Work and opportunity before and after incarceration

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ABSTRACT

The tax code provides subsidies for employers to hire ex-felons, to promote employment among low-income workers, and to encourage economic opportunity in distressed areas. These incentives are motivated to different degrees by a belief that economic opportunity facilitates successful reintegration of ex-felons and deters entry into crime. In this paper, we offer a more comprehensive view of the labor market opportunities of ex-prisoners in the U.S. by linking data from the entire prison population to earnings records over a sixteen year period. These data allow us to examine employment and earnings before and after release and, for younger prisoners, their family income and neighborhood in childhood. After release, only 55 percent of former prisoners have any earnings and those that do tend to earn less than the earnings of a full-time job at the minimum wage. However, their labor market struggles start earlier, with similarly high rates of joblessness prior to incarceration and with most prisoners growing up in deep poverty. For example, boys who were born into families in the bottom 10 percent of the income distribution (families earning about $14,000 per year) are about 20 times more likely to be in prison in their 30s, compared to boys born into families in the top 10 percent (families earning more than $143,000 per year). A disproportionate share grew up in neighborhoods where child poverty rates are high, most parents are unmarried, few men are employed, and where most residents are African American or American Indian. The combination of high rates of incarceration and low employment rates among ex-prisoners implies that roughly one third of all not-working 30-year-old men are either in prison, in jail, or are unemployed former prisoners. We discuss the implications of these findings for the design of policies intended to encourage employment and rehabilitation of individuals with a criminal record.

I. Introduction

More than 2.2 million individuals are incarcerated in the United States and more than 620,000 are released from prison annually. Among individuals released from prison, one third will return to prison at some point (Rhodes et al. 2014). Research suggests the mark of a criminal record imposes impediments to employment, exacerbating economic disparities and contributing to recidivism (Pager 2003, Mueller-Smith 2015). Based in part on the belief that successful reintegration requires employment and economic opportunities in the formal workplace, the tax code provides subsidies for employers that hire ex-felons. The tax code also provides broad-based incentives intended to encourage economic opportunity and formal employment that may benefit ex-prisoners, including the earned income tax credit (EITC) and place-based subsidies for disadvantaged neighborhoods, like Empowerment Zones. However, targeted incentives have low rates of take-up and high administrative burdens, and there are few broadly available incentives for childless adults.

We examine the labor market outcomes and economic characteristics of the incarcerated population using data maintained by the Internal Revenue Service (IRS) in an effort to improve tax policies to aid the re-integration of ex-prisoners. Starting in 2012, the Federal Bureau of Prisons and the heads of State prison agencies were required to submit identifying information and incarceration dates annually to the IRS to facilitate tax audits. The resulting sample of about 2.9 million individuals (at the time of our analysis) represents the only national census of administrative prisoner records. We match these data to earnings and tax filing records from 1999 to 2014, providing information on pre-and post-incarceration employment, earnings, and certain demographic information. For 497,000 incarcerated individuals born in 1980-1986, we also identify their childhood neighborhood and parent's income and marital status.

While our primary motivation is to understand and improve tax policies aimed at re-integrating ex-prisoners, our analysis suggests that policy interventions focused on improving the lives of poor children and less-skilled adults may also have a positive impact on labor market outcomes for the population studied here.

The data show that ex-prisoners struggle in the labor market after their period of incarceration. In the first full calendar year after their release, only 55 percent have any reported earnings. Among those with jobs, their median annual earnings is $10,090 and only 20 percent earn more than $15,000 that year—an amount roughly equivalent to the earnings of a full-time worker at the federal minimum wage. Overall, the outcomes of ex-prisoners are poor despite the fact that the vast majority appear eligible for tax incentives that promote employment for low-income workers, including provisions that specifically target ex-felons.

The struggles of ex-prisoners after leaving prison are mirrored by their struggles prior to being incarcerated. Three years prior to incarceration, only 49 percent of prime-age men are employed, and, when employed, their median earnings were only $6,250. Only 13 percent earned more than $15,000. Tracking prisoners over time and comparing employment and earnings before and after incarceration we find surprisingly little difference in labor market outcomes like employment and earnings. This doesn't necessarily mean that incarceration has no effect on their earnings, which might otherwise have been increasing as workers age and as the economy emerged from recession or have been previously impaired by a prior conviction. Hence, we interpret this pattern less as evidence that incarceration has little effect on employment but rather as an indication that the challenges ex-prisoners face in the labor market start well before the period of incarceration we observe.

By linking younger prisoners back to their family environment, we find that individuals incarcerated in their early 30s are much more likely to have grown up in poverty, in single parent families, and in neighborhoods of concentrated economic distress and with large minority populations. Boys who grew up in families in the bottom 10 percent of the income distribution (families earning less than about $14,000) are 20 times more likely to be in prison on a given day in their early 30s than children born in top-decile families (where parents earn more than $143,000). We estimate that almost one in ten boys born to families in the lowest income decile are incarcerated at age 30 and they make up about 27 percent of prisoners that age. Incarceration rates of children in single parent families are about double the rates of children in two-parent families—even conditional on income. While the data we analyze have no information on race, the incarceration rates of African American men must be several times higher than other demographic groups given the fact that in 2012 they represented 36 of men in prison but only 12 percent of the total population.

Indeed, disparities across childhood neighborhoods are similarly stark across income, poverty, and demographic lines. In certain neighborhoods, roughly one in ten children (and thus one in five boys) were later incarcerated in their early 30s. High-incarceration-rate neighborhoods have high rates of child poverty and high shares of African American or American Indian residents, most parents are unmarried, and there is widespread unemployment.

Although we do not examine the causal effects of these environmental factors, a large literature links neighborhood and family environment to subsequent outcomes (e.g. Kling, Ludwig, and Katz 2004, Chetty and Hendren 2017, Chetty, Hendren, and Katz 2016, Western and Muller 2013) and we suspect such factors contribute to the patterns we observe here. Similarly, these contextual factors are also consistent with evidence of the association between high levels of incarceration and social isolation and high-density poverty examined in a range of other disciplines like the social determinants of health, the school to prison pipeline, and epidemiological studies that examine the biological stressors associated with childhood poverty (e.g., Miller 2013, Hinton 1983).

The fact that a large number of 30 year old men are either incarcerated or are former prisoners—half of whom have no earnings—suggests that about one third of all not-working 30-year-old men are either in prison, in jail, or are unemployed former prisoners; this is true for about half of not-working men from below-median income families.[1] While it is not clear from our analysis whether incarceration itself is to blame, versus other economic disadvantages correlated with the likelihood of incarceration, the population of men incarcerated or with a criminal record appears to be intertwined and overlapping with the population of less-skilled men unable to find work.

Subsidies in the tax code, like the Work Opportunity Tax Credit, have targeted hiring of ex-felons to aid in their re-entry to society motivated, in part, by concerns that the mark of a criminal record imposes substantial barriers to re-employment and that those problems are specific to ex-felons. The evidence in this paper suggests that labor market problems and likelihood of incarceration arise much earlier in life and are related to family resources, local environment, and (though we do not examine it directly here) to race. Further, the fact that a large share of not-working, prime-age men are prisoners or former prisoners from deeply disadvantaged backgrounds, has implications for the design of tax policies. Rather than targeting policies at ex-felons (or other narrowly targeted groups), which makes them difficult to administer and rarely used, tax policy may be more effective by targeting subsidies geographically, by targeting resources to lower-income families, or through broad incentives, like the EITC for childless adults, in order to effect

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1.   Note this estimate excludes unemployed individuals that have a criminal record or are otherwise under the supervision of the criminal justice system, but who were not sentenced to prison.

more positive labor market results. Similarly, neighborhood incarceration rates could provide new information for targeting place-based strategies, like the incentives often used by state-level policymakers focused on economic development.

II. Background

Tax incentives

The tax code facilitates entry of ex-felons into the workplace with tax credits for employers who hire ex-prisoners. The Work Opportunity Tax Credit (WOTC) provides employers a credit of up to $9,600 per employee with no limit on the number of individuals an employer can hire to qualify for the credit. Ex-felons, veterans, SNAP recipients, the long-term unemployed, summer youth employees as well as other groups qualify for the credit. In recent years, employers claimed over $1 billion in credits annually.

While the WOTC offers a potentially large tax benefit for businesses that hire ex-felons (which includes felons sentenced to prison as well as those on parole or other penalties), use of the credit for this purpose appears small relative to the eligible population of ex-felons.[2] Between 2009 and 2013, employers received WOTC certifications for hiring an average of 36,292 ex-felons per year, or about 5.8 percent of inmates.[3] In comparison, roughly 650,000 individuals were released from prison in those years and 300,000 were convicted of a felony but not incarcerated, implying an overall take-up rate of about 3 percent.[4] One reason for such low-levels of take-up is that employers appear largely unaware of the credit (Westat, 2001; Hamersma and Heinrich 2008). Even when firms are aware, they fail to claim to the credit due to administrative complexity (Hamersma and Heinrich 2007; Hamersma 2010). Indeed, surveys of employers suggests that WOTC take-up is concentrated in industries with high turnover of low-skill labor—places like fast food restaurants or retailers—where eligibility for WOTC is assessed *after* hiring by third-party payroll processers who collect the tax credits for any eligible employees.

The targeting of WOTC contributes to its administrative burden. Employers must first navigate a complex set of rules to determine if they and their employee are eligible. Next, employers must file a prescreening form with the IRS as well as a WOTC form with the Department of Labor, and send both forms to a state agency. The state agency will then make a determination of eligibility. If eligible, the employer may then claim the credit on their taxes by filing an additional form with the IRS.

Despite low take-up, the WOTC, when used, and similarly targeted wage subsidies can have a positive impact on labor market outcomes of targeted individuals. Hamersma (2008) finds evidence that the WOTC boosts earnings in the short-run among welfare recipients. Analyzing eligible employees, she finds that those who are certified for the WOTC have wages that are on average about 10 percent higher. Overall, she finds that roughly one-third of the value of the credit is passed through in the form of higher wages, with the remainder captured by the firm. Gelber, Isen, and Kessler (2016) show that New York City's Summer

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2. About 70 percent of convicted felons are sentenced to prison or jail. (BJS 2009)

3. U.S. Department of Labor, Employment and Training Administration, WOTC Certifications by Recipient Group Regional and National Details for FY 2013. https://www.doleta.gov/business/incentives/opptax/pdf/WOTC_Certifications_by_Target_Group_from_2002_to_2013.pdf

4. Hamersma (2003) reports low levels of take-up among other groups as well, including ranging from 1-17 percent among SNAP recipients and 9-32 percent among welfare recipients.

Youth Employment Program, a work incentive comparable to the WOTC, deters entry into criminal activity.

Beyond the WOTC, the tax code offers additional work incentives that may also ease the transition into the workforce for ex-prisoners. The Earned Income Tax Credit (EITC) offers a subsidy for low-income workers, providing a potentially strong work incentive. Agan and Makowsky (2018) exploit variation in the availability of state-level EITCs and show that the EITC reduces recidivism among women. This finding may result from the fact that the EITC is much more valuable for households with dependent children compared to households without children (maximum of over $6,000 vs. $500).

Place-based policies, like Promise Zones and Enterprise Zones, focus tax benefits in high-poverty communities "to create jobs, increase economic activity, improve educational outcomes, increase access to affordable housing, [and] reduce serious and violent crime."[5] Research suggests (Papke 1993, Busso, Gregory and Kline 2013) that enterprise zones can improve labor market conditions. While research on the efficacy of place-based-strategies is scarce, it is widely surmised that improvements in local economic conditions may help deter criminal behavior in the first place and aid reentry to the labor market for ex-prisoners.

Research on incarceration

This paper also relates to a large literature examining the consequences of incarceration on labor market outcomes. The evidence that incarceration *causes* poor outcomes in the labor market is mixed. Western and Muller (2013), Waldfogel (1994) and Grogger (1995) report ex-prisoners are much less likely to find formal employment after incarceration. Results from Western, Weinman and Kling (2001), Western (2002) and Needles (1996) suggests each additional year of incarceration reduces earnings by as much as 12 percent and that future earnings growth can be as much as 30 percent lower. Consistent with the idea that ex-prisoners face substantial barriers to formal labor market success, Hutcherson (2012) reports that ex-prisoners have relatively higher levels of illegal income after release compared to individuals who were not incarcerated. A key concern with much of this earlier work is the ability to control for preexisting differences in the prison population, which may result in both an increase in the likelihood of being incarcerated and poor labor market outcomes.

Researchers have attempted to address this concern in a variety of ways. The best recent evidence (Mueller-Smith 2015) uses variation in incarceration based on randomly assigned judges and finds that each additional year behind bars reduces post-release employment by 3.6 percent-age points and that post-release employment drops by at least 24 percentage points among defendants with stable pre-charge earnings incarcerated for more than one year. Pager, Western and Sugie (2009), Pager, Western and Bonikowski (2009) and Pager (2003) use a random audit approach. This method isolates the effect of incarceration by creating pairs of fictitious individuals who are observationally similar but who differ in their criminal background. These studies typically find that resumes with prison records are far less likely (roughly 50 percent) to get a response from employers relative to comparable resumes without a record. However, the ultimate labor market consequences of these findings is not clear as the studies do not directly measure employment or earnings as outcomes. Kling (2006) quantifies the effect of incarceration length on earnings by exploiting random assignment to judges who differ in sentencing preferences using an instrumental variables design.

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5.   White House Office of the Press Secretary. "Obama Administration Announces Final Round of Promise Zone Designations to Expand Access to Opportunity in Urban, Rural, and Tribal Communities." June 6, 2016. https://www.whitehouse.gov/the-press-office/2016/06/06/obama-administration-announces-final-round-promise-zone-designations

These results suggest that there is little difference in employment before or after incarceration and that the *length* of incarceration has little effect on employment opportunities or earnings.

Research on earlier determinants of incarceration finds that preexisting characteristics such as poverty, family structure, and neighborhood impact the likelihood of incarceration and thus, that the opportunity for policy interventions also exist prior to incarceration.

Several studies isolate the effects of these conditions using random control experiments, where otherwise similar individuals are assigned to different conditions. The "Moving to Opportunity" (MTO) experiment, which randomly assigned some households out of public housing into different neighborhoods, has been analyzed extensively. Kling, Ludwig, and Katz (2005), Sciandra et. al. (2013) analyze this experiment and find that relocating from high-poverty neighborhoods to lower-poverty areas reduces arrests in the short run for women and men and in the long run for women. Ludwig and Kling (2007) also study the MTO experiment and find no evidence for a criminal behavior "contagion" across neighborhoods, yet they show that neighborhood racial segregation appears to be the most important explanation for across-neighborhood variation in arrests for violent crimes. While they do not observe incarceration outcomes directly, Chetty and Hendren (2017) find that neighborhood environment in childhood has substantial causal effects on other life outcomes like earnings, college attendance, or family formation. Deming (2011) exploits a different lottery setting that assigned students to middle-schools or high schools. His findings suggest that attending a higher quality school reduces the likelihood of incarceration by as much as 50 percent.

Overall, given that moving out of high poverty areas and out of more racially segregated neighborhoods is linked with more positive economic, educational, and family-oriented outcomes, tax policy that supported employment, earnings, and economic opportunity could have positive labor market outcomes for poor and socially isolated populations.

III. Data

We analyze data from reports submitted to the IRS as required by the Internal Revenue Code. The data include identifying information and sentence length for prisoners in each state, the District of Columbia, and from federal prisons. The first wave of reports was intended to include data on prisoners who were incarcerated as of August 31, 2012 or released during the prior two calendar years. In practice, these data include about 2.9 million individuals incarcerated at varying intervals between 2009 and 2013 (depending on the state) of whom 1.5 million had release dates prior to 2015. To our knowledge, this is the only administrative database covering the entire incarcerated population in the U.S. It was constructed to facilitate audits of prisoners claiming potentially fraudulent refunds. The Appendix provides details of the sample and its construction.

To analyze filing behavior and labor market outcomes, we link individual prisoner records to returns filed by the individual or in which the individual was claimed as a dependent over the period from 1999 to 2014. We also link the individual to any W-2s submitted by employers to track formal sector employment and earnings. These data provide several advantages over that used in prior research. They include the entire incarcerated population and all individuals released during the period, linked to pre- and post- incarceration earnings, income, and some demographic information. For individuals born between 1980 and 1986, we link incarcerated individuals to their parents' returns using linkages developed by Chetty et al. 2014. This allows us to characterize the role of pre-incarceration conditions, such as family structure and income, on the likelihood of incarceration.

A challenge in our analysis is that states differed in how they interpreted the reporting requirements and submitted their records. While the law required data for incarceration in 2012, in practice the reporting timeframe varies from 2009-2013.[6] Similarly, states differ in whom they include in the data, with some states reporting everyone incarcerated at any point in time and other states restricting the data only to persons with sentence lengths longer than one year.[7] In most states, the data appear to refer to individuals in prison but not individuals in local jails. There are also differences in quality across states such as missing or erroneous identifying information.[8] Absent adjustments, such differences might make it difficult to compare the incarcerated populations across states or generate nationally-representative statistics.

Furthermore, administrative records exclude most relevant demographic characteristics such as race or education, and any details of the crime or conviction. Because the sampling frame is limited, we have no information on post-incarceration recidivism, nor whether individuals were incarcerated prior to when states begin reporting. There are also important limitations from using tax data to measure income and employment. This approach means that we observe only economic activity that is reported to the IRS, either on tax returns or employer-reported forms such as the W2 form. While the vast majority of individuals file a return, most ex-prisoners do not—either before or after incarceration.

We address shortcomings in the data several ways, which we describe in more detail in the appendix. In brief, first, we adjusted the sample universe in each state to conform to the reporting conventions used by the BJS National Prisoner Survey (NCRP) by excluding individuals incarcerated for less than a year or who do not have a sentence. Second, to address differences in the sampling frame across state, and missing identifiers, we re-weight the data based on the probability of observing an individual with valid identifying information at a point in time based on their sentence length, the duration of state reporting, and the probability of having valid identifying information. After re-weighting, the weighted sample represents 1.5 million prisoners in 2012. Eliminating prisoners with apparent sentences of less than 1 year reduces the sample to 1.4 million. These totals are very similar to the BJS sentenced prisoner count (1.5 million) as of December 31, 2012 (Carson and Golinelli 2014). Hence, we view the resulting sample as representative of individuals with valid identifications within each state. However, because of differences in the universe reported or in the quality of data across states, IRS and BJS state totals sometimes differ in certain states. In our analysis we re-weight the IRS data in proportion to measures of the total state prison population (per BJS) or the incarcerated population reported the Census ACS when producing statistics at the national level or intended to be compared across states.

Because the total population counts are similar at the national level and in most states and most sample individuals have valid identifiers, we believe that the sample is a good representation of the population of incarcerated individuals in 2012.

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6.   Some states only report information from a single year in 2010 or 2011, and one state only for a few months in 2013. The varying sample frame means both that some states include more individuals (because states with longer frames capture more new incarcerations), and also that those states include a larger proportion of inmates with shorter-duration sentences.

7.   Neither the IRS regulations nor the authorities' submissions describe whether unsentenced prisoners should be included in the report, whether to include inmates under the authorities' jurisdiction or their custody (or both), or whether the population includes only state or both state and local inmates. Some states appear to report data for all individuals incarcerated for any period of time, including sentences of less than a year and/or individuals awaiting trial or sentencing. Most other states appear to define the universe as sentenced individuals serving sentences for at least a year.

8.   Social Security Numbers (SSNs) or Tax Identification Numbers (TINs) are not available for all inmates. Overall, reporting is good but varies by state: more than 90 percent of non-duplicate observations from all but six states and the federal prison system included a valid, matched SSN or TIN. Some states (Tennessee, Wisconsin) are missing SSNs for almost half of inmates, however.

IV. Labor market outcomes of the incarcerated population

After leaving prison, ex-felons have poor employment outcomes, low earnings when working, and little attachment to the formal sector. Figure 1 (and the top panel of Table 1) illustrates the average employment rate and Figure 2 shows the distribution of earnings for the population of incarcerated individuals both before and after incarceration for individuals age 18-64 who were sentenced to at least 1 year in prison. (Year 0 denotes years of incarceration, year -1 is the calendar year of entry into prison, year 1 is the calendar year leaving prison, year 2 is the first full calendar year after release.)[9]

## FIGURE 1. EMPLOYMENT BEFORE AND AFTER INCARCERATION
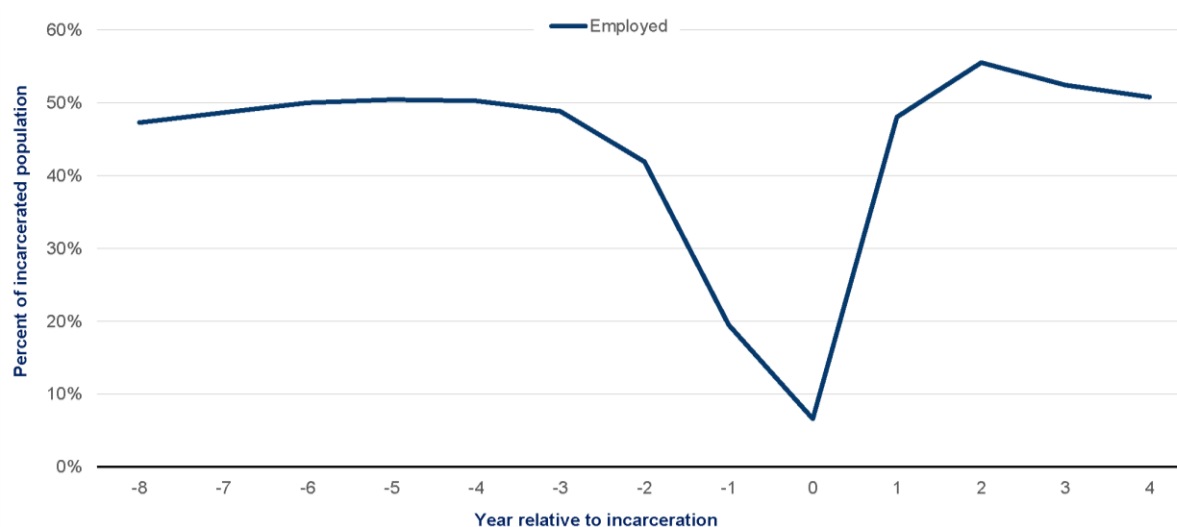
Note: Figure shows the share of prisoners with any reported earnings by calendar year relative to incarceration. (Individuals are incarcerated at year zero, enter and leave prison in years -1 and 1, etc.). Sample includes individuals age 18-64, in prison between 2009-2013 and linked to earnings records 1999-2014.

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Overall, the figure demonstrates that the incarcerated fare poorly in the formal labor market after they are released. In the first full year after release (year 2 in the figure), about 49 percent of ex-prisoners earn less than $500—as reported on a W2 or tax return (on Schedule C) —32 percent earn between $500 and $15,000, and only 20 percent earn more than $15,000. Table 1 shows that among those with earnings, the median ex-prisoner earns $10,090 and the average reported earned income is $13,890. By comparison, the employment-to-population ratio of individuals with less than a high school diploma was about 41 percent in 2014, their median weekly earnings, working full-time, was $488 (about $25,000 a year if working 50 weeks), and the median annual earnings for an individual with less than a high school degree was $19,492 (BLS 2014; U.S. Census Bureau, 2006-2010 American Community Survey).

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9. Because of the sampling frame, the panel is unbalanced. For all individuals incarcerated in 2012 and serving less than 13-year sentences we observe their earnings and outcomes prior to incarceration. However, we only observe outcomes for individuals released after state reporting starts, which is generally between 2010 and 2014. While the outcomes are thus representative of pre- and post-incarceration outcomes of individuals incarcerated or released in these years, they are not necessarily the same individuals. The appendix provides calendar year-by-incarceration year employment and earnings.

FIGURE 2. EARNINGS BEFORE AND AFTER INCARCERATION
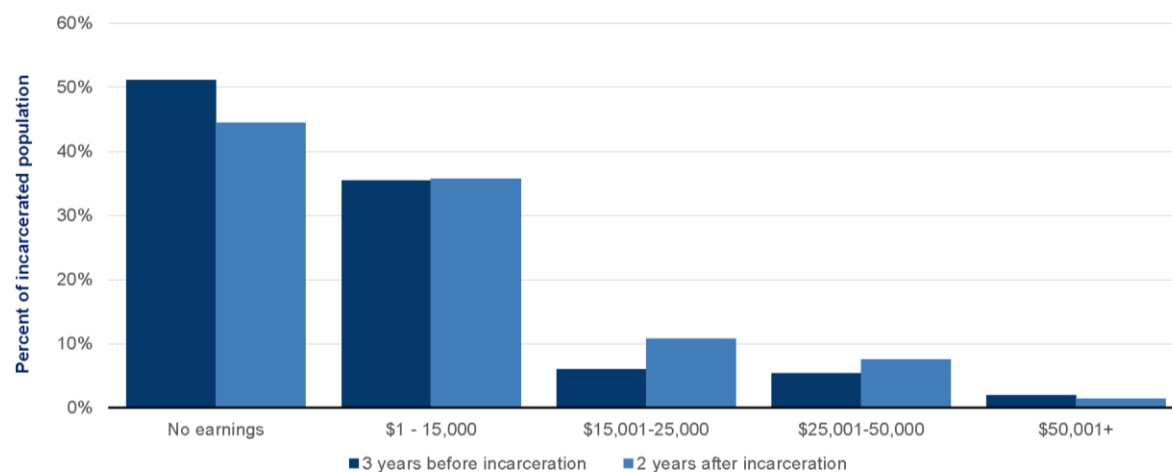
Note: Figure shows the share of prisoners with no earnings, those earning between $1 to $15,000; $15,001 to $25,000; $25,001 to $50,000; and more than $50,000 in the first full calendar year after leaving prison and two years prior to entering prison. (Individuals are incarcerated at year zero, enter and leave prison in years -1 and 1, etc.) Sample includes individuals age 18-64, incarcerated at some point between 2009-2013, and linked to earnings records 1999-2014.

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Labor market outcomes are also poor in the years prior to incarceration. Two years prior to the year they entered prison, 56 percent of individuals have essentially no annual earnings (less than $500), the share earning between $500 and $15,000 is 30 percent, and average earnings (among those who worked) was $12,780.

Looking over a longer timeframe suggests that the pattern of poor outcomes holds generally for future and ex-prisoners. In the decade leading up to incarceration, less than half of subsequently incarcerated individuals were employed in any given year, and those that were employed generally earned low incomes (substantially less than $15,000 per year). Unemployment rises in the years just prior to incarceration—probably as a direct result of criminal activity, such as incarceration before trial or sentencing. Previously incarcerated individuals are rapidly re-employed after release on average up to the level of prior employment. In fact, employment rates and earnings are somewhat higher in the first several years after release than in the years prior to incarceration.

Because these data pertain to the entire population incarcerated during the 2000s and 2010s who were still incarcerated at time of reporting, plus all prisoners subsequently released between roughly 2010 and 2014, the outcomes are representative a large number of prisoners (more than 516,000 sentenced prisoners are observed for a full calendar year after release). While this finding reinforces the conclusion of earlier work using administrative data (e.g., Kling 2006), it remains surprising given the widespread ethnographic work and field experiments showing that a criminal record impairs job opportunity. However, without a clear picture of the counterfactual situation of these individuals it is impossible to assess the direct effect of incarceration. For instance, employment and earnings might have otherwise increased in the period we study, given the economy was recovering from a recession or earnings might have been expected to increase with age within the population we study. Similarly, ex-prisoners may simply be more likely to file a return or seek formal employment as part of their re-entry, which would tend to increase reported employment even if actual employment had declined. And some prisoners we observe may have been incarcerated earlier in our sample, reducing their employment levels while they were in prison or thereafter. Nevertheless, the low levels of employment and earnings prior to incarceration and the absence of a substantial decline in

employment or earnings after incarceration suggests these individuals struggled for years in the labor market.

Beyond employment outcomes, ex-prisoners appear to have few formal ties to the tax system or to institutions that generate a filing requirement or an information return. The bottom panels of Table 1 shows interactions with the tax system before and after incarceration. About 30 percent of individuals in our sample have no contact with the tax system in the years leading up to their incarcerations—either as a filer, a worker with a W2 form (but no return), as a dependent claimed by another taxpayer (generally a parent), or by receiving an information return (like a 1099 indicating miscellaneous income or a 1098 indicating social security benefits). After release, there is a temporary increase in the interactions with the tax system that fades out over the subsequent years. In the year a prisoner is released (year +1) the share filing an individual tax return increases to 35 percent and to 40 percent the next year. Over the following years, this share decreases slightly. However, incarceration appears not to have a meaningful effect on the distribution of prisoners' filing behavior after incarceration: a slightly higher share file a return, a slightly smaller share are claimed as dependents, and about the same remain out of contact with the tax system.

Table 1 also shows that when previously incarcerated individuals file taxes, they are likely to be single. The fraction of prisoners who are married remains relatively constant pre- and post-prison, although the number claiming children or head of household status rises slightly. And, because the population is aging, a smaller share are claimed as a dependent on someone else's' return.

Finally, Table 1 shows that about 10 percent of incarcerated individuals claim children in the years before and after incarceration. Low filing rates translate into low take-up of tax benefits that encourage labor market participation such as the EITC. About 23 percent of ex-prisoners claim the EITC in the second year after leaving prison, with about half claiming the EITC for childless workers. The fraction of individuals claiming children is about the same before and after incarceration, as is the share claiming the EITC for families with children. The entire increase in EITC receipt before and after incarceration appears to be due to an increase in filing among single workers and the fact that their very low wages qualify them for the benefit.

Appendix tables replicate Table 1 separately for men and women. Female prisoners are somewhat more likely to file, to file as head of household, and to claim a dependent child after incarceration. Given that most individuals appear eligible for tax benefits associated with employment but do not take them up, one implication may be that taxpayers may not be informed of the benefits they may be eligible for.

TABLE 1. EMPLOYMENT AND FILING STATUS OF PRISONERS RELATIVE TO YEAR OF INCARCERATION

Year relative to incarceration	-8	-7	-6	-5	-4	-3	-2	-1	Incarcerated	1	2	3	4
Labor Market Outcomes													
No Earnings	52.7%	51.3%	50.0%	49.5%	49.7%	51.1%	58.1%	80.5%	93.4%	52.0%	44.5%	47.5%	49.2%
$1 to $500	4.5%	4.6%	4.8%	4.9%	5.1%	5.3%	5.4%	3.4%	0.7%	4.7%	4.0%	3.4%	2.9%
$500-15,000	27.6%	28.4%	29.4%	29.8%	30.1%	30.2%	27.1%	13.3%	4.3%	34.6%	31.7%	26.7%	24.3%
$15,000-$25,000	6.4%	6.5%	6.6%	6.6%	6.5%	6.0%	4.5%	1.4%	0.8%	5.7%	10.8%	10.4%	9.8%
$25,000-$50,000	6.4%	6.6%	6.6%	6.6%	6.2%	5.4%	3.6%	1.0%	0.6%	2.6%	7.6%	9.8%	10.9%
$50,000+	2.5%	2.6%	2.6%	2.5%	2.3%	2.0%	1.2%	0.4%	0.2%	0.5%	1.4%	2.1%	2.9%
Median Earnings (Conditional on work)	6,606	6,665	6,695	6,729	6,603	6,251	5,055	3,191	6,357	5,898	10,090	12,170	13,601
Mean earnings (Conditional on work)	14,397	14,431	14,362	14,192	13,719	12,779	10,897	8,211	11,769	9,107	13,889	16,529	18,518
Contact with tax system													
1040 Filer	27.9%	29.2%	30.5%	31.6%	32.3%	32.0%	26.0%	16.0%	12.2%	36.2%	41.2%	39.8%	38.5%
W-2 Recipient with no 1040	14.5%	14.6%	14.9%	15.1%	15.6%	16.5%	17.9%	10.6%	2.9%	15.0%	16.1%	15.0%	14.6%
Dependent	25.9%	24.6%	22.7%	20.5%	18.3%	16.2%	14.0%	10.0%	5.3%	8.5%	7.5%	6.7%	5.7%
Recipient of Other Information Return with no 1040	4.8%	4.8%	4.9%	5.2%	5.7%	6.3%	7.5%	8.9%	6.2%	6.2%	7.6%	8.6%	9.2%
Not in touch with the tax system	26.9%	26.9%	27.1%	27.6%	28.1%	29.0%	34.5%	54.5%	73.4%	34.0%	27.6%	30.0%	32.0%
Filing Status													
Single	15.7%	16.4%	17.3%	18.0%	18.6%	19.0%	16.5%	11.2%	8.9%	26.4%	26.7%	23.3%	20.6%
Head of Household	6.3%	6.7%	7.0%	7.2%	7.3%	6.9%	4.6%	1.4%	0.9%	5.5%	8.5%	9.1%	9.5%
Married Filing Jointly	7.7%	7.8%	7.9%	7.8%	7.6%	6.9%	5.4%	3.4%	2.4%	4.4%	5.7%	6.7%	7.6%
Married Filing Separately	0.7%	0.7%	0.8%	0.8%	0.8%	0.9%	0.9%	0.7%	0.3%	0.7%	0.9%	0.9%	1.0%
Claimed Child Dependent?	11.8%	12.2%	12.5%	12.5%	12.4%	11.4%	7.9%	3.1%	1.6%	6.8%	10.5%	12.0%	13.2%
Claimed EITC?	12.5%	13.3%	14.2%	15.0%	15.7%	15.8%	12.1%	5.9%	4.1%	22.6%	23.4%	21.7%	20.6%
Claimed EITC without Children	3.3%	3.6%	4.0%	4.4%	4.9%	5.3%	4.7%	3.0%	2.4%	14.4%	11.9%	9.6%	8.2%
N	1,180,326	1,225,639	1,262,913	1,294,585	1,320,771	1,341,658	1,359,450	1,375,996	6,838,956	672,281	516,170	318,832	139,699

Note: Individuals age 18-64 in prison for at least one year as reported by states and Federal Bureau of Prisons to the IRS 2009-2013 and linked to earnings and filing records 1999-2014.

IV. Childhood characteristics of the incarcerated population

The fact that the average labor market outcomes of the incarcerated population are similarly poor before and after incarceration suggests that pre-existing barriers to employment, like poor labor market skills or prejudices, make it difficult to find work and raise the likelihood of incarceration. In this section, we present evidence that family and neighborhood environment are important predictors of future incarceration, that a large share of non-working prime-age men are or were incarcerated, and that risk of incarceration is geographically concentrated.

Family income and disadvantage in childhood

For younger prisoners (born in 1980-1986 and between ages 28 and 34 in 2012), we link inmates to their parents who claim them as dependents on tax returns when they were children. Using the same method described above, the data are weighted to represent the likelihood that individuals are observed in prison on a single day. These data are then merged to data for each child born between 1980 and 1986. We are able to match just over 496,000 observations to parents out of a total cohort population of 24.8 million.[10] The resulting dataset contained an observation for each child born between 1980 and 1986, with information on childhood environment including family income, parental marital status and neighborhood.

In addition to the IRS-reported prison incarceration rate (which we define as the sum of weighted prisoner observations divided by the cohort population), we form national- and state-representative estimates intended to correspond to the incarceration rate (in prison or jail) measured in the American Community Survey. To this end, we scale IRS-measured rates proportionally so that the average prison incarceration rate is equal to ACS-derived incarceration rates. (Because the overall incarceration rate in the ACS includes individuals in local jails, the rate is about 40 percent higher than the IRS reported sentenced prisoner incarceration rate.)[11] Finally, we provide an estimate of the number of former prisoners in each income group based on the work by Bucknor and Barber (2016). Bucknor and Barber estimate that for each individual in prison between the ages of 30-34 there are approximately 2.8 former prisoners, based on an analysis of incarceration and recidivation rates by age. We assume there are 2.8 similar individuals who are former prisoners for each prisoner in our sample.

To summarize, our method starts with the likelihood of observing an individual born in 1980-1986 in the prisoner record file. The likelihood of a match provides a direct estimate of the share of the cohort in

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10. The 496,000 matched individuals correspond to 313,000 weighted observations after adjusting for the state sampling frame and the presence of missing identifiers. Hence, the weighted imprisonment rate is 1.261 percent. In comparison, the BJS estimate of 1.198 percent rate in 2012 for U.S. residents age 30-34.

11. This extrapolation assumes that individuals reported as incarcerated in the ACS have similar characteristics to those in prison. This assumption might be violated if, for instance, individuals serving time in jail (or serving short sentences not reported in certain states) were from higher income families than those serving time in prison. While we cannot assess such a bias in all cases, in states without jail systems or which reported individuals with short sentences, the family income of prisoners is similar.

prison at a point in time. In addition, it provides an estimate of the relative frequency of observing an individual from, say, a high- versus a low-income family (or in one neighborhood versus another in the same state). Hence, while the directly estimated imprisonment rate might differ from BJS- or ACS-estimates at the national level or across states because of missing identifiers or differences in the sample universe reported by states, the information on relative frequency can be used to estimate incarceration rates within each subpopulation that aggregate to the BJS or ACS totals. In the analysis that follows and in the appendix, we provide the incarceration rate directly estimated from the IRS as well as the rate implied by the aggregate ACS total incarcerated population for these cohorts.

Figure 3 shows the relationship between family income and the estimated number of individuals incarcerated in prison or in jail (based on ACS incarceration rates) and the IRS-reported share in prison in 2012 for the 1980-1986 birth cohorts, plotting the incarceration rate by parent income percentile. This figure suggests that the incarceration rate varies substantially by family income. Boys born into families in the bottom 10 percent of the income distribution (families with average income below about $14,000) had about a 9.6 percent chance of being incarcerated on a given day in 2012. For boys born in the top 10 percent (families earning more than about $143,000 per year), the average incarceration rate was about 0.49 percent. This implies that boys from families in the lowest 10 percent are almost 20 times more likely to be incarcerated compared to boys from the top 10 percent. At the extremes of the family income distribution, the differences are larger: the rate in the lowest 1 percent was 11.5 percent and in top 1 percent was 0.29 percent. This means that boys from the poorest families are 40 times more likely to end up in prison compared to boys from the richest families. As a result, there are more men in prison from the bottom 1 percent than from the top 15 percent of the income distribution.

FIGURE 3. DISTRIBUTION OF INCARCERATION BY PARENT INCOME PERCENTILE
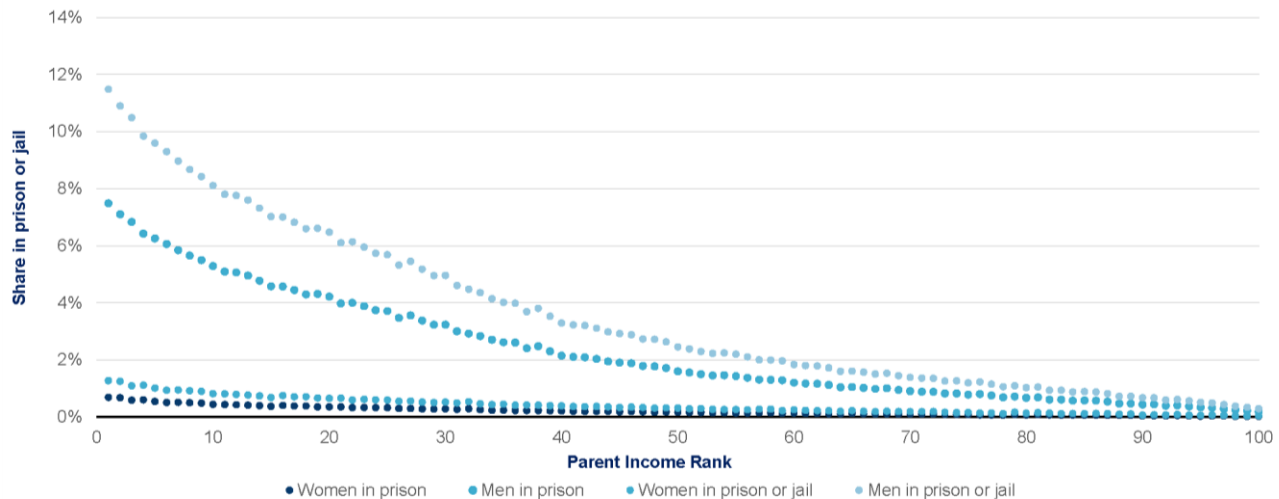
Note: Figure shows the estimated incarceration rates of individuals born between 1980-1986 in 2012. "In prison" is the share observed in prison serving a sentence of one year or greater in IRS records. "In prison or jail" is an estimate of the total incarceration rate (in prison or jail) based on the share of the 1980-1986 birth cohorts incarcerated in an adult correctional facility in the 2014 5-year American Community Survey.

BROOKINGS

For women, the overall incarceration rates are much lower overall but the relative differences in the likelihood of incarceration by family income are comparable. In the bottom decile, the incarceration rate of women was 1.0 percent compared to about 0.06 percent in the top decile. In other words, girls from families

in the bottom 10 percent are 17 times more likely to end up in jail in our sample compared to girls from families in the top 10 percent.

Additional data included in the appendix shows that youths from single-parent households are about twice as likely to be incarcerated in their early 30s than youths from married households, conditional on family income. Among families in the bottom 10 percent of family income, about 11.0 percent of boys from single-parent households are incarcerated in their early 30s, compared to about 5.2 percent of low-income boys of married parents. Within the top 10 percent of family income, the corresponding rates are 1.1 percent and 0.5 percent. For girls, while overall incarceration rates are much lower, the differences by income and family structure remain apparent with girls raised in the bottom ten percent having a 1.1 percent chance of being incarcerated if from a single parent family versus a 0.7 percent chance if in a married-parent family.

These differences in incarceration rates by income imply that the incarcerated population is concentrated among individuals—mostly boys—from low-income, single parent families. About 15 percent of the individuals incarcerated at around age 30 come from families in the bottom 5 percent of family income, 47 percent grew up in families in the bottom 20 percent of the income distribution, and 82 percent are from the bottom half of families. Taking into account both income and family structure, about 20 percent of all prisoners in 2012 were boys from single-parent families in the bottom 10 percent of the income distribution—a group that makes up only 3.7 percent of the overall population. An additional 14 percent are from single-parent families from the second-lowest income decile (families earning between $14,000 and $23,000 per year) and 10 percent are from the third-lowest decile (earning between $23,000 and $33,000 per year). Hence, men in the bottom 30 percent and growing up in single-parent families make up almost half (46 percent) of the male prison population, but represent only 19 percent of all men. At the other end of the income distribution, boys who grow up in the top 50 percent of the income distribution and have married parents—a group that represents about 46 percent of boys—accounts for only 14 percent of men in prison.

The concentration of incarceration among children raised in poor families appears to be true within each state, not just at the national level. As illustrated in the appendix, the share of the incarcerated population from the bottom 20 percent of each state's income distribution is very similar across states despite substantial variation in incarceration rates. In almost all states, between 40 and 50 percent of the prison population grew up in families in the bottom quintile of the income distribution.

The incarceration rates depicted in Figure 2 show only the point-in-time incarceration rate, not the lifetime likelihood of incarceration. Bucknor and Barber's (2016) estimates imply that for each male incarcerated between the age of 30-34, there are about 2.75 former prisoners in the same age group. If that ratio applied equally across the family income and family structure distribution, it would imply that boys born in bottom 10 percent of families would have a one in four chance of being incarcerated or a former prisoner by their early 30s.

A policy-relevant implication of these facts is that a large share of non-working men are either incarcerated or were previously, especially among individuals from lower-income households. Figure 4 illustrates the non-employment rate (the share with zero wages or self-employment earnings) among 30-year-old men by parent income percentile. Low-income men are substantially less likely to be employed (the light blue line). The dark blue line shows the share in prison at age 30, which indicates that a large share of non-working, low-income men are out of the labor force simply because they are incarcerated. The medium-blue line adds to this share the number of men who are likely to have been incarcerated earlier, are in the labor market, but who have a 50 percent non-employment rate. Under these assumptions, the figure shows that a large-share—about 31 percent—of non-working men at age 30 are not employed either because they are in prison or had been in the past. Among men in the bottom third of the income distribution, about half

are incarcerated or are unemployed former prisoners. Excluding these men, most of the difference in employment rates between high- and low-income children is eliminated.

FIGURE 4. EMPLOYMENT AND INCARCERATION OF MEN AGE 30
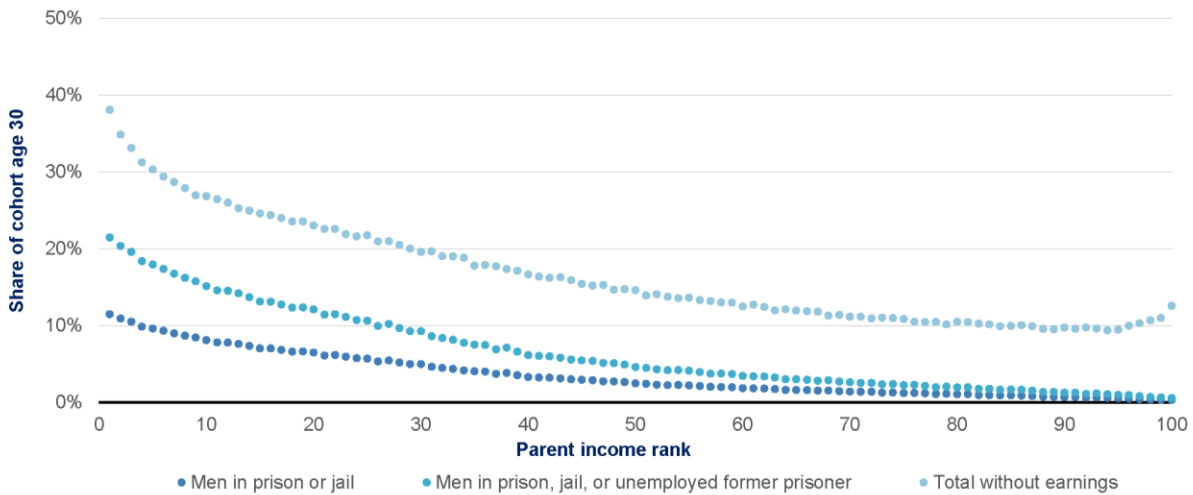
Note: Figure shows the share of men age 30 without any reported earnings (on either a W-2 or Schedule C) (from Chetty and Hendren 2017), the share of men age 28-34 who are estimated to be in prison or jail, and the share of men in prison or jail or who are former prisoners without earnings (based on average employment rates of about 50 percent and the estimated number of ex-prisoners age 30-34 from Bucknor and Barber 2016).

BROOKINGS

While our estimates do not show whether incarceration causes these differences in employment, it does suggest, at the very least, that the broader set of economic circumstances that lead to incarceration and joblessness are significant barriers to economic opportunity and to differences in economic success across the family income distribution.

Moreover, the fact that such a large share of not-working, prime-age men are also prisoners or former prisoners and are from deeply disadvantaged backgrounds has implications for the design of prisoner-focused subsidies. Relaxing the burdensome requirements needed to target subsidies to ex-felons or replacing focused subsidies, like WOTC, with broad-based subsidies for all low-skill, marginally employed individuals, like the EITC for childless workers, would expand eligibility for subsidies but to a large extent reach the same intended recipients.

Childhood neighborhoods and incarceration rates as adults

Neighborhoods and social inclusion matter to incarceration and labor market outcomes. Prisoners are also disproportionately likely to have grown up in socially isolated and segregated neighborhoods with high rates of child poverty and in predominantly African American or American Indian neighborhoods. Within cities, incarceration rates vary widely between zip codes that are walking distance apart. A gradient map of the probability of incarceration by commuting zone—depicted in Figure 5—shows differences across large labor market areas. High rates of incarceration are apparent across the southeast, around urban centers, and on American Indian reservations in the Dakotas and Arizona.

FIGURE 5: INCARCERATION RATES BY COMMUTING ZONE
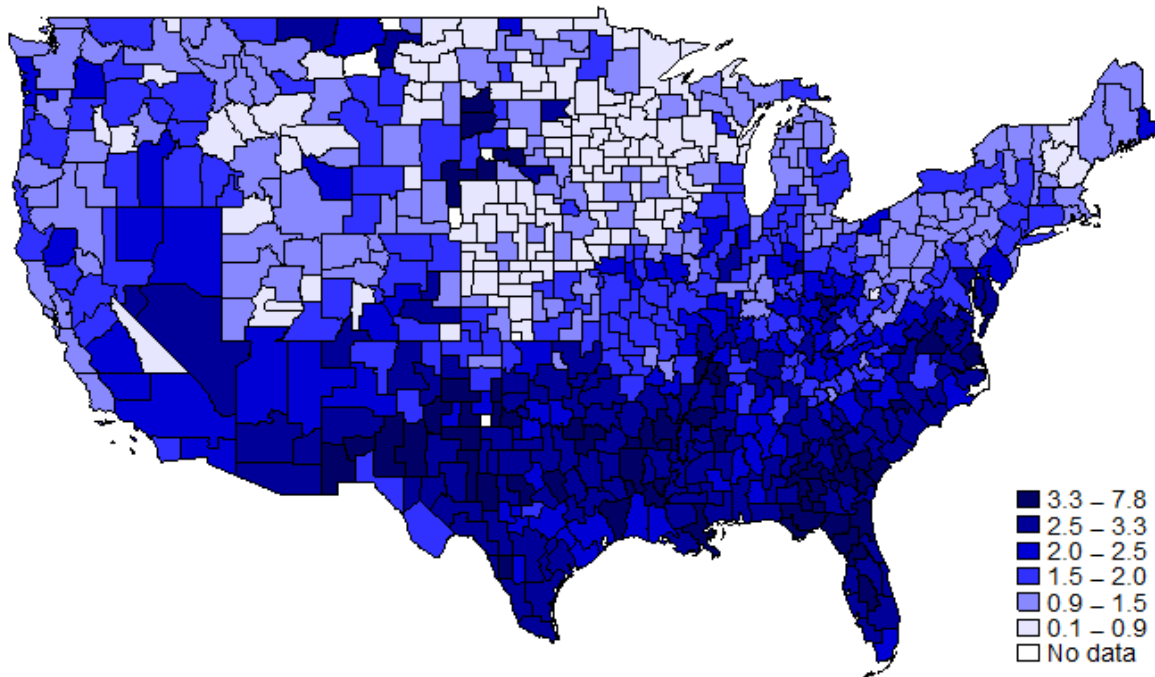
Note: Map shows the estimated incarceration rate of men and women born 1980-1986 in each local labor market area ("commuting zone") in 2012, based on childhood residence and adjusted to equal the average incarceration rate of individuals born in or immigrated to each state in the 2014 5-year American Community Survey.

However, the highest rates of incarceration are concentrated in urban centers and certain rural areas, like American Indian reservations. In Los Angeles, for instance, the incarceration rate at age 30 of children growing up in neighborhoods in Westwood, Santa Monica, or Sierra Madre is essentially zero, whereas in neighborhoods in south LA or Compton the rate (of men and women combined) is close to 7 percent. (Because men comprise more than 90 percent of the prison population, the rate for boys is roughly twice as high.) In more rural states, like the Dakotas, Nebraska, Wyoming, or Idaho, while the overall incarceration rate is low, certain areas have high rates of incarceration. For instance, roughly 10 percent of all 30-year-old prisoners in Nebraska come from a single neighborhood in Omaha.

To highlight the characteristics of places with high and low rates of incarceration, Tables 2 and 3 list incarceration rates among the 1980-1986 birth cohorts (for men and women combined) for large neighborhoods (those with more than 1,000 individuals born between 1980-1986). Table 2 includes high incarceration rate neighborhoods and Table 3 includes low incarceration rate neighborhoods. To provide some context, the tables also includes certain place-specific demographic and income data from the 2000 decennial Census.[12] As a basis for comparison, in 2000 the average unemployment rate (weighted by the cohort population) was 6.1 percent, the child poverty rate was 13.6 percent, the population was 12.9 percent black and 11.9 percent "other," 29 percent of families were single parent families, and 42 percent of residents had attended college. As the tables show, the neighborhoods with high incarceration rates are predominately black, or are otherwise non-white, have child poverty rates that are two to three times the national average, and have male unemployment rates substantially higher than the rest of the country. In contrast, places

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12.   Because the individuals are linked to their parents starting in 1996 the 2000 Census data provides the temporally closest data point.

with extremely low rates of incarceration are generally affluent, white, and have very low rates of poverty and unemployment.

A growing body of research observing individuals that move across neighborhoods because of deliberate policies (Kling, Ludwig, and Katz 2005), the elimination of public housing (Chyn 2017), or because of parent's moves (Chetty and Hendren 2017) finds that neighborhood environment has a causal impact on children's subsequent outcomes. It is plausible that certain characteristics of high-incarceration-rate neighborhoods risks subsequent incarceration among children that grow up there, suggesting that policies that help children move to better neighborhoods or that improve the quality of the neighborhoods could reduce crime and incarceration, and the associated costs to victims, taxpayers, and the individuals themselves.

While place-based incentives don't have a strong track record as a cost-effective means to boost local economic conditions, evidence suggests that some policies that combine subsidies for local employment and investment with grants to local governments for services and infrastructure can increase employment and local property values. Such a model, with a particular focus on public safety and investments in at-risk boys and focused on areas where young men have high risks of future criminal involvement might reduce the likelihood of incarceration and the related social costs.

TABLE 2. NEIGHBORHOODS WITH HIGHEST RATES OF INCARCERATION

City	Zip	Incarceration Rate	% Black	% Asian	% Other Race	Child Poverty Rate	% Single Parents	Male Unemp. Rate	College Attendence
Nashville, Tennessee	37208	14%	93%	0%	2%	42%	11%	11%	30%
Portsmouth, Virginia	23704	11%	77%	0%	2%	37%	13%	13%	32%
Waco, Texas	76707	11%	34%	0%	22%	35%	12%	12%	24%
Cincinnati, Ohio	45214	11%	65%	1%	3%	46%	12%	12%	22%
Fort Myers, Florida	33916	11%	60%	1%	11%	37%	8%	8%	24%
Jacksonville, Florida	32206	11%	82%	0%	2%	46%	9%	9%	20%
Orlando, Florida	32805	10%	79%	0%	6%	42%	10%	10%	24%
Norfolk, Virginia	23504	10%	93%	0%	2%	52%	21%	21%	26%
Richmond, Virginia	23222	10%	90%	0%	2%	27%	10%	10%	29%
Tulsa, Oklahoma	74106	10%	80%	0%	9%	41%	10%	10%	29%
Tampa, Florida	33605	10%	62%	0%	10%	40%	14%	14%	18%
Tulsa, Oklahoma	74126	10%	74%	0%	8%	35%	11%	11%	25%
Dallas, Texas	75215	10%	85%	0%	8%	47%	27%	27%	19%
Savannah, Georgia	31401	10%	66%	1%	2%	49%	15%	15%	40%
Rochester, New York	14608	10%	66%	2%	10%	48%	15%	15%	28%
Syracuse, New York	13205	10%	50%	2%	6%	32%	12%	12%	32%
Jacksonville, Florida	32209	10%	98%	0%	1%	35%	14%	14%	26%
Peoria, Illinois	61605	10%	58%	0%	5%	50%	20%	20%	19%
Newport News, Virginia	23607	10%	87%	0%	3%	47%	15%	15%	27%
Camden, New Jersey	8104	10%	65%	1%	18%	39%	16%	16%	18%
Ocala, Florida	34475	10%	53%	0%	4%	31%	10%	10%	22%
Louisville, Kentucky	40203	9%	62%	0%	3%	56%	18%	18%	24%
Fort Worth, Texas	76104	9%	57%	2%	16%	38%	11%	11%	20%
Oklahoma City, Oklahoma	73111	9%	89%	0%	4%	39%	15%	15%	31%
San Antonio, Texas	78202	9%	43%	0%	24%	55%	13%	13%	18%
Richmond, Virginia	23224	9%	75%	1%	6%	31%	9%	9%	28%
Richmond, Virginia	23223	9%	85%	0%	2%	29%	8%	8%	29%
Newark, New Jersey	7108	9%	92%	0%	6%	42%	25%	25%	22%
Fort Worth, Texas	76105	9%	50%	1%	23%	37%	12%	12%	13%
Fort Pierce, Florida	34950	9%	56%	0%	11%	40%	11%	11%	20%
Lubbock, Texas	79403	9%	37%	0%	26%	28%	11%	11%	21%
Richmond, Virginia	23220	9%	45%	3%	3%	32%	12%	12%	56%
Savannah, Georgia	31404	9%	66%	2%	2%	26%	11%	11%	32%
Harrisburg, Pennsylvania	17103	9%	60%	1%	8%	22%	11%	11%	29%
Albany, New York	12206	9%	48%	3%	7%	38%	10%	10%	36%
Kansas City, Missouri	64130	9%	94%	0%	2%	29%	14%	14%	24%
Harrisburg, Pennsylvania	17104	9%	48%	5%	15%	37%	10%	10%	26%
Nashville, Tennessee	37207	9%	70%	1%	3%	29%	7%	7%	32%
Atlantic City, New Jersey	8401	9%	44%	10%	19%	26%	15%	15%	26%
Trenton, New Jersey	8609	9%	57%	1%	19%	21%	15%	15%	21%
Average		10%	67%	1%	8%	38%	13%	13%	26%

TABLE 3. NEIGHBORHOODS WITH LOWEST RATES OF INCARCERATION

City	Zip	Incarceration Rate	% Black	% Asian	% Other Race	Child Poverty Rate	% Single Parents	Male Unemp. Rate	College Attendence
La Jolla, California	92037	0.0%	1%	11%	5%	8.6%	20%	5%	85%
Wyckoff, New Jersey	7481	0.0%	0%	4%	1%	1.2%	8%	2%	71%
Moraga, California	94556	0.0%	1%	13%	5%	3.5%	13%	6%	86%
Medfield, Massachusetts	2052	0.0%	1%	2%	1%	1.3%	10%	3%	78%
Grosse Ile, Michigan	48138	0.0%	0%	3%	2%	2.2%	11%	2%	70%
Alamo, California	94507	0.0%	0%	6%	3%	4.1%	9%	1%	85%
Winfield, Illinois	60190	0.0%	3%	3%	3%	0.5%	10%	2%	65%
Rye, New York	10580	0.0%	1%	6%	2%	2.2%	10%	2%	82%
Princeton Junction, New Jersey	8550	0.0%	3%	24%	2%	2.6%	7%	3%	86%
Short Hills, New Jersey	7078	0.0%	1%	8%	1%	2.3%	7%	2%	89%
Jericho, New York	11753	0.0%	1%	10%	1%	4.8%	6%	2%	78%
Mill Valley, California	94941	0.0%	1%	5%	4%	4.1%	20%	2%	89%
Portland, Oregon	97221	0.0%	1%	3%	5%	1.9%	16%	3%	81%
Summit, New Jersey	7901	0.0%	4%	5%	3%	3.9%	12%	2%	75%
Longmeadow, Massachusetts	1106	0.0%	1%	3%	1%	0.3%	11%	3%	78%
Northborough, Massachusetts	1532	0.0%	1%	5%	1%	2.2%	16%	2%	69%
Winnetka, Illinois	60093	0.0%	0%	3%	2%	1.8%	10%	1%	88%
Englewood, Colorado	80111	0.0%	2%	5%	3%	2.3%	16%	2%	87%
Birmingham, Michigan	48009	0.0%	1%	2%	1%	2.7%	18%	2%	85%
Minneapolis, Minnesota	55442	0.0%	2%	4%	2%	1.3%	13%	2%	77%
Sharon, Massachusetts	2067	0.0%	3%	5%	2%	2.6%	10%	2%	80%
Pearl River, New York	10965	0.0%	0%	3%	1%	3.3%	12%	3%	60%
Shrewsbury, Massachusetts	1545	0.0%	1%	8%	2%	4.5%	17%	3%	66%
Columbus, Ohio	43220	0.0%	2%	7%	2%	3.8%	18%	2%	79%
Larchmont, New York	10538	0.0%	2%	3%	3%	2.7%	11%	3%	83%
Medway, Massachusetts	2053	0.0%	1%	1%	1%	1.5%	11%	1%	64%
Pittsburgh, Pennsylvania	15238	0.0%	1%	5%	1%	7.5%	12%	3%	70%
Saratoga, California	95070	0.1%	0%	29%	3%	2.5%	7%	2%	86%
Caldwell, New Jersey	7006	0.1%	5%	4%	2%	2.1%	14%	2%	65%
Newton Center, Massachusetts	2159	0.1%	2%	8%	2%	2.9%	11%	3%	85%
Bloomfield Hills, Michigan	48301	0.1%	2%	4%	1%	1.7%	6%	4%	86%
Wexford, Pennsylvania	15090	0.1%	1%	3%	1%	3.8%	9%	2%	73%
Garden City, New York	11530	0.1%	1%	3%	1%	2.1%	10%	4%	75%
Needham, Massachusetts	2192	0.1%	1%	3%	1%	1.8%	6%	3%	83%
Lyndhurst, New Jersey	7071	0.1%	1%	5%	4%	4.0%	20%	4%	37%
Great Neck, New York	11021	0.1%	6%	6%	4%	4.8%	16%	3%	71%
New Rochelle, New York	10804	0.1%	8%	3%	3%	2.2%	9%	3%	82%
Ringwood, New Jersey	7456	0.1%	2%	1%	3%	3.4%	13%	4%	58%
Alpine, Utah	84004	0.1%	0%	0%	2%	3.1%	7%	3%	76%
Minneapolis, Minnesota	55446	0.1%	2%	5%	2%	0.0%	13%	2%	82%
Average		0.0%	2%	6%	2%	2.8%	12%	3%	77%

Note: Incarceration rate is the author's estimate of the share of the 1980-1986 cohort living in these neighborhoods in 1996-2000 who were later incarcerated at age 30. Demographic and econonomic variables from the 2000 Decennial Census

V. Conclusion

By linking the universe of all prisoners to their tax records, we offer a more comprehensive view of how ex-prisoners fare in the labor market, both after being released from prison and in the years prior to incarceration. Former prisoners fare poorly in the labor market, with high rates of non-employment and low earnings when employed. However, their labor market struggles start earlier, with similarly high rates of joblessness prior to incarceration. By linking younger prisoners to their childhood families, we show that these barriers arise early in life. Prisoners were largely born into low-income families and reside in neighborhoods facing extreme hardship.

To help combat recidivism and aid the reintegration of ex-prisoners into society, the tax code provides incentives for employers who hire ex-prisoners and provisions to encourage employment among lower-income families and individuals. Though use of the EITC among ex-prisoners without children increases in the years after incarceration, take-up of the EITC and of the WOTC is low. Even though the majority of ex-prisoners are eligible for these subsidies, the incentives clearly are insufficient to boost employment rates to those of other prime working age individuals. Relaxing the burdensome requirements needed to target subsidies to ex-felons or replacing focused subsidies—like the WOTC—with broad-based subsidies for low-skill, marginally employed individuals—like a larger EITC for childless workers—could have the advantage of expanding eligibility for subsidies but reaching the same intended recipients.

However, the poor labor market outcomes we see *prior* to incarceration, as well as the strong relationship between childhood conditions and later incarceration, suggests that there are other barriers to employment beyond incarceration. Policies focused earlier in life that increase childhood investments, reduce discrimination, reform criminal justice practices, or target economic distress in specific neighborhoods may be more effective tools for both reducing future incarceration rates and by aiding reentry following release.

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