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The effect of Medicaid expansion on crime reduction: Evidence from HIFA-waiver expansions☆

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ABSTRACT

Substance use figures prominently in criminal behavior. As such expanding public insurance and improving access to substance use disorder (SUD) treatment can potentially reduce substance use and reduce crime. We examine the crime-reduction effect of Medicaid expansions through the Health Insurance Flexibility and Accountability (HIFA) waivers. We find that HIFA-waiver expansion led to a sizeable reduction in the rates of robbery, aggravated assault and larceny theft. We also show that much of the crime-reduction effect likely occurred through increasing SUD treatment rate and reducing substance use prevalence. The implied benefit-cost ratio estimate of increased treatment on reducing crime ranges from 1.8 to 3.2.

1. Introduction

Substance use and crime are two of the most intractable social ills facing the United States, and they are inextricably linked. A positive correlation between substance use and crime has been observed in arrestee drug test results and inmate drug reports. Among arrestees who were booked on violent or property crimes, one in every four tested positive for illicit drug use at the time of arrest (ONDCP, 2012). Moreover, among prison inmates charged with violent crimes, 52% reported being under the influence of alcohol or drugs when committing the crime, or committing the crime to acquire money to purchase drugs; among those charged with property crimes, this number is 39% (Miller et al., 2006).

To the extent that this observed correlation involves causality running from substance use to crime, interventions to reduce substance use should also reduce crime. Nonetheless, empirical evidence suggests that punitive approaches to substance control such as prohibition and the "war on drugs" have not led to significant crime reduction (Miron, 1999; Kuziemko and Levitt, 2004; Markowitz, 2005).[1]

In this paper we explore an area that has garnered relatively little attention in the economic literature on crime reduction, namely public health insurance policy. Using county-level panels of crime data

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[1] Miron (1999) examined the U.S. national homicide rate from 1900 to 1995, and demonstrated that alcohol and drug prohibition was positively associated with homicide rate and accounted for half of the variation in the homicide rate. The proposed "violence-as-dispute-resolution" hypothesis stated that prohibition enforcement encouraged the substitution of violent for nonviolent dispute resolution in illegal markets. Kuziemko and Levitt (2004) used state-level crime data between 1980 and 2000, and demonstrated that a 15-fold increase in drug-offense incarceration during the study period reduced total crime rate by no >3%. A back-of-the envelope estimate suggested that locking up drug offenders crowded out criminals with higher marginal risks of recidivism, so drug-offense incarceration was not likely cost-effective. Markowitz (2005) used individual-level victimization surveys in the early 1990s, and showed that higher beer taxes and higher cocaine prices slightly lowered the probability of assault and robbery victimizations.

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between 2001 and 2008 across the United States, we examine the crime-reduction effect of state Medicaid expansions through Health Insurance Flexibility and Accountability (HIFA) waivers (CMS, 2001). The HIFA initiative provides states with federal matching funds to expand Medicaid to all low-income adults with family incomes up to 200% FPL in states. We also explore the extent that state HIFA-waiver expansions provide plausibly exogenous shocks for local SUD treatment rate, which serves as one of the potential pathways to substance use reduction and eventually leads to crime reduction. Our estimates reveal that state HIFA-waiver expansions are associated with an economically meaningful reduction in the rates of specific types of crimes for which theory suggests an increase in the SUD treatment rate should have an effect (i.e., robbery, aggravated assault and larceny theft). Our estimates also suggest that the effect of the HIFA-waiver expansions on increasing SUD treatment rate and reducing substance use prevalence is likely to be one of the driving forces behind the estimated crime-reduction effect.

This study has implications for both public health insurance policy and public safety policy. It provides previously undocumented evidence of significant reductions in crime rates arising from state Medicaid expansions. This has direct relevance to the current health care reform discussions surrounding insurance expansion and "mainstreaming" of SUD treatment. While the political sea change may lead to repeal of the Affordable Care Act (ACA), the effect of insurance expansion on social outcomes, such as crime reduction, may still be of interest for policy and research. We show that a set of state Medicaid expansions preceding the ACA benefitted people with SUDs by providing a cost-effective public health approach to crime reduction, partially through increasing their treatment use and reducing their substance use.

Previous studies of the economic benefits of SUD treatment have often emphasized the direct health returns on treatment through recovery from addiction and the related productivity gains (Belenko et al., 2005). We instead focus on the public finance aspects of SUD treatment and take a more comprehensive view of the cost of crime to the public sector, including direct, indirect and opportunity costs. Our instrumental variable (IV) estimates demonstrate a benefit-cost ratio of 1.8 to 3.2, that is, a 10 percent relative increase in the SUD treatment rate at an average cost of $1.6 billion yields a crime reduction benefit of $2.9 billion to $5.1 billion. This downstream benefit to public safety represents a sizable fraction of returns on SUD treatment. Specifically, as the U.S. criminal justice system scales back mandatory minimum sentences for low-level drug and other minor offenders who may also be substance users, replacing incarceration with better access to SUD treatment can be a cost-effective investment in public safety.

2. Background

2.1. Theories of substance use, SUD treatment and crime

Contemporary criminological theories suggest that substance use is one of the root causes of crime. The most cited criminological theory on this causal relationship is Goldstein's (2003) tripartite model, in which three hypotheses are provided to explain how substance use causes violent and property crimes. First, the pharmacological hypothesis states that violence may occur as a direct result of the intoxication. Intoxication of certain substances may trigger aggression and lead to violent offenses, or alternatively inhibit vigilance and result in victimization. Second, the economic motivation hypothesis states that substance users and addicts commit income-generating crimes to finance their substance use habits. Economic motivation is particularly pronounced among young people and those with low income from legal activities. The third hypothesis, the institutional hypothesis, states that being involved in an illegal drug market can expose one to an increased risk of criminal offense and victimization: crime may arise when a drug buyer robs a dealer of the drugs, when a drug dealer collects debts, and when rival drug gangs dispute over territories or compete for monopolistic power (Goldstein, 2003).

A systematic review of the three-decade long literature concludes that, for all three hypotheses Goldstein proposed, empirical support exists, yet causal interpretations are difficult to make (Bennett et al., 2008). Unobserved third factors, whether they be personal, situational, or environmental (e.g., low self-control, early-life trauma, social inequality, as well as poverty and other forms of social deprivation), may be the underlying causes of both substance use and crime. Nonetheless, to the extent that substance use is on the causal pathway to crime, health insurance and SUD treatment should have the potential not only to reduce substance use but also to reduce crime.

Though motivated by the intuition of Goldstein's tripartite model, our theoretical framework draws more directly upon Becker's rational choice model of crime (Becker, 1968). Based on Becker's model, we specify the following structural relationship between substance use and crime:

$$Crime_{i,j,t} = f\left(Substance\ Use_{i,j,t}, Substance\ Use_{i',j,t}, Law\ Enforcement_{j,t}, X_{1i,j,t}, X_{2i',j,t}, Z_{1j,t}\right) \tag{1}$$

In the structural equation, criminal offense is a function of the substance use by the potential perpetrator i, in the local j, during the time t ($Substance\ Use_{i,j,t}$), the substance use by the potential victim i', in the local j, during the time t ($Substance\ Use_{i',j,t}$), the law enforcement resources ($Law\ Enforcement_{j,t}$), the other observed and unobserved individual factors associated with the propensity for criminal offense ($X_{1i,j,t}$) and the propensity for criminal victimization ($X_{2i',j,t}$), as well as the observed and unobserved contextual factors ($Z_{1j,t}$) that help create or limit opportunities for crime.

Instead of estimating a structural relationship between substance use and crime, this paper estimates a reduced-form relationship between public health insurance policy and crime. We derive the reduced-form equation by first expressing the original terms of the substance use of the perpetrator and the victim as a function relating their substance use to SUD treatment:

$$Substance\ Use_{i,j,t} = f\left(SUD\ Treatment_{i,j,t}, Law\ Enforcement_{j,t}, X_{3i,j,t}, Z_{2j,t}\right) \tag{2}$$

$$Substance\ Use_{i',j,t} = f\left(SUD\ Treatment_{i',j,t}, Law\ Enforcement_{j,t}, X_{4i',j,t}, Z_{2j,t}\right) \tag{3}$$

where substance use by the potential perpetrator $Substance\ Use_{i,j,t}$ and by the potential victim $Substance\ Use_{i',j,t}$ is a function of SUD treatment use $SUD\ Treatment_{j,t}$, the law enforcement resources $Law\ Enforcement_{j,t}$, the other observed and unobserved individual factors of the perpetrator and the victim $X_{3i,j,t}$ and $X_{4i',j,t}$ that are associated with the propensity for substance use, as well as the observed and unobserved contextual factors $Z_{2j,t}$ that help create or limit the opportunities for substance use.

We then relate SUD treatment of the perpetrator and the victim to health insurance policy:

$$SUD\ Treatment_{i,j,t} = f\left(Health\ Insurance\ Policy_{j,t}, Law\ Enforcement_{j,t}, X_{5i,j,t}, Z_{3j,t}\right) \tag{4}$$

$$SUD\ Treatment_{i',j,t} = f\left(Health\ Insurance\ Policy_{j,t}, Law\ Enforcement_{j,t}, X_{6i',j,t}, Z_{3j,t}\right) \tag{5}$$

where SUD treatment by the potential perpetrator $SUD\ Treatment_{i,j,t}$ and by the potential victim $SUD\ Treatment_{i',j,t}$ is a function of health insurance policy $Health\ Insurance\ Policy_{j,t}$, the law enforcement resources $Law\ Enforcement_{j,t}$, the other observed and unobserved individual