

# The Spillover Effects of Releasing Offenders: Evidence from Ecuador

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## 1 Introduction

Incarceration remains one of the most widely used methods to punish criminals and deter potential offenders. In 2024, over 10 million people were imprisoned globally, a trend that has steadily increased over the past decade (Fair & Walmsley, 2024). Evaluations of the effectiveness of imprisonment typically focus on its impact on offenders, balancing the benefits of crime reduction through incapacitation and deterrence against the risk of increased recidivism.<sup>1</sup> However, the effects of incarceration extend beyond those who are imprisoned, influencing non-incarcerated individuals as well. Imprisoning someone may reduce the criminal activity of their associates and family members while generating a general deterrence effect on society.<sup>2</sup> Further, it may also create spillovers following an offender's release.

Released offenders can affect local criminal behavior through at least two mechanisms. First, they may transmit their prison experiences to their social networks. Previous studies

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<sup>1</sup>Recent studies isolating incapacitation effects include those by Barbarino and Mastrobuoni (2014); Buonanno and Raphael (2013); Owens (2009). Refer to Chalfin and McCrary (2017) for a literature review on criminal deterrence. Papers estimating the impact of incarceration on future recidivism include Bhuller, Dahl, Løken, and Mogstad (2020); Mueller-Smith (2015); Loeffler (2013); Green and Winik (2010); Kling (2006).

<sup>2</sup>For effects on both criminal networks and family members see Bhuller, Dahl, Løken, and Mogstad (2018). For incarceration spillovers on children refer to Norris, Pecenco, and Weaver (2021); Bhuller, Dahl, Løken, and Mogstad (2018); Dobbie, Grönqvist, Niknami, Palme, and Priks (2018); Wildeman and Andersen (2017). For effects on criminal networks see Philippe (2017); Lindquist and Zenou (2014).

have documented criminogenic effects among peers in schools, families, and prisons.<sup>3</sup> Second, reintegrating offenders into society can affect the prominence of gangs, change perceptions of the risks and rewards associated with criminal activity, and introduce new criminal role models (Helfgott, 2015; Morenoff & Harding, 2014; Petersilia, 2000; Sutherland, Cressey, & Luckenbill, 1992). However, the direction of these possible effects remains uncertain. A combination of the offender’s prison experience and the institutional characteristics of the neighborhood they rejoin will determine the direction of the effect. For instance, if prison enhances an offender’s criminal skills, it could increase criminal spillovers. Conversely, successful rehabilitation could reduce overall crime.

This paper addresses the question of whether recently released offenders influence the criminal behavior of individuals in the neighborhoods they rejoin. Prior research has studied how prison releases affect aggregate crime rates. Most papers present correlational evidence of a positive relationship between aggregate crime (at national or regional levels) and the number of releases (Roodman, 2020; Hipp & Yates, 2009; Raphael & Stoll, 2004; Clear, Rose, Waring, & Scully, 2003). Buonanno and Raphael (2013) stands out within this area. They use a regression-in-discontinuity design to find that the national crime rate increased immediately after the 2006 Italian collective pardon. However, this literature provides limited insight into how releases affect non-incarcerated individuals, leaving open the question of whether crime increases due to recidivism or broader contagion effects. This paper addresses that gap by focusing on the behavior of non-released offenders and providing evidence from Ecuador on the broader societal impacts of incarceration.

Estimating the spillover effects of released offenders poses two key challenges: data availability and the non-random selection of offenders’ residences across neighborhoods. The task requires detailed data, including information on the residence and criminal activity of all in-

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<sup>3</sup>For references about peer effects see Billings and Hoekstra (2024); Billings and Schnepel (2022); Billings, Deming, and Rockoff (2014); Billings, Deming, and Ross (2019); Stevenson (2017); Drago and Galbiati (2012); Bayer, Hjalmarsson, and Pozen (2009); Patacchini and Zenou (2012); Ludwig and Kling (2007); Kling, Ludwig, and Katz (2005); Ludwig, Duncan, and Hirschfield (2001).

dividuals living in a neighborhood, not just those with criminal backgrounds. Additionally, offenders' location upon release is not random. Former convicts decide where to reside, often returning to poorer areas with high crime rates (Harding, Morenoff, & Herbert, 2013). As a result, a simple OLS comparison between neighborhoods with and without recently released offenders would lead to biased estimates.

Ecuador offers a favorable setting for this analysis due to the availability of detailed data. Using over two million public documents detailing all penal cases in Ecuador from 2016 to 2022, I constructed a novel and unique dataset that tracks the arrests and prison releases of all Ecuadorians aged 18 and older. Additionally, I combined this data with confidential records on the neighborhood of residence for all Ecuadorian nationals from 2002 to 2021. The final dataset provides monthly-level information on individual arrests and places of residence at the neighborhood level, linking them to the neighborhoods of origin of released offenders.

I exploit a mass pardon in a matched event-study design to estimate the causal effects of releasing offenders on arrests. In February 2022, the Ecuadorian president pardoned individuals convicted of robbery, theft, or fraud and had served at least 40% of their sentence. Within a month, the pardon increased the number of released offenders returning to a neighborhood by 31% and the number of neighborhoods that received a former convict by 26%. I leverage the extensive margin variation to compare the probability of arrest for individuals in neighborhoods that received released offenders because of the mass pardon with those in matched, non-treated neighborhoods.

I find that the release of offenders generates criminal spillovers in the neighborhoods to which they return. On average, within six months of the pardon, the probability of arrest for individuals living in neighborhoods that received a released offender increased by 0.005 percentage points (6.8% relative to the mean) compared to people in matched control neighborhoods. The response is not immediate, with statistically significant effects appearing four months after the pardon. The effect represents a monthly elasticity of releases-to-arrest

of 0.1, meaning that for every additional release per 1,000 residents, the neighborhood’s arrest rate (excluding recidivism) increases by 0.4 per 1,000 inhabitants.

Notably, the effects of releasing offenders on arrests extend to individuals regardless of their prior criminal history. The probability of arrest for people with previous criminal experience increased by 9.8% relative to the mean. At the same time, the likelihood of arrest for individuals with no criminal records rose by 5.2% compared to the mean. Importantly, these effects are not specific to neighborhoods receiving pardoned offenders. People in neighborhoods with pardoned offenders showed no significant differences from those with non-pardoned released offenders. Thus, it suggests that the spillover effects stem from the broader presence of former offenders rather than the specific conditions of their release.

Overall, the findings point to a potentially negative consequence of incarceration. Evidence from Latin America suggests that imprisonment can exacerbate former inmates’ criminal involvement due to challenges such as limited rehabilitation programs, overcrowding, and violent prison environments (Escobar, Tobón, & Vanegas-Arias, 2023; Munyo & Rossi, 2015; Di Tella & Schargrodsky, 2013). In Ecuador, these factors likely contribute to the observed spillovers. In line with this argument, I find that a longer duration of imprisonment (i.e., more time served) tends to amplify spillover effects, with the impact being 1.7 times greater than the main effect. Conversely, offenders released from prisons with higher participation rates in rehabilitation programs did not create negative spillovers.

Beyond the experience of incarceration, the connection between released offenders and the neighborhoods they rejoin may also explain the observed results. This paper points to a mechanism of direct criminal contagion. Specifically, the probability of being arrested alongside a released offender increased by 48% (relative to the mean) in neighborhoods affected by the pardon. Additionally, the likelihood of arresting a band of criminals in these neighborhoods rose by 15% (relative to the mean). To further explore the role of connections, I examined interactions between released offenders and their family members within

the neighborhood. Utilizing the Spanish naming structure to link released offenders with potential family members through shared last names, I found that individuals sharing a last name with a released offender experienced a 15% increase in their probability of arrest (relative to the mean). These findings suggest that released offenders primarily influence their immediate social networks, particularly family members, to engage in criminal activities.

Overall, the findings indicate that the impact of incarceration on crime may be more substantial than previously understood. A back-of-the-envelope calculation suggests that spillovers from released offenders could account for roughly one-third of all recorded arrests in the year following the pardon. Thus, failing to consider these spillovers could lead to an underestimation of the criminogenic effects of incarceration.

This paper contributes to the literature investigating the effects of incarceration on criminal outcomes. Previous research examined this problem from two perspectives: focusing on the released offender’s behavior or on the aggregate crime rates following prison releases. The first approach compares criminal outcomes between incarcerated and marginally non-incarcerated individuals, with most studies concentrating on developed countries. The findings are mixed: some studies suggest that time in prison, when focused on rehabilitation, reduces reoffense rates (Bhuller et al., 2020), others indicate that imprisonment may lead to higher recidivism (Mueller-Smith, 2015; Aizer & Doyle, 2015), and papers that find no effect (Loeffler, 2013; Green & Winik, 2010). The second body of work looks at how prison releases affect overall crime rates, documenting a positive relationship between crime and prison releases (Roodman, 2020; Buonanno & Raphael, 2013; Hipp & Yates, 2009; Raphael & Stoll, 2004; Clear et al., 2003). My paper contributes to this literature by being the first to document that releasing offenders increases the criminal behavior of non-incarcerated individuals.

Second, my research contributes to the literature on criminal peer effects. Two studies within the area are closely related to my paper. Billings and Schnepel (2022) found that

former inmates are less likely to reoffend if a higher proportion of their criminal peers remain incarcerated during their reintegration. Similarly, ([Kirk, 2015](#)) examined reoffense rates among parolees and found a negative association with the concentration of other parolees in their neighborhoods. By documenting arrests committed jointly with a released offender, I add to this literature a direct measure of criminal peer effects. Further, I note the relevance of family networks in the spread of crime.

Finally, this paper contributes to the understanding of the effects of incarceration in developing countries, particularly in Latin America. Previous research has shown that imprisonment can increase a former inmate’s likelihood of reoffending ([Escobar et al., 2023](#); [Munyo & Rossi, 2015](#); [Di Tella & Schargrotsky, 2013](#)). Factors such as limited access to rehabilitation programs, inadequate prison conditions, overcrowding, and environments dominated by gangs and violence hinder successful social reintegration ([Blattman, Duncan, Lessing, & Tobón, 2024](#); [Tobón, 2022](#)). This paper extends the literature by demonstrating that the prison experience impacts former inmates and non-incarcerated individuals. Longer sentences tend to exacerbate negative outcomes, while access to rehabilitation programs can mitigate these spillover effects.

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