Jobs, Skills and the Prison-to-Work Transition

Junjie Guo, Ananth Seshadri, and Christopher Taber[*]

University of Wisconsin - Madison

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Abstract

Using county-level data on prison admission, prison release, parole supervision and employment opportunities by industry and skill requirements, we estimate the effect of the number of low-skill new hires by industry at the time of prison release on recidivism in Wisconsin. The only industry that leads to statistically significant decreases in recidivism is construction. The estimate suggests that an increase in the low-skill new hires by the construction industry equivalent to 0.01 percent of a county's working-age population (for an average county like Manitowoc with a working-age population of about 50,000, this means 5 more low-skill new hires by the construction industry) would reduce recidivism by about 1 percent. This finding suggests that placing former prisoners into construction jobs could considerably reduce their recidivism rates. We document the occupations in which low skilled workers in the construction industry are employed and the skills they might need. Boosting these skills would presumably increase the odds of obtaining these types of jobs ultimately lowering recidivism rates. Another implication for future criminal justice reform is that relaxing mobility restrictions for individuals on parole supervision may reduce recidivism. This is particularly important for jurisdictions without sufficient low-skill construction job opportunities.

1 Introduction

The goal of this paper is to identify which types of skill investment in prisoners would lead to a successful prison-to-work transition. Without access to randomized control trials we first answer this question indirectly. Our first step in doing this is to identify the industries whose jobs lower recidivism the most. The second step is to discover which types of jobs are found in these industries. The third step is to discuss which skills are most important in these jobs. Presumably if we can invest in these skills we can increase employment in these jobs and ultimately lower recidivism.

This is an extremely important question because of the high rate of recidivism in Wisconsin as well as the U.S. more generally. For example, using data on state prisoners released in 30 states in 2005, Alper et al. (2018) find that 44% of them were *arrested* at least once during their first year after release, 34% were arrested during their third year, and 24% were arrested during the ninth year. Overall, 83% were arrested at least once during the 9 years following their release, and the average number of arrests is 5.

Using a stricter definition of recidivism based on prison *readmission*, we find that, depending on the state, about 10-50% of state prisoners released in 2015 recidivated and returned to prison by 2016. Additionally, former inmates released since 2015 contributed to about 10-50% of all admissions in 2016. That is, recidivism is widespread, and it contributes significantly to the prison population.

In addition to contributing to high prison costs, the high rate of recidivism also reduces the size of the civilian labor force, which is particularly important for states like Wisconsin where the growth of the labor force has been slow, the unemployment rate has been at a historic low of around 3% for over a year, and the employment-to-population ratio has been about 10% (66% vs 60%) higher than the national average.

To inform policy that reduces recidivism and prison costs while increasing employment, this paper attempts to document both the types of jobs and skills that lower recidivism. We focus on Wisconsin in this paper. As documented in studies like Herberman and Bonczar (2014), Alper (2016) and Kaeble (2018) and summarized in a recent report by Williams et al. (2019), the number of people under parole supervision in Wisconsin exceeds the national average, the average length of stay on parole is nearly twice the national average, and the overall failure rate is also higher than other states, both nationally and in the Great Lakes Regions. In short, Wisconsin serves as a good example of how community corrections like probation and parole, which originated as alternatives to incarceration, has been a contributor to mass incarceration in the U.S.

As a start, it's important to recognize that not all jobs are equally effective in reducing recidivism and increasing employment. In fact, prior studies like Bolitzer (2005) and Raphael and Weiman (2007) do not find strong ties between labor market conditions at the time of prison release and recidivism rates. Additionally, Redcross et al. (2011) and Jacobs (2012) evaluate re-entry programs where minimum-wage jobs are randomly assigned to former inmates, and they find mixed results as to whether these jobs can reduce recidivism. On the other hand, Schnepel (2018) finds more employment

opportunities from industries like construction and manufacturing at the time of prison release are associated with significant reductions in recidivism in California.

There are at least two reasons why some job opportunities are more effective in reducing recidivism than others. First, many employment opportunities are not accessible to former inmates either because employers are prohibited or reluctant to hire applicants with criminal records or because former inmates do not meet the education and other skill requirements. Secondly, among the jobs that are accessible to former inmates, some jobs are clearly superior to others in terms of earnings and job stability. The findings in Schnepel (2018) is not a surprise because construction and manufacturing jobs are among the highest paid jobs accessible to former inmates.

We take two steps to document the jobs and skills that may reduce recidivism in Wisconsin. First, we extend Schnepel (2018) who used data from California to consider Wisconsin. Specifically, we use county level quarterly data on prison admission, prison release, parole supervision and new hires by skill and industry in Wisconsin to study the effect of industry-and-skill-specific employment opportunities at the time of prison release on recidivism. We focus on inmates released to parole supervision because the mobility restrictions commonly imposed on them suggest they are more susceptible to fluctuations in local labor market conditions. This analysis helps identify the industries where job openings are effective in reducing recidivism.

Second, for industries that are identified as effective in the first step, we study their occupational distributions and, in turn, the skill requirements of the major occupations. This helps us identify the most important skills required by the major occupations in industries that reduce recidivism. These are presumably the skills that former inmates need to secure the relevant jobs and to achieve a successful prison-to-work transition.

Consistent with the previous studies, we find no significant effect of overall economic activity at the county level, measured by the total number of new hires, on recidivism. However, when breaking down the new hires by industry and skill (college education or not) requirements, we estimate the effect of the number of low-skill new hires by the different industries at the time of prison release on recidivism of inmates released to parole supervision. Similar to what Schnepel (2018) found in California, the only industry for which we find statistically significant results is construction. The estimate suggests that an increase in the low-skill new hires by the construction industry equivalent to 0.01 percent of a county's working-age population (for an average county like Manitowoc with a working-age population of about 50,000, this means 5 more low-skill new hires by the construction industry) would reduce recidivism by about 1 percent.

One implication for future criminal justice reform is that relaxing mobility restrictions for individuals on parole supervision may reduce recidivism. This is particularly important for jurisdictions without sufficient low-skill construction jobs.

The largest four occupations for low skilled workers in construction are carpenters, construction laborers, construction supervisors, and operating engineers. We presume the most important skills for these jobs are vocational skills. In addition, we include links to O*NET which provides more detail about the general skills that are most used by these occupations.

2 Data and Descriptive Statistics

We use data from several sources. For criminal records, we use the National Corrections Reporting Program (NCRP). Administered by the Bureau of Justice Statistics since 1983, the NCRP compiles offender-level data on admissions and releases from state prison, post-confinement community supervision and year end prison custody records. The data are used to monitor the nation's correctional population and address specific policy questions related to recidivism, prisoner reentry, and trends in demographic characteristics of the incarcerated and community supervision populations. Demographic information, conviction offenses, sentence length, minimum time to be served, credited jail time, type of admission, type of release, and time served are collected from individual prisoner records.

Because participation is voluntary and not all states submit NCRP data each year, the data is not a balanced panel. For the 39 states with both admission and release data in both 2015 and 2016, the last year when data is available at the time of this study, we plot the significance of recidivism by state in figure 1. The horizontal axis plots, among the inmates released in 2015, the percentage that were re-admitted to prison by 2016. This can be viewed as a measure of the prevalence of recidivism among former inmates. The vertical axis plots, among those admitted to prison in 2016, the percentage that were previously released from prison since 2015. This can be viewed as a measure of the contribution of recidivism to the inflow (admission) of the prison population.

Depending on the state, about 10-50% of inmates released in 2015 recidivated and returned to prison by 2016. Similarly, about 10-50% of those admitted to prison in 2016 were former inmates released no earlier than 2015. The two numbers are close to each other at the state level because of a relatively stable prison population where the number of releases in 2015 is roughly equal to the number of admissions in 2016.

Wisconsin is roughly at the middle for both measures. Among the 8,526 releases in 2015, 2,290 were readmitted by 2016, implying a recidivism rate of 25.8%. Similarly, among the 9,333 admissions in 2016, 2,410 or 26.9% were former inmates released no earlier than 2015. Roughly speaking, a quarter of former inmates recidivated and returned to prison within one year following release, and they contributed to about a quarter of all admissions.

Because the NCRP data is about the prison population, our definition of recidivism involving *readmission* of former inmates is stricter than others. Additionally, we only focus on recidivism within the first year of release. A looser definition with a longer time

horizon would imply an even larger role of recidivism. For example, using data on state prisoners released in 30 states in 2005, Alper et al. (2018) find that 44% of them were *arrested* at least once during their first year after release, 34% were arrested during their third year after release, and 24% were arrested during the ninth year. Overall, 83% were arrested at least once during the 9 years following their release, and the average number of arrests is 5.

Figure 1. The Significance of Recidivism by State
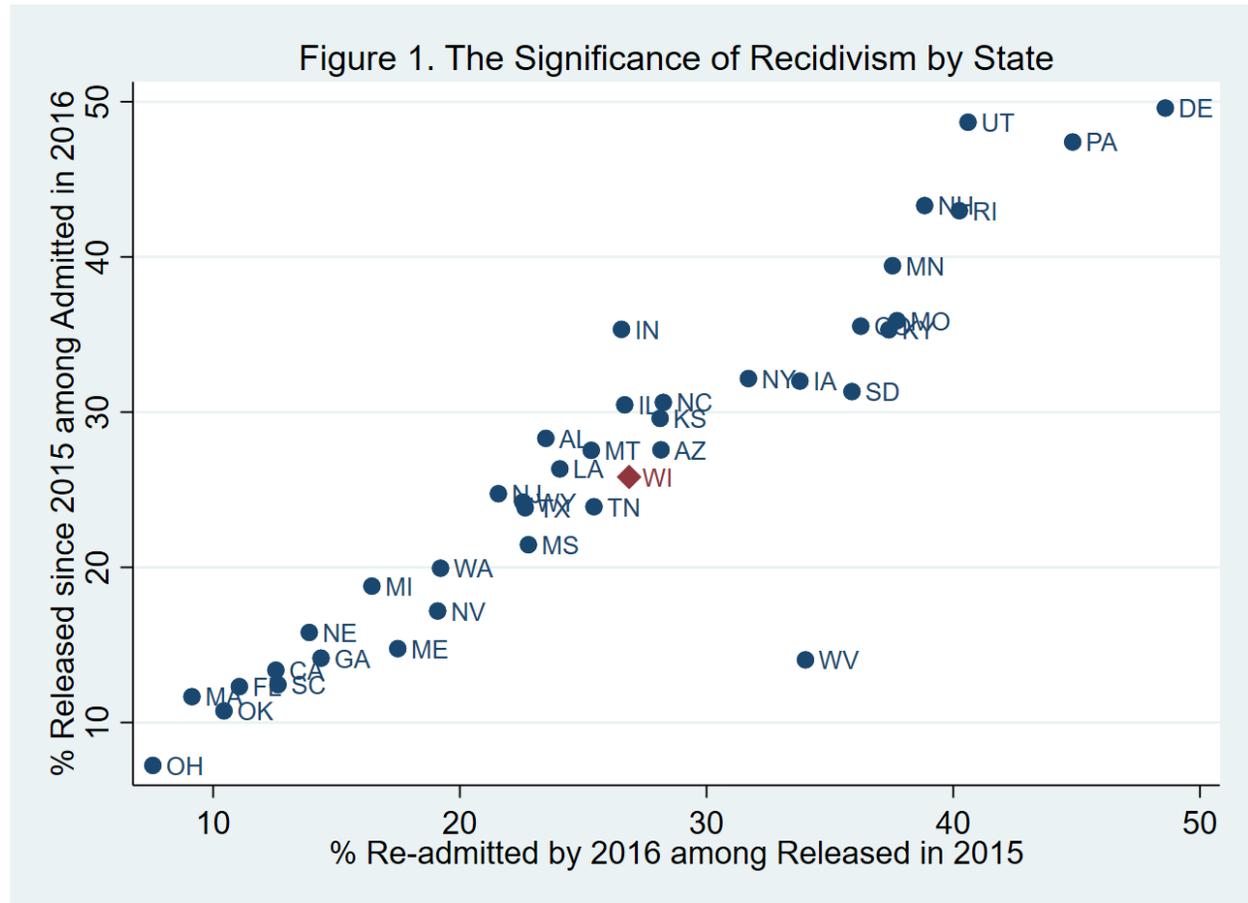
Instead of all releases at the state level, in the empirical analysis below, we will focus on working-age (18-65) males released from state prison to parole supervision at the county level. This restriction is placed because working-age males on parole supervision are potentially more susceptible to fluctuations in local labor market conditions due to the mobility restrictions commonly imposed on them.

The estimation sample includes 61,092 state prisoners released to parole supervision in a county in Wisconsin between 1994 and 2007, the last year when relevant information was available in the NCRP. Among them, 24% recidivated and returned to prison within one year following release, 50% are African Americans, 6% are Hispanics, and the average age at the time of prison release (parole entry) is 32.

Before being released to parole supervision, 23% were sentenced to 3 years or shorter, a third were sentenced to 3-5 years, another third were sentenced to 5-10 years, and the

rest were sentenced to more than 10 years. At the time of prison release to parole supervision, 18% had served less than a quarter of the full sentence, 47% had served between a quarter and a half, 33% had served between a half and three quarters, and the rest had served more than three quarters of their sentences. 48% were prior felons, 37% were released to parole for the first time, and the fraction incarcerated for violent, property and drug crimes were 26%, 29%, and 23%, respectively.

The key determinants of recidivism of interest to us are job openings at the county level, which we obtain from the Quarterly Workforce Indicators (QWI) dataset of the U.S. Census Bureau. The QWI are a set of economic indicators including employment, job creation/destruction, wages, hires, and other measures of employment flows. The QWI are reported based on detailed firm characteristics (geography, industry, age, size) and worker demographics (sex, age, education, race and ethnicity) and are available tabulated to national, state, county, and other geographical areas. The QWI are unique in their ability to track both firm and worker characteristics over time – enabling analyses such as a longitudinal look at wages by worker sex and age across counties, ranking job creation rates of young firms across NAICS industry groups, and comparing hiring levels by worker race and education levels across a selection of metropolitan areas.

As noted by Schnepel (2018), QWI offers several advantages over traditionally used county unemployment rates or employment levels. First, QWI data are more accurate than typical labor market indicators constructed from survey data because they are derived from administrative records like the unemployment insurance program that covers almost all civilian labor force. Second, and more importantly at least to the study of recidivism, it allows us to extract the number of new hires at the county by quarter level that are not recalls involving workers previously employed by the same employer within the same year. As discussed above, new hires are better measures of job opportunities that could affect recidivism and prison-to-work transitions than either unemployment rates or employment levels. Additionally, we can distinguish the new hires by education and industry, which is important because not all job openings are equally accessible/important to former inmates. For example, the number of high school dropouts hired by the construction industry in a former inmate's county and quarter of release is likely more important for his prison-to-work transition than the number of college graduates hired by the financial industry in the same county at the same time.

Table 1 reports the labor market descriptive statistics calculated from the 3379 county-by-quarter observations in Wisconsin with at least one of the 61,092 released inmates. On average, new hires account for 9.18% of a county's working-age population. Depending on whether a new hire has any college education or not, we classify all new hires into two skill groups, high vs low, which account for 2.63 and 2.56 of all new hires, respectively. The rest are new hires with missing educational attainment. Further breaking down the low-skill new hires by industry, we have 0.21 for Construction, 0.42 for Manufacturing, 0.31 for Retail, 0.35 for Food services, 0.28 for Administrative

services and waste management, 0.09 for Other services, and 0.58 for all other industries. On average, low-skill (non-college educated) workers account for 38% of the employment, and female workers account for half. The average unemployment rate is about 4.84%.

In estimating the effect of new hires on recidivism, we also control for some other county characteristics like population, median household income and the size of the police force. These variables are obtained from public sources like the FRED database of the Federal Reserve Bank of St. Louis and the Uniform Crime Reports compiled by the Federal Bureau of Investigation.

Table 1. Labor Market Descriptive Statistics
Wisconsin, 1994-2007

	Mean	SD
All new hires	9.18	3.37
High-skill new hires	2.63	0.91
Low-skill new hires	2.56	0.82
Low-skill new hires: Construction	0.21	0.15
Low-skill new hires: Manufacturing	0.42	0.25
Low-skill new hires: Retail	0.31	0.14
Low-skill new hires: Food services	0.35	0.23
Low-skill new hires: Administrative services and waste management	0.28	0.29
Low-skill new hires: Other services	0.09	0.05
Low-skill new hires: All other industries	0.58	0.25
Low-skill share of employment	0.38	0.04
Female share of employment	0.50	0.03
Unemployment rate	4.84	1.69
County-by-Quarter Observations	3379	

Notes. New hires are counts per 100 working-age persons at the county-by-quarter level.

While new hires in QWI are available by industry, measures of skill requirements are typically available by occupation. To connect industries with occupations, we use the 2000 Census. For each worker in the sample, it provides industry and occupation classifications as well as demographic information. We use this data to compute the distribution of occupations for male, high school dropouts working in a particular industry in Wisconsin.

Finally, we obtain the skill requirements by occupation from the Occupational Information Network (O*NET) database. Developed under the sponsorship of the U.S. Department of Labor, the O*NET contains hundreds of standardized and occupation-specific descriptors on almost 1,000 occupations covering the entire U.S. economy. The descriptors are organized into 9 broad categories: skills, abilities, work activities, work content, experience/education level required, work values, job interests, knowledge and

work styles. The data have proven vital in helping people find the training and jobs they need, and employers the skilled workers necessary to be competitive in the marketplace.

3 Empirical Approach

We take two steps. First, we combine the NCRP and the QWI to identify the industries whose job openings are effective in reducing recidivism. Second, we use the Census to identify the most important occupations for the effective industries, and use the O*NET to identify the most important skills required by the relevant occupations. As the second step is relatively straightforward, we focus our discussion here on the first step.

Following Schnepel (2018), we use the following equation to estimate the impact of local labor demand on recidivism.

$$logR_{ct} = \alpha + H_{ct}^{s,k}\beta^{s,k} + X_{ct}\pi + Z_{ct}\varphi + \tau_t + \delta_c + \omega_{ct} + \epsilon_{ct} \tag{1}$$

Each observation is a cohort of inmates released from prison to parole in county c in quarter (calendar quarters like the first quarter of 1994, the second quarter of 2007, etc. not the four quarters - Spring to Winter - in a year) t. R is the number of the release cohort that recidivated and returned to prison within one year following release. The total size of each release cohort is included as an independent variable in the vector X rather than used to scale R which would impose a restriction on the cohort size effect.

The key independent variable is H, the skill (s) and industry (k) specific number (per 100 working-age population) of new hires at the county by quarter level. Depending on specifications, H could either be a scalar representing all new hires at the county by quarter level, or a vector of new hires by skill and industry. Counts of new hires not including recalls are used to best measure the employment opportunities available to newly released inmates. β measures the effect of an increase in the number of new hires equivalent to one percent of the county's working-age population.

In addition to the cohort size, X also includes other characteristics of the release cohort: percentage black, percentage Hispanic, average age, percentage with a prior felony conviction, sentence length, sentence served, as well as the percent of offenders in each crime category including drug, property and violent.

Z includes county-level controls that vary over time: low-skill and female shares of total employment, CPI adjusted median household income, the natural log of the police force size and the lagged unemployment rate used as a proxy for labor supply.

County-level characteristics that do not vary over time are captured by the county fixed effects δ, aggregate trends are captured by the quarter fixed effects τ, and county-level trends are captured by a county-specific linear time trend ω.

ϵ is the error term. All regressions are weighted by the cohort size, and robust standard errors are clustered to the county level.

To demonstrate that not all employment opportunities are equally effective in reducing recidivism, three versions of equation (1) are estimated, each with a different sets of measures for H. First, we use a single measure representing the total number of new hires across all education levels and industries at the county-by-quarter level. This is informative of the effect of overall economic activities on recidivism. Second, we decompose new hires into two skill groups, with low- and high-skill new hires including individuals without and with any college education, respectively. This is motivated by the fact that majority of released inmates do not have any college education and may not meet the skill requirements of jobs filled by college-educated new hires. Consequently, the number of high-skill employment opportunities may be less effective than the number of low-skill employment opportunities in reducing recidivism. Finally, we further decompose low-skill new hires by industry. As discussed previously, released inmates may not have equal access to all low-skill jobs because some employers may be prohibited or reluctant to hire them, and the jobs that they do have access to may not pay equally well. Following Schnepel (2018), we decompose the total number of low-skill new hires into seven variables representing the number of low-skill new hires from construction, manufacturing, retail, food services, administrative services and waste management, other services, and all other industries. This breakdown is motived by evidence from the National Longitudinal Study of Youth that former inmates are heavily concentrated in the first six industry categories listed above, suggesting that employment opportunities from these industries are more relevant. Together with the number of high-skill new hires, we have eight measures of H for this specification, and the estimates would be informative of the effectiveness and relative importance of each of them.

With the inclusion of county fixed effects, δ, and time fixed effects, τ, we are using a "difference in differences" design. This means that the effect of new hires measured by β is identified from the correlation between *changes* in new hires H and *changes* in recidivism R. To illustrate this and as a preview of the results reported later, figure 2 plots the two changes between the first quarter of 1995 and the first quarter of 2005 for ten of the largest counties in Wisconsin. The horizontal axis shows the change in low-skill construction new hires between the two quarters for each county, while the vertical axis shows the change in the rate of recidivism (R divided by the release cohort size). The graph suggests a negative correlations between the two changes: relative to counties like Brown, Racine and Kenosha that experienced a decrease in low-skill construction new hires and an increase in recidivism rate, counties like Marathon, Outagamie and Rock experienced an increase in low-skill construction new hires and a decrease in recidivism. The fitted line, which is weighted by the average size of the release cohort between the two quarters for each county, has a slope of -2.3 with a standard error of 0.95, suggesting that an increase in low-skill construction new hires equivalent to 0.01% of a county's working-age population is associated with a decrease in the recidivism rate by about 2.3 percentage points.

Figure 2. Low-Skill Construction New Hires and Recidivism
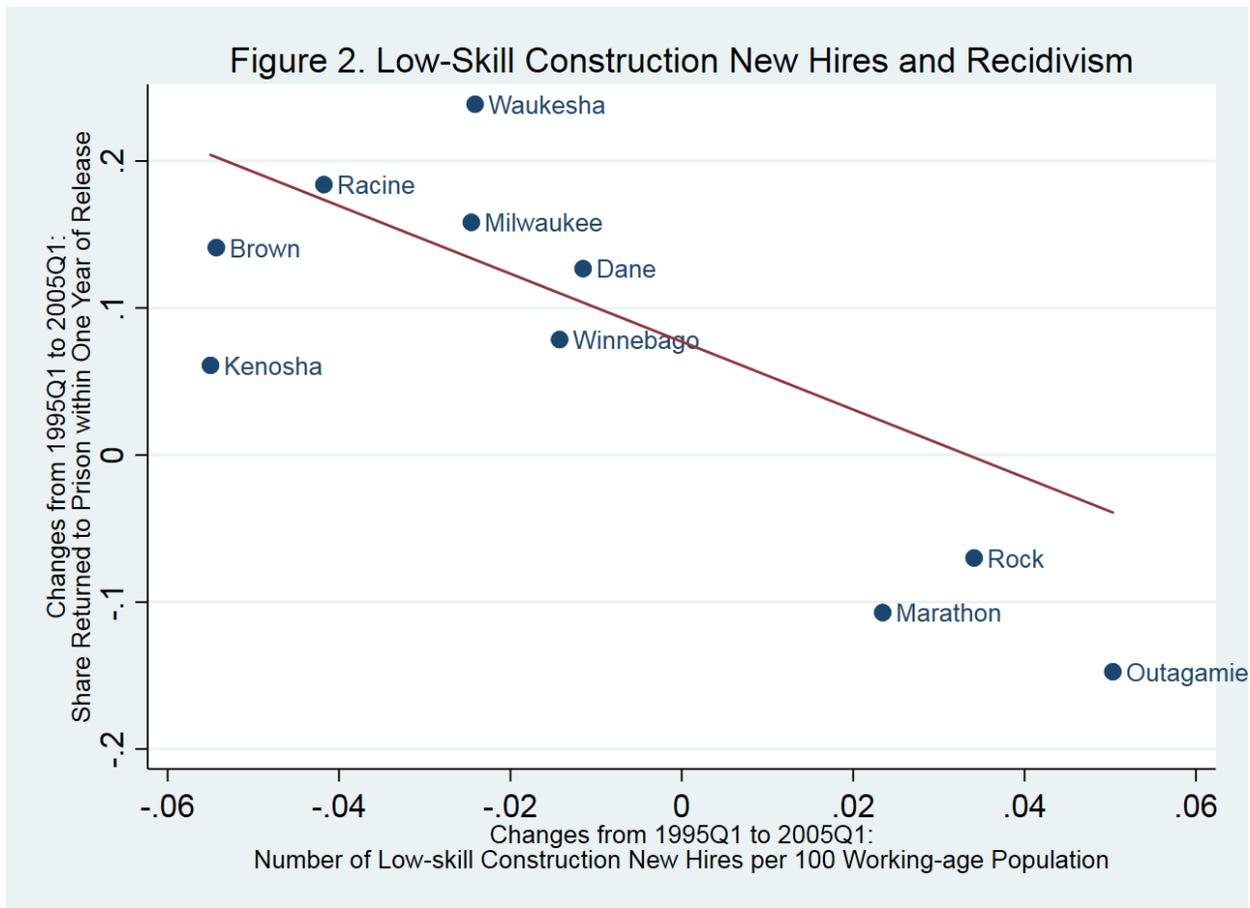
Of course, part of this correlation may reflect the influence of other changes like the size of the police force, which will be addressed in the formal regression analysis below. It's also important to note that the inclusion of the quarter fixed effects τ addresses state and national level changes affecting all counties in Wisconsin such that they will not bias our estimate of the effect of new hires β.

4 Results and Implications

We first report the estimated effects of industry-and-skill-specific new hires on recidivism. We then report the occupations for industries that are effective in reducing recidivism, and the skills required by those occupations. We discuss the implications of relevant findings along the way.

4.1 Employment Opportunities and Recidivism

Table 2 presents our main findings. It reports the estimated effects of employment opportunities on recidivism using the three specifications discussed above. The first column uses all new hires as the single measure of employment opportunities for state prisoners released to parole supervision. The estimate is positive, small and

insignificant statistically, consistent with previous studies which find mixed effects of overall economic activities on recidivism.

Table 2. Employment Opportunities and Recidivism in Wisconsin

	(1)	(2)	(3)
All new hires	0.024		
	(0.021)		
High-skill new hires		0.207	0.241
		(0.154)	(0.150)
Low-skill new hires		-0.095	
		(0.166)	
Low-skill new hires: Construction			-1.077**
			(0.536)
Low-skill new hires: Manufacturing			-0.395
			(0.509)
Low-skill new hires: Retail			-0.139
			(0.345)
Low-skill new hires: Food services			-0.209
			(0.444)
Low-skill new hires: Admin. services and waste man.			0.034
			(0.223)
Low-skill new hires: Other services			0.486
			(1.515)
Low-skill new hires: All other industries			0.163
			(0.412)
Observations	3379	3379	2437

Notes. * $p<0.1$, ** $p<0.05$, *** $p<0.01$. Heteroskedastic robust standard errors clustered at the county level are reported in the parentheses. Observations are at the county-by-quarter level. New hires are counts per 100 working-age persons. County and time fixed effects, county-specific linear trends as well as other controls are included in all specifications. See Section 3 for details.

When new hires are broken down by skill/education, the second column shows that recidivism is positively correlated with the number of high-skill new hires but negatively correlated with the number of low-skill new hires. However, neither of them is statistically significant.

Finally, in column 3, low-skill new hires are further broken down by industry. The estimates suggest that low-skill construction new hires have a significantly negative effect on recidivism. The estimate suggests that, other things equal, an increase in low-skill construction new hires equivalent to 0.01 percent of a county's working-age population, which is 5 more new hires for an average county like Manitowoc with a working-age population of about 50,000, could reduce recidivism by about 1.077

percent. Alternatively, an increase in low-skill construction new hires equivalent to 0.15 percent of a county's working-age population, the standard deviation of the variable in the sample reported in Table 1, could reduce recidivism by about 1.077*0.15=16%.

Low-skill new hires in some other industries like manufacturing, retail and food services may also have a negative effect on recidivism. However, estimates for these industries are not significant statistically. The estimates for low-skill new hires by other industries are positive but none of them is statistically significant, neither is the estimate for high-skill new hires.

Column 3 uses a smaller number of observations than columns 1 and 2. This occurs because not all industry-by-skill new hires are available for all county-by-quarter combinations. This, however, has a minimal effect. In particular, we obtain similar estimates to those reported in the first two columns when applying those specifications to the sample used for column 3.

In summary, Table 2 suggests that local labor market conditions do have an impact on recidivism, and the only employment opportunities that have a negative effect on recidivism in Wisconsin are low-skill new hires by the Construction industry. One implication for future criminal justice reform is that relaxing mobility restrictions for individuals on parole supervision may reduce recidivism. This is particularly important for jurisdictions without sufficient low-skill construction job opportunities.

4.2 Occupations and Skills

Low-skill construction jobs are the only ones we find effective in reducing recidivism. Now we identify the skills that former inmates need to secure those jobs. First we use the 2000 Census to identify the most common occupations among male high school dropouts in the Construction industry in Wisconsin. Then we discuss the use of O*NET to find the skills required for each occupation.

Table 3. Low-Skill Construction Occupations in Wisconsin

Occupation	Percentage	O*NET Link
Carpenters	18.28	https://www.onetonline.org/link/details/47-2031.01
Construction Laborers	13.89	https://www.onetonline.org/link/details/47-2061.00
Construction Supervisors	8.91	https://www.onetonline.org/link/details/47-1011.00
Operating Engineers	6.70	https://www.onetonline.org/link/details/47-2073.00
Drivers/Sales	3.88	https://www.onetonline.org/link/details/53-3031.00
Construction Managers	3.85	https://www.onetonline.org/link/details/11-9021.00
Pipe fitter/Plumber	3.80	https://www.onetonline.org/link/details/47-2152.01
		https://www.onetonline.org/link/details/47-2152.02
Electricians	3.80	https://www.onetonline.org/link/details/47-2111.00
Painters	3.44	https://www.onetonline.org/link/details/47-2141.00
Brickmason/Stonemason	3.33	https://www.onetonline.org/link/details/47-2021.00
		https://www.onetonline.org/link/details/47-2022.00
Roofers	3.12	https://www.onetonline.org/link/details/47-2181.00

Table 3 reports the most common construction jobs in Wisconsin among men with less than a high school degree. Over 18 percent of them are carpenters. About 14 percent are construction laborers. Other major occupations include construction supervisors, operating engineers, drivers and sales, construction managers, pipe fitters and plumbers, electricians, painters, brickmasons and stonemasons, and roofers.

For each of these occupations, table 3 also provides a link to the relevant O*NET page that lists, among other things, the important tasks, technology skills, tools used, knowledge, skills, abilities, worker activities, work context, education level required, and work styles. While a detailed discussion of the skill requirements for each occupation is beyond the scope of this paper, we take carpenters as an example to illustrate some of the useful information in O*NET.

For construction carpenters, O*NET lists 9 technology skills (one example is computer aided design CAD software), 68 tools used (e.g., biscuit jointers, jacks, tape measures, etc.), and 33 types of knowledge and their importance (The most important one, not surprisingly, refers to building and construction including the knowledge of materials, methods, and the tools involved in the construction or repair of houses, buildings, or other structures such as highways and roads). Roughly speaking, these are the vocational skills required for a carpenter that are obviously important.

In addition to this specific knowledge and skills, recent research by economists like Nobel Laureate James Heckman has found that soft skills like personality also contribute significantly to individual performance in the labor market. More importantly, some research has shown that these non-cognitive skills are more malleable for adults than cognitive skills. Improving the relevant non-cognitive skills for former inmates could thus be a more effective way of helping them secure a job.

Fortunately, O*NET contains information related to soft skills and worker characteristics. For example, it lists 35 general skills for carpenters, the most important of which is active listening, the ability of giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. Actually, ranked as one of the top 3 general skills for 9 out of the 11 occupations listed in table 3, active listening is the most importance general skill for low-skill construction jobs in Wisconsin.

Additionally, O*NET lists 16 useful worker characteristics under the work styles category for carpenters, the top two of which are attention to details and dependability. As above, these two characteristics also rank in the top two work styles for 9 out of the 11 occupations listed in table 3, and thus are important for almost all low-skill construction jobs in Wisconsin.

In summary, in addition to vocational skills, non-cognitive skills like active listening, attention to details and dependability are also important for former inmates looking to secure construction jobs in Wisconsin. Training programs aiming to help former

inmates should take these and other information from O*NET into consideration in designing the most effective curriculum.

5 Conclusion

To inform policy that reduces recidivism and prison costs while increasing employment in Wisconsin, we use county-level data to study the jobs that are effective in reducing recidivism, and then identify the skills that former inmates need to secure those jobs for a successful prison-to-work transition. We find low-skill construction job opportunities could reduce recidivism significantly. We explain how O*NET data can be used to document the skills needed for these jobs. These findings have implications for future criminal justice reform and training programs aiming to help former inmates achieve a successful prison-to-work transition.

Due to different industry and occupation mixes, jobs and skills that are effective in reducing recidivism in Wisconsin may not be as effective in other states. Applying the analyses in this paper to other states is straightforward and left for future work.

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