

Cengiz, D., Dube, A., Lindner, A., & Zipperer, B. (2019). The effect of minimum wages on low-wage jobs. *The Quarterly Journal of Economics*, *134*(3), 1405–1454.

Conley, T. G., & Taber, C. R. (2011). Inference with âdifference in differencesâ with a small number of policy changes. *The Review of Economics and Statistics*, *93*(1), 113–125.

Couloute, L., & Kopf, D. (2018). Out of prison & out of work: Unemployment among formerly incarcerated people. https://www.prisonpolicy.org/reports/outofwork.html

Cullen, Z., Dobbie, W., & Hoffman, M. (2023). Increasing the demand for workers with a criminal record. *The Quarterly Journal of Economics*, *138*(1), 103–150.

De Chaisemartin, C., & d'Haultfoeuille, X. (2020). Two-way fixed effects estimators with heterogeneous treatment effects. *American Economic Review*, *110*(9), 2964–2996.

Decker, S. H., Ortiz, N., Spohn, C., & Hedberg, E. (2015). Criminal stigma, race, and ethnicity: The consequences of imprisonment for employment. *Journal of Criminal Justice*, *43*(2), 108–121.

Deshpande, M., & Li, Y. (2019). Who is screened out? application costs and the targeting of disability programs. *American Economic Journal: Economic Policy*, *11*(4), 213–248.

Dobbie, W., Goldin, J., & Yang, C. S. (2018). The effects of pretrial detention on conviction, future crime, and employment: Evidence from randomly assigned judges. *American Economic Review*, *108*(2), 201–40.

Doleac, J. L. (2016). Forget "ban the box" and give ex-prisoners employability certificates. *Op-Ed, Brookings Institute. December*, *15*.

Doleac, J. L., & Hansen, B. (2020). The unintended consequences of "ban the box"': Statistical discrimination and employment outcomes when criminal histories are hidden. *Journal of Labor Economics*, *38*(2), 321–374.

Donald, S. G., & Lang, K. (2007). Inference with difference-in-differences and other panel data. *The review of Economics and Statistics*, *89*(2), 221–233.

Ferman, B., & Pinto, C. (2019). Inference in differences-in-differences with few treated groups and heteroskedasticity. *Review of Economics and Statistics*, *101*(3), 452–467.

Finlay, K. (2008). *Effect of employer access to criminal history data on the labor market outcomes of ex-offenders and non-offenders* (tech. rep.). National Bureau of Economic Research.

Finlay, K., & Mueller-Smith, M. (2021). Criminal justice administrative records system (cjars) [dataset].

Finlay, K., Mueller-Smith, M., & Street, B. (2022). Measuring child exposure to the u.s. justice system: Evidence from longitudinal links between survey and administrative data. https://sites.lsa.umich.edu/mgms/wp-content/uploads/sites/283/2022/06/CJARS_KidExposure_20220609.pdf

Freeman, R. B. (1991). *Crime and the employment of disadvantaged youths* (tech. rep.). National Bureau of Economic Research.

Gardner, J. (2022). Two-stage differences in differences. *arXiv preprint arXiv:2207.05943*.

Geller, A., Garfinkel, I., Western, B., et al. (2006). The effects of incarceration on employment and wages: An analysis of the fragile families survey. *Center for Research on Child Wellbeing, Working Paper*, (2006-01).

Goodman-Bacon, A. (2021). Difference-in-differences with variation in treatment timing. *Journal of Econometrics*, *225*(2), 254–277.

Grogger, J. (1992). Arrests, persistent youth joblessness, and black/white employment differentials. *The Review of Economics and Statistics*, 100–106.

Grogger, J. (1995). The effect of arrests on the employment and earnings of young men. *The Quarterly Journal of Economics*, *110*(1), 51–71.

Hagemann, A. (2020). Inference with a single treated cluster. *arXiv preprint arXiv:2010.04076*.

Harding, D. J., Morenoff, J. D., Nguyen, A. P., & Bushway, S. D. (2018). Imprisonment and labor market outcomes: Evidence from a natural experiment. *American Journal of Sociology*, *124*(1), 49–110.

Hickox, S. A. (2010). Employer liability of negligent hiring of ex-offenders. . *Louis ULJ*, *55*, 1001.

Holzer, H. J., LaLonde, R. J., et al. (1999). *Job change and job stability among less-skilled young workers*. Citeseer.

James, J., et al. (2010). Collateral costs: Incarceration's effect on economic mobility.

Kling, J. R. (2006). Incarceration length, employment, and earnings. *American Economic Review*, *96*(3), 863–876.

Lalonde, R. J., & Cho, R. M. (2008). The impact of incarceration in state prison on the employment prospects of women. *Journal of Quantitative Criminology*, *24*(3), 243–265.

Leasure, P. (2018). Misdemeanor records and employment outcomes: An experimental study. *Crime & Delinquency*, 0011128718806683.

Leasure, P., & Stevens Andersen, T. (2017). Recognizing redemption: Old criminal records and employment outcomes.

Lundquist, J., Pager, D., & Strader, E. (2018). Does a criminal past predict worker performance? evidence from one of america's largest employers. *Social Forces*, *96*(3), 1039–1068. https://doi.org/10.1093/sf/sox092

MacKinnon, J. G., & Webb, M. D. (2020). Randomization inference for difference-in-differences with few treated clusters. *Journal of Econometrics*, *218*(2), 435–450.

Manudeep, B., Scott, J., & Waddell, G. (2020). Incarceration, recidivism, and employment. *Journal of Political Economy*, *128*, 1269–1306.

Martin, B. S. (2002). It's no accident, but is there coverage?

McElhattan, D. (2022). The exception as the rule: Negligent hiring liability, structured uncertainty, and the rise of criminal background checks in the united states. *Law & Social Inquiry*, *47*(1), 132–161.

Minor, D., Darity, W. J., & Hamilton, D. (2018). Criminal background and job performance. *IZA Journal of Labor Policy*, *7*, 8–33.

Mueller-Smith, M. (2015). The criminal and labor market impacts of incarceration. *Unpublished Working Paper*, *18*.

Mueller-Smith, M., & Schnepel, K. T. (2021). Diversion in the criminal justice system. *The Review of Economic Studies*, *88*(2), 883–936.

Nagin, D., & Waldfogel, J. (1998a). The effect of conviction on income through the life cycle. *International Review of Law and Economics*, *18*, 25–39.

Nagin, D., & Waldfogel, J. (1998b). The effect of conviction on income through the life cycle. *International Review of Law and Economics*, *18*(1), 25–40.

Neal, D., & Rick, A. (2014). *The prison boom and the lack of black progress after smith and welch* (tech. rep.). National Bureau of Economic Research.

Pager, D. (2003). The mark of a criminal record. *American journal of sociology*, *108*(5), 937–975.

Pager, D. (2008). *Marked: Race, crime, and finding work in an era of mass incarceration*. University of Chicago Press.

Pager, D., Bonikowski, B., & Western, B. (2009). Discrimination in a low-wage labor market: A field experiment. *American sociological review*, *74*(5), 777–799.

Pager, D., & Western, B. (2009). *Investigating prisoner reentry: The impact of conviction status on the employment prospects of young men* (tech. rep. No. 27). National Institute of Justice.

Pettit, B., & Lyons, C. (2007). Status and the stigma of incarceration: The labor market effects of incarceration by race, class, and criminal involvement. *Barriers to reentry*, 203–226.

Pfaff, J. F. (2011). The myths and realities of correctional severity: Evidence from the national corrections reporting program on sentencing practices. *American Law and Economics Review*, *13*(2), 491–531.

Prescott, J., Pyle, B., & Starr, S. B. (2020). Understanding violent-crime recidivism. *Notre Dame Law Review, Forthcoming*.

Raphael, S. (2007). Early incarceration spells and the transition to adulthood. *The price of independence: The economics of early adulthood*, 278–305.

Raphael, S. (2021). The intended and unintended consequences of ban the box. *Annual Review of Criminology*, *4*, 191–207.

Redcross, C., Millenky, M., Rudd, T., & Levshin, V. (2011). *More than a job: Final results from the evaluation of the center for status opportunities (ceo) transitional jobs program* (tech. rep. OPRE Report 18). Office of Planning, Research, and Evaluation.

Richey, J. (2015). Shackled labor markets: Bounding the causal effects of criminal convictions in the us. *International Review of Law and Economics*, *41*, 17–24.

Roberts, B. W., Jackson, J. L., Fayard, J. V., & Edmonds, G. (2007). Predicting the counterproductive employee in a child-to-adult prospective study. *Journal of Applied Psychology*, *92*, 1427–1436.

Rose, E. K. (2021). Does banning the box help ex-offenders get jobs? evaluating the effects of a prominent example. *Journal of Labor Economics*, *39*(1), 79–113.

Schnepel, K. (2018). Good jobs and recidivism. *The Economic Journal*, *128*, 447–471.

Shannon, S. K., Uggen, C., Schnittker, J., Thompson, M., Wakefield, S., & Massoglia, M. (2017). The growth, scope, and spatial distribution of people with felony records in the united states, 1948–2010. *Demography*, *54*(5), 1795–1818.

Shen, Y., Bushway, S. D., Sorensen, L. C., & Smith, H. L. (2020). Locking up my generation: Cohort differences in prison spells over the life course. *Criminology*, *58*(4), 645–677.

Society for Human Resource Management. (2018). Workers with criminal records. https://www.shrm.org/hr-today/trends-and-forecasting/research-and-surveys/Documents/SHRM-CKI%5C%20Workers%5C%20wit%5C%20Criminal%5C%20Records%5C%20Issue%5C%20Brief%5C%202018-05-17.pdf

Society for Human Resource Management. (2021). Getting talent back to work. https://www.gettingtalentbacktowork.org/wp-content/uploads/2021/05/2021-GTBTW_Report.pdf

Uber, Lyft Talk Responsibility on Assaults but Deny in Court. (2020).

Vance, S. D. (2014). How reforming the tort of negligent hiring can enhance the economic activity of a state, be good for business and protect the victims of certain crimes. *Legis. & Pol'y Brief*, *6*, i.

Waldfogel, J. (1994). The effect of criminal conviction on income and the trust" reposed in the workmen". *Journal of Human Resources*, 62–81.

Western, B. (2002). The impact of incarceration on wage mobility and inequality. *American sociological review*, 526–546.

Western, B. (2006). *Punishment and inequality in america*. Russell Sage Foundation.

Western, B., & Beckett, K. (1999). How unregulated is the us labor market? the penal system as a labor market institution. *American Journal of Sociology*, *104*(4), 1030–60.

Wing, C. (2021). Statistical inference for stacked difference in differences and stacked event studies.

Yang, C. S. (2017). Local labor markets and criminal recidivism. *Journal of Public Economics*, *147*, 16–29.

Zimmerman, A. (2004). Wal-Mart to Toughen Job Screening Criminal History Checks [[Online; accessed 2023-07-03]].

A Appendix

A.1 Inference with differences-in-differences with staggered treatment and few treated clusters

Inference with differences-in-differences with staggered treatment and few treated clusters can be challenging. Donald and Lang (2007) and Conley and Taber (2011) show that DiD estimators are not consistent or generally asymptotically normal when studying a few treated units. This can lead to either over or under-rejection of the null. While there have been substantial advances to aid in inference in these settings (Conley & Taber, 2011; Ferman & Pinto, 2019; Hagemann, 2020; MacKinnon & Webb, 2020), several of these methods are not straightforward to apply in the context of the recent advances in DiD estimators seeking to account for heterogeneous treatment effects and staggered adoption (Callaway & Sant'Anna, 2021; De Chaisemartin & d'Haultfoeuille, 2020; Gardner, 2022; Goodman-Bacon, 2021).

Inference in the negligent hiring context has several of these challenging features. There are a small number of reforming states (no more than 10), the states are of unequal size (generating heterogeneity), and adoption of reform is staggered. However, recent work by Alvarez and Ferman (2023) builds on Ferman and Pinto (2019) to allow for inference in this setting. This setting matches well with Ferman and Pinto (2019), in which outcomes come from aggregating data from individuals in units over time and the authors show that under many spatial and temporal correlation can be parametrically modeled. The intuition of the approach matches (Ferman & Pinto, 2019), with the addition of needing to estimate each "building block" parameter of that makes up the aggregated DiD estimate.

In order to implement this approach, I follow Alvarez and Ferman (2023) and estimate and aggregate the building block parameters in a stacked regression approach approach (separately estimating each treated state compared to all untreated states) and then aggregating akin to example 1 of Alvarez and Ferman (2023) across these comparisons. This returns the average post-treatment effect on the treated units using all pre-treatment periods in constructing the estimator.

As with Conley and Taber (2011) this approach uses the residuals from the control units to estimate the distribution of the errors of the treated units and allows for the type of heteroskedasticity of error terms considered in Ferman and Pinto (2019).

A.2 Additional tables and figures

Figure A0: Society for Human Resource Management (2021) survey of why organizations are concerned about hiring workers with criminal records

Table A1: Negligent hiring adoption cases

State	Case	Year
Alabama	Nash v. Segars, 682 So. 2d 1364	1996
Alaska	Svacke v. Shelley, 359 P.2d 127	1961
Arizona	McGuire v. Arizona Protection Agency, 125 Ariz. 380	1980
Arkansas	American Auto. Auction, Inc. v. Titsworth, 292 Ark. 452	1987
California	Evan F. v. Hughson United Methodist Church, 8 Cal. App. 4th 828	1992
Colorado	Connes v. Molalla Transport System, Inc., 831 P.2d 1316 (Colo. 1992)	1992
Connecticut	Stiebitz v. Mahoney, 144 Conn. 443	1957
D.C.	487 A.2d 610 (D.C. 1985)	1985
Delaware	Draper v. Olivere Paving & Constr. Co., 54 Del. 433	1962
Florida	Mallory v. O'Neil, 69 So. 2d 313	1954
Georgia	C. K. Sec. Systems, Inc. v. Hartford Acci. & Indem. Co., 137 Ga. App. 159	1975
Hawaii	Janssen v. American Hawaii Cruises, 69 Haw. 31	1987
Idaho	Doe v. Garcia, et al., 131 Idaho 578 (1998)	1998
Illinois	Becken v. Manpower, Inc., 532 F.2d 56	1976
Indiana	n/a	1901
Iowa	Godar v. Edwards, 588 N.W.2d 701	1999
Kansas	Balin v. Lysle Rishel Post No. 68, 177 Kan. 520, 280 P.2d 623 (1955),	1955
Kentucky	Oakley v. Flor-Shin, Inc., 964 S.W.2d 438	1998
Louisiana	Smith v. Orkin Exterminating Co., 540 So. 2d 363	1989
Maine	Fortin v. The Roman Catholic Bishop of Portland, 2005 ME 57, 871 A2.d 1208	2005
Maryland	Evans v. Morsell, 284 Md. 160, 165 (Md. 1978).	1978
Massachusetts	Carson v. Canning, 180 Mass. 461	1901
Michigan	Bradley v. Stevens, 329 Mich. 556	1951

Table A1: Negligent hiring adoption cases (continued)

State	Case	Year
Minnesota	Ponticas v. K.M.S. Invs., 331 N.W.2d 907	1983
Mississippi	Eagle Motor Lines v. Mitchell, 78 So. 2d 482, 486-87 (Miss. 1955)	1955
Missouri	Strauss v. Hotel Continental Co., 610 S.W.2d 109, 112 (Mo. App. 1980)	1980
Montana	Vollmer v. Bramlette, 594 F. Supp. 243, 248 (D. Mont. 1984))	1984
Nebraska	Greening v. School Dist., 393 N.W.2d 51	1986
Nevada	Rockwell v. Sun Harbor Budget Suites, 925 P.2d 1175	1996
New Hampshire	Cutter v. Town of Farmington, 498 A.2d 316, 320 (N.H. 1985)	1973
New Jersey	Di Cosala v. Kay, 91 N.J. 159	1982
New Mexico	F & T Co. v. Woods, 92 N.M. 697	1979
New York	Vanderhule v. Berinstein, 285 A.D. 290	1954
North Carolina	Pleasants v. Barnes, 19 S.E.2d 627	1942
North Dakota	Schlenk v. Northwestern Bell Tel. Co., 329 N.W.2d 605	1983
Ohio	Ruta v. Breckenridge-Remy Co., 1980 Ohio App. LEXIS 12410	1980
Oklahoma	Mistletoe Express Service, Inc. v. Culp, 353 P.2d 9 (Okla. 1960)	1960
Oregon	Hansen v. Cohen, 276 P.2d 391 (Or. 1954)	1954
Pennsylvania	Dempsey v. Walso Bureau, Inc., 431 Pa. 562	1968
Rhode Island	Welsh Mfg. v. Pinkerton's, 474 A.2d 436	1984
South Carolina	Cf. Degenhart v. Knights of Columbus, 309 S.C. 114, 116-17,	1992
South Dakota	Rehm v. Lenz, 1996 SD 51, 1121, 547 N.W.2d 560.	1996
Tennessee	Mooney v. Stainless, Inc., 338 F.2d 127 (6th Cir. 1964)	1964
Texas	Estate of Arrington v. Fields, 578 S.W.2d 173 (Tex. Civ. App. 1979)	1979
Utah	Retherford v. AT&T Comm. of Mountain States, Inc., 844 P.2d 949 (Utah 1992).	1992
Vermont	Huminski v. Lavoie, 787 A.2d 489, 520-521 (Vt. 2001)	2001

Table A1: Negligent hiring adoption cases (continued)

State	Case	Year
Virginia	Big Stone Gap Iron Co. v. Ketron, 102 Va. 23, 45 S.E. 740, 102 Am. St. Rep. 839	1903
Washington	Scott v. Blanchet High Sch., 50 Wn. App. 37	1987
West Virginia	Thomson v. McGinnis, 195 W. Va. 465	1995
Wisconsin	Miller v. Wal-Mart Stores, Inc., 580 N.W.2d 233	1998
Wyoming	Cranston v. Weston County Weed & Pest Bd., 826 P.2d 251	1992

Table A2: Employment Gaps Literature Summary

Author	Data	Technique	Employment	Hr. Wage	Earnings	Sample
			Individual Longitudinal Surveys			
Freeman (1991)	NLSY	Simple Regression	21-24%			Full NLSY
Grogger (1992)	NLSY	IV (previous work)	15-24%			Full NLSY
Western (2002)	NLSY	Panel FE		7-19%		Full NLSY, at Risk NLSY
Allgood et al. (1999)	NLSY	Simple Regression			12%	Youth Prison
Western and Beckett (1999)	NLSY	Panel RE	12%			Youth Prison
Western (2006)	NLSY	Panel FE	9.7%-15.1%	12.4%-24.7%	32.2-36.9%	Risky NLSY
Raphael (2007)	NLSY	Panel FE	13-23%	17-23%		Risky NLSY
James et al. (2010)	NLSY	Panel FE	19%	11%	40%	Full NLSY
Geller et al. (2006)	FFCWS	PS weighting	2-7%	10-30%		Fathers only
Richey (2015)	NLSY	IV (w/ monotonicity)	0-19%	0-39%	0-46%	White Men
Richey (2015)	NLSY	IV (w/ monotonicity)	0-29.5%	0-44%	0-43%	Black Men
Finlay (2008)	NLSY	DD around internet access	7%	8.7%	18.7%	Full NLSY
			Administrative Data			
Waldfogel (1994)	Fed Courts	Panel FE	5-9%		12-28%	Ex-inmates to non-imprisoned convic
Grogger (1995)	California	Panel FE	3-8%		11-30%	UI Data
Nagin and Waldfogel (1998b)	AoC	Panel FE	5.4%		7.7%	Fraud offenders
Lalonde and Cho (2008)	Illinois	Panel FE	INCREASE 4pp			Female inmates
Kling (2006)	California & Florida	Panel FE	0		INCREASE 0-33%	UI Data
Pettit and Lyons (2007)	Washington	Panel FE	INCREASE 0-30%	0-4%		UI Data
Harding et al. (2018)	Michigan	IV (Judge)	INCREASE 4-14pp			UI Data
Mueller-Smith (2015)	Texas	IV (Judge)	4.5-9pp		42%-89%	UI Data (1 yr. duration)
Bhuller et al. (2019)	Norway	IV (Judge)	43.6%		48%	Previously Employed
Dobbie et al. (2018)	Pennsylvania & Florida	IV (Judge)	24.7%		16.1%	Tax data
Mueller-Smith and Schnepel (2021)	Texas	RD	50%		183%	UI Data (10 yr impact on earnings)

Table A3: Negligent Hiring Reform on Labor Market Outcomes (Pooled Sample, Any Charge Record)

Panel A: Outcome - Employment

	(1)	(2)	(3)	(4)	(5)	(6)
Negligent Hiring Reform	0	-0.003	0	-0.003	0	0.002
	(0.001)	(0.004)	(0.001)	(0.004)	(0)	(0.002)
Reform x Criminal History	0.053***	0.042***	0.05***	0.089***	0.056***	0.09***
	(0.008)	(0.012)	(0.008)	(0.005)	(0.009)	(0.006)
Estimation	did2s	twfe	did2s	twfe	did2s	twfe
Sample	pooled	pooled	pooled	pooled	pooled	pooled
Start year	2005	2005	2005	2005	2008	2008
BTB Control	no	no	yes	yes	yes	yes
Obs	12880000	12880000	12880000	12880000	10400000	10400000

Panel B: Outcome - Inverse Hyperbolic Sine (wage earnings)

	(1)	(2)	(3)	(4)
Negligent Hiring Reform	0.001	-0.023	0.001	-0.023***
	(0.01)	(0.041)	(0.01)	(0.044)
Reform x Criminal History	-0.051***	0.254***	-0.052***	0.242***
	(0.019)	(0.041)	(0.017)	(0.035)
Estimation	did2s	twfe	did2s	twfe
Sample	pooled	pooled	pooled	pooled
Start year	2005	2005	2005	2005
BTB Control	no	no	yes	yes
Obs	12880000	12880000	12880000	12880000
Estimation	did2s	twfe	did2s	twfe
Sample	pooled	pooled	pooled	pooled
Start year	2005	2005	2005	2005
BTB Control	no	no	yes	yes
Obs	12880000	12880000	12880000	12880000

Panel C: Outcome - ln(wage earnings)

	(1)	(2)	(3)	(4)
Negligent Hiring Reform	0	-0.001	0	-0.001***
	(0)	(0.001)	(0)	(0.001)
Reform x Criminal History	0.003***	0.006***	0.003***	0.006***
	(0.002)	(0.002)	(0.002)	(0.001)
Estimation	did2s	twfe	did2s	twfe
Sample	pooled	pooled	pooled	pooled
Start year	2005	2005	2005	2005
BTB Control	no	no	yes	yes
Obs	9782000	9782000	9782000	9782000

State clustered robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p< 0.01. Any views expressed are those of the

Table A4: Negligent Hiring Reform on Labor Market Outcomes - no record x covariate controls (Pooled Sample)

Panel A: Outcome - Employment

	(1)	(2)	(3)	(4)	(5)	(6)
Negligent Hiring Reform	0.000	-0.003	0.000	-0.003	0.000	0.002
	(0.001)	(0.004)	(0.001)	(0.004)	(0.000)	(0.002)
Reform x Criminal History	0.053***	0.042***	0.05***	0.089***	0.056***	0.09***
	(0.008)	(0.012)	(0.008)	(0.005)	(0.009)	(0.006)
Estimation	did2s	twfe	did2s	twfe	did2s	twfe
Sample	pooled	pooled	pooled	pooled	pooled	pooled
Start year	2005	2005	2005	2005	2008	2008
BTB Control	no	no	yes	yes	yes	yes
Obs	12880000	12880000	12880000	12880000	10400000	10400000

Panel B: Outcome - Inverse Hyperbolic Sine (wage earnings)

	(1)	(2)	(3)	(4)
Negligent Hiring Reform	0.005	-0.01	0.005	-0.01
	(0.009)	(0.038)	(0.009)	(0.042)
Reform x Criminal History	0.464***	0.355***	0.446***	0.342***
	(0.068)	(0.083)	(0.073)	(0.071)
Estimation	did2s	twfe	did2s	twfe
Sample	pooled	pooled	pooled	pooled
Start year	2005	2005	2005	2005
BTB Control	no	no	yes	yes
Obs	12880000	12880000	12880000	12880000

Panel C: Outcome - ln(wage earnings)

	(1)	(2)	(3)	(4)
Negligent Hiring Reform	0.000	-0.001	0.000	-0.001
	(0.000)	(0.001)	(0.000)	(0.001)
Reform x Criminal History	0.003	0.006***	0.003	0.006***
	(0.002)	(0.002)	(0.002)	(0.001)
Estimation	did2s	twfe	did2s	twfe
Sample	pooled	pooled	pooled	pooled
Start year	2005	2005	2005	2005
BTB Control	no	no	yes	yes
Obs	9782000	9782000	9782000	9782000

Source: ACS and CJARS (2020).

State clustered robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p< 0.01. Any views expressed are those of the authors and not those of the U.S. Census Bureau. The Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product. This research was performed at a Federal Statistical Research Data Center under FSRDC Project Number 2295. (CBDRB-FY22-P2295-R9926) and (CBDRB-FY23-P2295-R10669).

Table A5: Heterogeneous Employment Impact of Negligent Hiring Reform

		Reform impact on felony or prison history by:							
Felony type		Sex		Age		Education		Race/Ethnicity	
Violent	0.03***	Female	0.032***	Age 25-34	0.041***	< High school	0.043***	Black	0.06***
	(0.006)		(0.01)		(0.012)		(0.01)		(0.011)
	[0.57]		[0.5]		[0.63]		[0.44]		[0.48]
Property	0.024***	Male	0.066***	Age 35-54	0.06***	< College	0.051***	White	0.053***
	(0.003)		(0.011)		(0.011)		(0.01)		(0.015)
	[0.57]		[0.6]		[0.6]		[0.59]		[0.6]
Drug	0.039***			Age 55-64	0.069***	College	0.038*	Hispanic	0.064***
	(0.01)				(0.02)		(0.01)		(0.01)
	[0.54]				[0.42]		[0.71]		[0.64]
Other	0.04***								
	(0.01)								
	[0.57]								
Estimation	did2s		did2s		did2s		did2s		did2s
Sample	court		pooled		pooled		pooled		pooled
BTB Control	yes		yes		yes		yes		yes
Obs	7728000		10400000		10400000		10400000		10400000

State clustered robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p< 0.01. Any views expressed are those of the authors and not those of the U.S. Census Bureau. The Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product. This research was performed at a Federal Statistical Research Data Center under FSRDC Project Number 2295. (CBDRB-FY22-P2295-R9926) and (CBDRB-FY23-P2295-R10669).

Table A6: The Impact of Negligent Hiring Reform on Recidivism (2SDID)

	(1) Any	(2) Violent	(3) Property	(4) Drug	(5) Public
Neg. Hiring Reform	-0.0243**	-0.005*	-0.009	-0.005	-0.009**
	(0.012)	(0.003)	(0.007)	(0.003)	(0.004)
Mean	0.195	0.042	0.067	0.053	0.042
Obs	6743916	6743916	6743916	6743916	6743916

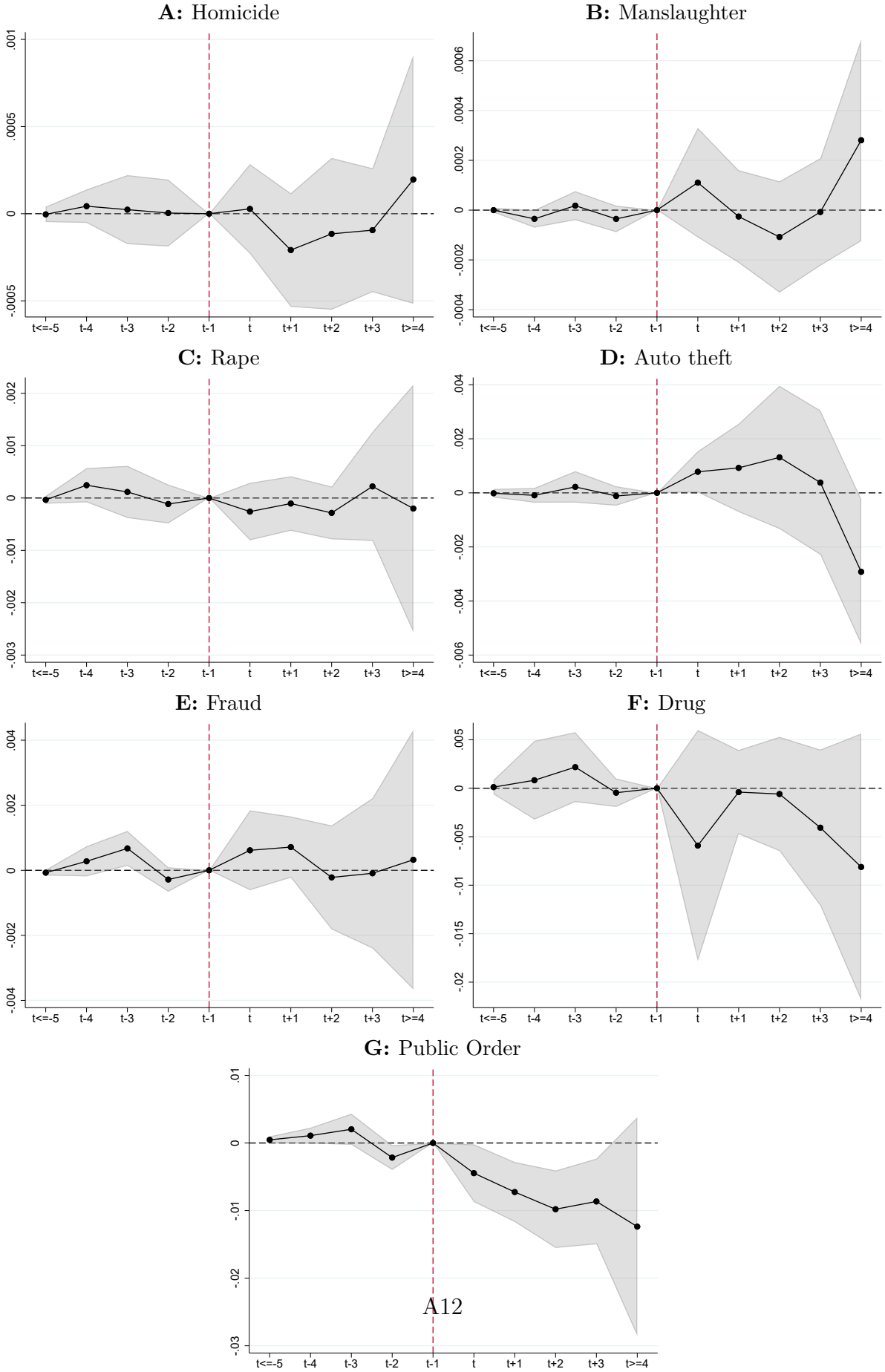
Source: NCRP.
Notes: Each column is an estimate is from a separate Gardner (2022) regression. State clustered robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p< 0.01. Recidivism is defined as three-year prison re-entry. Controls: state and year fixed effects, last offense type, number of previous offenses and its square, race, gender, admission/release year, time served squared, release type, and sentence length. Data from 2005-2019.

Table A7: The Impact of Negligent Hiring Reform on Recidivism (TWFE)

	(1) Any	(2) Violent	(3) Property	(4) Drug	(5) Public
Neg. Hiring Reform	-0.020**	-0.003	-0.009***	-0.004	-0.005**
	(0.008)	(0.003)	(0.003)	(0.004)	(0.002)
Mean	0.195	0.042	0.067	0.053	0.042
Obs	6743916	6743916	6743916	6743916	6743916

Source: NCRP.
Notes: Each column is an estimate is from a separate TWFE regression. State clustered robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p< 0.01. Recidivism is defined as three-year prison re-entry. Controls: state and year fixed effects, last offense type, number of previous offenses and its square, race, gender, admission/release year, time served squared, release type, and sentence length. Data from 2005-2019.

Figure A7: Negligent Hiring Reform and Recidivism by New Offense Crime Type



Source: NCRP.

Table A8: Heterogeneous Employment Impact of Negligent Hiring Reform

	(1) Any	(2) Violent	(3) Property	(4) Drug	(5) Public
Violent	-0.021*	-0.017	-0.002	-0.000	-0.005
	(0.013)	(0.012)	(0.013)	(0.007)	(0.005)
	[0.153]	[0.08]	[0.028]	[0.022]	[0.028]
Property	-0.027***	-0.000	-0.032**	0.004	-0.002
	(0.009)	(0.008)	(0.013)	(0.005)	(0.006)
	[0.236]	[0.033]	[0.148]	[0.036]	[0.029]
Drugs	-0.025*	-0.001	-0.002	-0.021*	-0.006
	(0.015)	(0.008)	(0.013)	(0.011)	(0.006)
	[0.179]	[0.021]	[0.032]	[0.107]	[0.025]
Public Order	-0.026	0.000	0.001	-0.000	-0.032***
	(0.018)	(0.007)	(0.013)	(0.005)	(0.011)
	[0.21]	[0.035]	[0.038]	[0.036]	[0.113]

Source: NCRP.
Notes: Each column is an estimate is from a separate Gardner (2022) regression. Means are in brackets. State clustered robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p< 0.01. Recidivism is defined as three-year prison re-entry. Controls: state and year fixed effects, last offense type, number of previous offenses and its square, race, gender, admission/release year, time served squared, release type, and sentence length. Data from 2005-2019.

Table A9: Heterogeneous Employment Impact of Negligent Hiring Reform

	(1) Any	(2) Violent	(3) Property	(4) Drug	(5) Public
Homicide	0.008	-0.008	0.011	0.002	0.002
	(0.032)	(0.007)	(0.015)	(0.010)	(0.007)
Neg Mansl	0.011	-0.010*	0.010	0.007	0.004
	(0.027)	(0.006)	(0.015)	(0.009)	(0.006)
Rape, SA	-0.045	-0.042***	0.006	0.002	-0.015*
	(0.029)	(0.015)	(0.014)	(0.009)	(0.009)
Robbery	-0.023*	-0.020*	-0.004	0.000	-0.001
	(0.013)	(0.010)	(0.011)	(0.007)	(0.004)
Assault	-0.019**	-0.005	-0.009	-0.003	-0.007
	(0.008)	(0.016)	(0.012)	(0.005)	(0.005)
Other Violent	0.005	-0.014	0.007	0.004	0.005
	(0.016)	(0.008)	(0.012)	(0.007)	(0.004)
Burglary	-0.037***	0.001	-0.044***	0.004	-0.003
	(0.009)	(0.008)	(0.012)	(0.005)	(0.005)
Larceny	-0.028**	-0.005	-0.019	0.001	-0.007
	(0.013)	(0.009)	(0.018)	(0.006)	(0.006)
Auto Theft	0.005	-0.010	0.007	0.004	0.002
	(0.014)	(0.006)	(0.019)	(0.004)	(0.006)
Fraud	-0.014	0.001	-0.028***	0.007	0.002
	(0.016)	(0.009)	(0.007)	(0.005)	(0.009)
Other Property	-0.016	0.012	-0.041***	0.003	0.003
	(0.017)	(0.009)	(0.012)	(0.007)	(0.007)
Drugs	-0.025*	-0.001	-0.002	-0.021*	-0.006
	(0.015)	(0.008)	(0.013)	(0.011)	(0.006)
Public Order	-0.026	0.000	0.001	-0.000	-0.032***
	(0.018)	(0.007)	(0.013)	(0.005)	(0.011)
Other	-0.007	0.005	0.005	0.010	0.010
	(0.021)	(0.009)	(0.008)	(0.007)	(0.007)

Source: NCRP.

Notes: Each column is an estimate is from a separate Gardner (2022) regression. Means are in brackets. State clustered robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p< 0.01. Recidivism is defined as three-year prison re-entry. Controls: state and year fixed effects, last offense type, number of previous offenses and its square, race, gender, admission/release year, time served squared, release type, and sentence length. Data from 2005-2019.

Table A10: Heterogeneous Employment Impact of Negligent Hiring Reform

Reform impact new crime recidivism by:					
Sex		Age		Race/Ethnicity	
Female	-0.017	Age 25-34	-0.026**	Black	-0.0348**
	(0.014)		(0.011)		(0.015)
	[0.16]		[0.21]		[0.21]
Male	-0.025**	Age 35-54	-0.026	White	-0.022*
	(0.012)		(0.017)		(0.012)
	[0.20]		[0.17]		[0.20]
		Age 55-64	-0.008	Hispanic	-0.014
			(0.027)		(0.017)
			[0.08]		[0.15]

Source: NCRP.
Notes: Each column is an estimate is from a separate Gardner (2022) regression. Means are in brackets. State clustered robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p< 0.01. Recidivism is defined as three-year prison re-entry. Controls: state and year fixed effects, last offense type, number of previous offenses and its square, race, gender, admission/release year, time served squared, release type, and sentence length. Data from 2005-2019.

Table A11: The Impact of Negligent Hiring Reform on Recidivism (Stacked Regression)

	(1) Any	(2) Violent	(3) Property	(4) Drug	(5) Public
Neg. Hiring Reform	-0.020**	-0.003	-0.009***	-0.005	-0.003*
	(0.009)	(0.003)	(0.003)	(0.005)	(0.003)
Alvarez/Ferman p	0.08	0.12	0.01	0.15	0.05

Source: NCRP.
Notes: Each column is an estimate is from a separate stacked difference-in-difference regression. State clustered robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p< 0.01. P-values calculated using Alvarez and Ferman (2023) are also displayed. Recidivism is defined as three-year prison re-entry. Controls: state and year fixed effects, last offense type, number of previous offenses and its square, race, gender, admission/release year, time served squared, release type, and sentence length. Data from 2005-2019.

A.3 The Interaction of Negligent Hiring Reform and Ban-the-Box

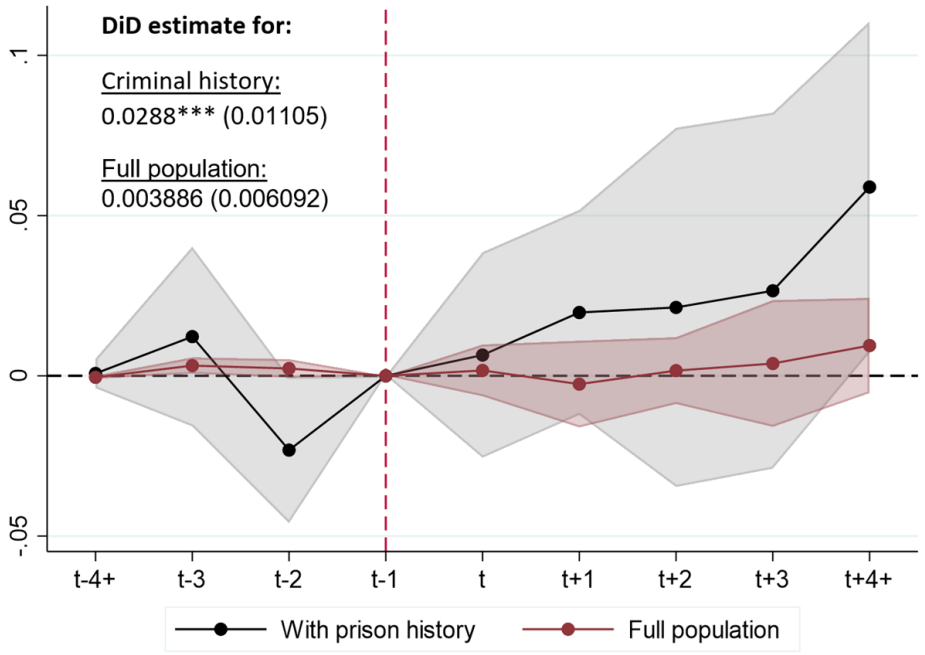
Liability for negligent hiring and efforts to reform the tort interact with a web of other criminal justice reforms. One movement particularly connected to negligent hiring reform is Ban-the-Box (BtB). Ban-the-Box laws disallow employers to ask about criminal records until late in the hiring process and have become more widespread in recent years. The adoption of BtB is often tied with negligent hiring reform. For instance, the same bill that New Jersey adopted BtB rules required a gross negligence standard to be reached for negligent hiring claims. Indiana's reform limiting what criminal history can be presented in negligent hiring claims also preempted the local jurisdiction's ability to implement Ban-the-Box laws. If either BtB or negligent hiring reforms impact employment outcomes, failure to account for both reforms in an analysis could introduce bias. For example, if both reforms increase

employment for workers with criminal histories, failure to control for both policies would cause an overestimate of the increases to the studied policy.

However, it is worth noting that, unlike negligent hiring reform, BtB doesn't change the underlying economics of actually employing workers with criminal histories-it only alters the information available to employers (and changes the screening costs). While not entirely free from controversy, academic research has found that employers remain reluctant to hire workers with criminal histories. Restricting access to direct information on criminal records results in employers using age, race, and sex as a proxy for the probability of past criminal behavior. Previous research has suggested that Ban-the-Box causes young black men to receive fewer callbacks after applying for a job and are less likely to be employed (A. Agan & Starr, 2017; Doleac, 2016). The research thus far has found some weak evidence for increased employment in the public sector but minimal labor market improvements overall for individuals with criminal histories (Raphael, 2021; Rose, 2021).

To assess whether BtB might be a potential confounder for my analysis of negligent hiring reform, I estimate Equation 1, substituting BtB reform in place of negligent hiring reform and restricting to the prison sample. While subsequent analysis should place additional focus on other groups, the analysis presented below is confined to the group previous research has indicated the most likely to benefit from BtB: young, less educated white males (white men aged 25-34 with no college degree who are not currently in prison). It is important to remember that previous research has suggested that other groups, namely people of color, may face worse opportunities due to BtB reforms. Figure A11 suggests that BtB policies increase employment for young white men who have previously been in prison (albeit to a lesser degree than negligent hiring reform). This finding is important and relevant both independently from negligent hiring reform and as a justification for including BtB policies as a control in the negligent hiring reform analysis. In addition, this finding suggests a second look at BtB, given greater data availability and the implementation of other policies that have shaped hiring incentives for workers with criminal (e.g., EEOC enforcement, negligent hiring reform, etc.), is warranted.

Figure A11: Event Study - Ban-the-Box and Employment of Young Less Educated White Males



Source: ACS and CJARS (2020).
Notes: Any views expressed are those of the authors and not those of the U.S. Census Bureau. The Census Bureau's Disclosure Review Board and Disclosure Avoidance Officers have reviewed this information product for unauthorized disclosure of confidential information and have approved the disclosure avoidance practices applied to this release. This research was performed at a Federal Statistical Research Data Center under FSRDC Project Number 2295. (CBDRB-FY22-P2295-R9926)

A.4 PSID Employment Analysis Replication

One data source for such questions is nationally representative surveys that ask individuals about their past behavior and/or track people over time and ask follow-up questions. I use the Panel Study of Income Dynamics (PSID) for this study. The PSID consists of data covering 1969-2017 and includes almost 80,000 individuals. I supplement the main PSID survey with an additional module, the Transition to Adulthood Supplement. Despite the more substantial number of individuals surveyed in the PSID, the number of individuals within the sample with criminal justice exposure is much smaller (862 people), leading to challenges in drawing statistical inferences from this population. This is a challenge in this section as well.

Additionally, constructing a measure of criminal justice exposure in the PSID is problematic. This paper proposes several potential methods for doing so, but none is a perfect measure of the precise object of interest to this study, the presence of an observable (by employers) criminal record for a given individual. This paper uses the following construction for generating criminal histories: if the reason an individual is a non-respondent in a given

year is that they are in jail or prison, they are marked as having a criminal record starting in that year. This measure is both under and over-inclusive, as not all individuals who spend time in jail will have an observable criminal record, and some individuals may have had a criminal record without spending time in jail. As above, the analysis relies on two sources of potential variation in exposure to the policy change. First, there may be variation in policy exposure for individuals with a criminal history when a state changes its negligent hiring liability. Second, individuals may gain a new criminal history by offending in a state with an already existing negligent hiring reform.[14] If lowering negligent hiring liability increases employment prospects, we would expect the enactment of the reform to improve labor market outcomes for individuals with a criminal history but not for those without a record. Additionally, we expect individuals who offend within a state with a negligent hiring reform to experience smaller employment penalties than those who offend in states without negligent hiring reforms.

For inference to be valid, it is important to ensure enough individuals with convictions are in the sample and that these individuals are roughly comparable between the states that have and have not enacted negligent hiring reform. Below I present the summary statistics. The first panel splits the sample across states that have and have never enacted negligent hiring reform. One hundred twenty-nine individuals have been incarcerated in states with negligent hiring reform; 732 individuals were released in states that have not enacted reforms to curb liability for negligent hiring. States with negligent hiring reform look similar regarding statewide earnings and employment measures to states without. However, states with negligent hiring reform are more likely to have enacted other policies related to an employer's ability to use criminal history in hiring decisions. Specifically, negligent hiring reform states are more likely to have open internet access (defined as having a relatively low-cost publicly available criminal history database) to the public for previous convictions and are more likely to have enacted "Ban-the-Box" rules. The second panel splits the sample across people who have ever been flagged as incarcerated. As expected, individuals who have been incarcerated are more than twice as likely to be unemployed (defined as looking for work), less likely to be working currently, and, contingent on being employed, earn less money.

[14]The data does like fully capture all individuals with a criminal history. Measuring criminal exposure with noise will bias results towards zero, so the impact of the studied reforms may be larger in magnitude than what is documented here.

Table A12: PSID summary statistics

	Neg Hiring Reform				Incarcerated			
	No		Yes		No		Yes	
	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean
Ever Incarcerated	73429	0.006	5469	0.011	78386	0.000	512	1.000
Neg hiring reform	73429	0.000	5469	1.000	78386	0.069	512	0.119
Unemployed	56778	0.081	3983	0.101	60257	0.081	504	0.206
Employed	40714	0.840	3585	0.837	43868	0.842	431	0.537
Log earnings	64714	9.980	5303	10.148	69537	9.997	480	9.355
Log wage	64100	2.635	5321	2.766	68942	2.647	479	2.313
Internet	73429	0.129	5469	0.317	78386	0.142	512	0.207
BtB	73429	0.015	5469	0.169	78386	0.025	512	0.047
Public BtB	73429	0.053	5469	0.378	78386	0.075	512	0.127

In the table below, I identify the impact of negligent hiring reform on employment outcomes by estimating the following regression:

$$Y_{it} = X_{it}\beta_1 + \beta_2 \text{Inc}_{it} + \beta_3 \text{NHR}_{st} + \beta_4 \text{NHR}_{st} * \text{INC}_{it} + \beta_5 \text{ANH}_{st} + \beta_6 \text{ANH}_{st} * \text{INC}_{it} + \beta_7 Z_{st} + \lambda_t + \lambda_i + \epsilon_{it}$$

In this equation, Y is a relevant labor market outcome (employment, earnings) for individual i, in year t. X is a vector of time-varying individual controls such as years of work experience (and its square), age (and its square), Inc. is whether an individual has been incarcerated (and thus has a criminal record) by year t, ANH is an indicator for having recognized negligent hiring, NHR is an indicator for negligent hiring reform, Z is a vector of time-varying state labor market characteristics (average wage and unemployment rate in a state), and the lambda terms are individual and year fixed effects. The coefficient associated with negligent hiring reform interacted with the previous incarceration allows us to observe the differential impact of passing such legislation on the employment prospects for those with and without criminal histories. Including a control for individual fixed effects allows inference to be drawn from changes within a given individual-in other words, this strategy is robust to unobserved differences between individuals (something that is likely a concern when comparing individuals interacting with the criminal justice system). The earnings results are similar after dropping the individual fixed effect and including additional demographic controls.

Table A13: Impact of negligent hiring in the PSID

	(1) Unemployed	(2) Unemployed	(3) Working	(4) Working	(5) Ln(Earn)	(6) Ln(Earn)	(7) Arcsinh(Earn)	(8) Arcsinh(Earn)
Neg. Hiring Reform	0.0000653	0.00115	-0.00160	-0.0132	-0.0625**	-0.0379	-0.168	-0.132
	(0.00313)	(0.00725)	(0.0122)	(0.0162)	(0.0233)	(0.0357)	(0.0908)	(0.129)
Neg. Hire Adopt	0.00382	0.00981	0.000690	-0.00542	-0.00969	0.0111	0.0248	-0.111
	(0.00239)	(0.00491)	(0.00656)	(0.00803)	(0.0167)	(0.0276)	(0.0616)	(0.0998)
Previously Inc.	0.00288	0.0746	-0.00329	-0.120**	0.0165	-0.557***	-0.769	-1.598**
	(0.0502)	(0.0376)	(0.0560)	(0.0346)	(0.193)	(0.150)	(0.696)	(0.556)
Neg. Hire Ref. x Inc.	-0.0276	0.0629	0.0127	-0.0355	0.460*	0.482**	1.848**	0.619
	(0.0279)	(0.0558)	(0.0401)	(0.0420)	(0.180)	(0.176)	(0.565)	(0.822)
Neg. Hire Adopt x Inc.	0.0205	0.0856*	-0.0129	-0.0604	-0.232	-0.202	-0.689	-0.825
	(0.0493)	(0.0375)	(0.0523)	(0.0312)	(0.157)	(0.170)	(0.588)	(0.583)
Person FE	Yes	No	Yes	No	Yes	No	Yes	No
State FE	No	Yes	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

State clustered robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Also controls for education, age, state economic conditions, and work experience