



The Economic Impact of the Opioid Epidemic

Drug abuse doesn't have just a human cost. There's also an economic cost.

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Although the recent COVID-19 pandemic was severe, with a death toll of 1.2 million, the opioid epidemic that began in the late 1990s remains the longest ongoing health crisis in the U.S. Between 1999 and 2020, more than 564,000 people died from opioid overdoses, surpassing total deaths from auto accidents during the same period (Figure 1). In 2017 alone, 2.1 million people were diagnosed with opioid-related disorder.¹ Even more worryingly, the death rate from opioid overdoses skyrocketed after 2012.

There is growing evidence that the opioid epidemic has harmed many aspects of the real economy, including the labor market, consumer finance, and municipal finance. According to analyses from the Council of Economic Advisers' 2019 report,² the annual (nominal) economic cost of the opioid epidemic, including the cost of lives lost, is estimated at about \$700 billion (roughly 3.4 percent of GDP) in 2018 alone, and over \$2.5 trillion from 2015 to 2018.

See *Isolating the Causes.* →

Federal, state, and local governments have implemented regulations to tackle the opioid crisis by curbing both their supply and their demand. Prior studies have mostly focused on state and local laws. Unfortunately, these studies have found that regulations have had limited success in reducing either the death rate or the associated economic harm.

In this article, we review the history of the opioid crisis in the U.S., its economic impact, and the many government policies designed to contain the epidemic.

FIGURE 1
COVID-19 Was More Deadly, but the Opioid Epidemic Is the Bigger Ongoing Health Crisis

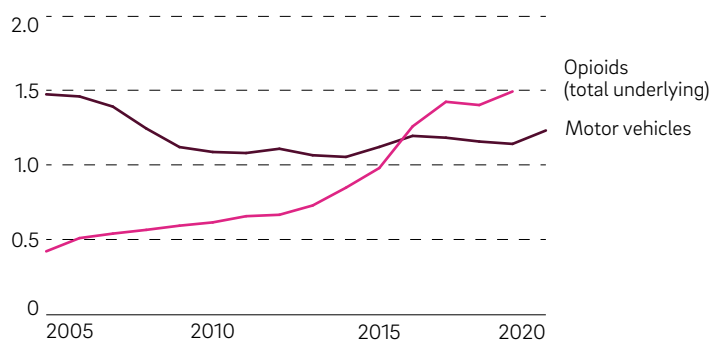
Economic Cost
including lives lost

3.4%
of GDP in 2018

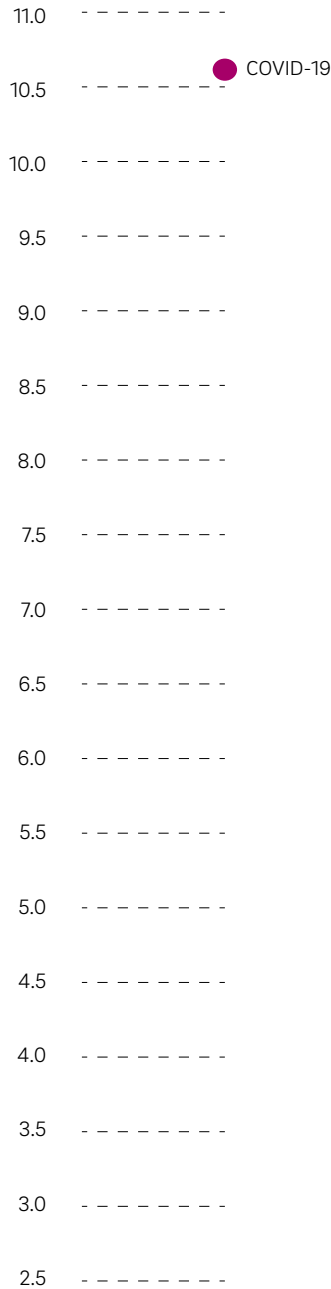
\$2.5+
trillions, 2015–2018

Data Source: *Economic Report of the President* (March 2019).

Death Rates per 10k Population



Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics, Mortality.



Isolating the Causes

Isolating the causality effects of opioid abuse on the real economy is a challenge because the opioid crisis may be an effect rather than a cause of local adverse economic conditions. Researchers address this challenge by relying on instruments that capture supply-side factors, given that prescription opioids are involved in at least 40 percent of all opioid overdoses in the country. Moreover, the majority of illegitimate-drug users start on their road to addiction by taking opioids prescribed by their physician, even if many progress to illicit opioids.

The instruments used by researchers include the intensity of local opioid distribution channels (for example, the per capita morphine milligram equivalent [MME] of strong types of opioids distributed by retail pharmacies); marketing efforts by the pharmaceutical industry that target physicians, such as the number (per county and per year) of physicians being marketed opioids; and Purdue Pharma's heterogeneous marketing efforts across different geographies of reformulated OxyContin in the first wave of the crisis, as proxied by growth in the distribution of OxyContin.

A Brief History of the Opioid Epidemic

The ongoing opioid epidemic in the U.S. has occurred in three waves. It started with technological innovations and aggressive marketing practices, followed by a burst of illegal activities in the second and third waves (Figure 2).

The first wave began with Purdue Pharma’s introduction of OxyContin in 1996 and ended in 2010. It coincided with a massive increase in the use of prescribed opioids and limited regulation of prescriptions.

OxyContin is a painkiller designed to be released slowly into the body so that it provides patients longer relief from pain with less of the potential for addiction. Between 1997 and 2002, Purdue Pharma increased its marketing and promotion budget for OxyContin by almost 800 percent, under the marketing slogan “The One to Start With and the One to Stay With.” Physicians who cared about treating pain-impaired patients were persuaded by this highly effective marketing campaign that the new opioids were safer than older ones.

But the benefits were too good to be true. Pain rebounded sooner and stronger than expected. Patients’ drug tolerance built up, which led to opioid abuse. Some people began crushing the pills and ingesting the medication all at once to get around the medication’s slow time release. By 2004, OxyContin had become the opioid most associated with addiction.³

The second wave of the opioid crisis dates from 2010 to 2013 and was characterized by a rise in heroin use and associated deaths. Two forces triggered the second wave. First, a reformulation of OxyContin in August 2010 made the drug crush-resistant and harder to snort or inject. Unfortunately, addiction is hard to stop once it gets started. This reformulation compelled many OxyContin addicts to switch to heroin, which they could more

easily snort or inject. Second, government policies restricted the supply of opioid prescriptions. A more limited supply drove up prices and simultaneously made it harder for addicts to access OxyContin. Heroin became relatively cheaper and easier to access, prompting many OxyContin addicts to switch to heroin.⁴

The third and current wave started in 2013, when deaths related to the use of fentanyl surged. (Fentanyl is more potent than heroin but cheaper to produce and transport.)⁵

Earlier opioid deaths occurred mostly among White, less-educated, prime-age males, as documented by researchers who argue that economic misfortune played an important role in the epidemic.⁶ This view, however, has been challenged, especially because the crisis has grown to affect an increasingly broad spectrum of the population, as can be seen when we chart the opioid-related death rate of each demographic group relative to their respective population (Figure 3).

Starting with the third wave in 2014, opioid-related death rates increased disproportionately among Black Americans, whose death rate has ranked first among all races in the last several years; among prime-age male workers, particularly those between ages 25 and 44; and among people with no more than a high school education.

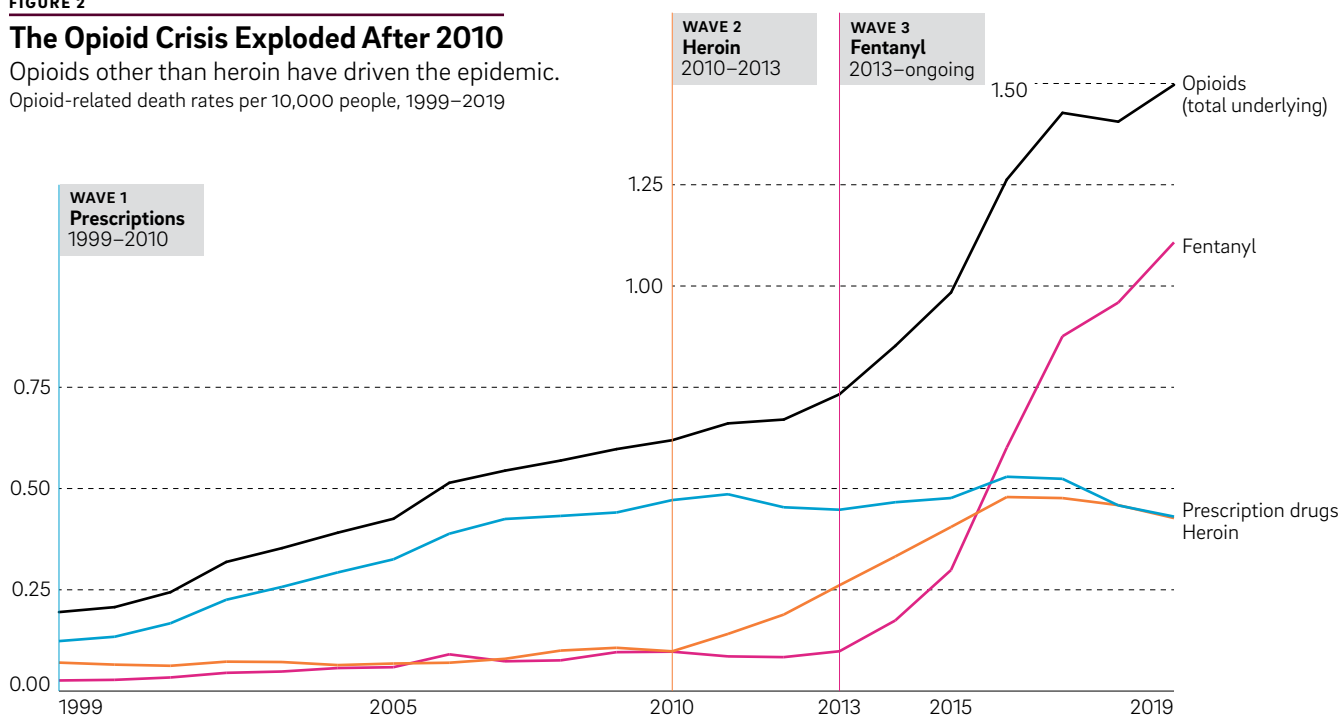
Researchers have concluded that changes in demand-side factors alone—including physical pain, depression, despair, and social isolation—explain only a small fraction of the increase in opioid use and deaths. Moreover, there doesn’t appear to be a substantial link between local economic downturns and rising working-age mortality from drug overdoses, opioids or otherwise.⁷ Instead, researchers have identified supply-side factors as the primary explanation for the recent opioid epidemic.

FIGURE 2

The Opioid Crisis Exploded After 2010

Opioids other than heroin have driven the epidemic.

Opioid-related death rates per 10,000 people, 1999–2019



Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics, Mortality.

The Opioid Epidemic's Effect on the Real Economy

The medical profession has long documented that drug addiction often leads to unsound decisions due to “reinforcer pathology,” which increases an individual’s overvaluation of short-term rewards and undervaluation of long-term negative consequences. (Other causes of unsound decisions include impulsivity, nonconformity to rules, and cognitive issues.)⁸ These unsound decisions in turn render addicts less employable and lead to financial difficulties. Indeed, researchers have identified the detrimental effects of the opioid crisis on many aspects of the real economy, such as the labor market, the housing market, consumer finance, and municipal finance.

Researchers have found that the opioid epidemic has particularly harmed the labor market and firm production. For the labor market, workers who reported misuse of prescription drugs, including opioids, were more likely to report workday absenteeism and more days of absenteeism than workers who didn’t report prescription drug misuse.⁹ And counties in which more per capita opioid pain medication had been prescribed had lower labor force participation rates, lower employment-to-population ratios, higher disability insurance claiming rates, and higher unemployment rates.¹⁰

Meanwhile, firm growth is negatively affected by exposure to opioid-affected areas, because the eroding labor market conditions force firms to invest more in technology and to substitute capital for relatively scarce labor.¹¹ There are also negative impacts on small-firm formation and survival.¹² And opioid use reduces net firm entry and results in a shift in industrial composition due to labor supply issues in affected areas, driving long-term stagnation and fiscal difficulties.¹³

Researchers have also found that the opioid epidemic adversely affected consumer finance. Using data from a U.S. lender, one researcher documented an increase in consumer defaults in subprime auto loans due to local-market opioid abuse.¹⁴ Other researchers, using a nationally representative data set that covers both subprime and prime borrowers as well as a wide range of credit products, revealed unfavorable credit consequences for consumers living in—and for banks operating in—highly exposed areas.¹⁵ Specifically, low-credit-score consumers in areas with greater exposure to the opioid crisis were more likely to default on their loan obligations, including credit card debt, auto loans, and first mortgages. Single-branch banks also experienced more credit card defaults and nonperforming loans when they operated in counties more exposed to opioid abuse. As a result, lenders contracted the credit supply for consumers in these areas by applying stricter credit terms and reducing credit offers, particularly to those with lower credit scores.

Researchers have also found that the opioid epidemic harmed municipal finance. For example, local opioid abuse negatively affects municipal bonds, which in turn impedes a municipality’s ability to provide necessary public services and infrastructure.¹⁶ Other researchers have identified lower housing values in areas more affected by the opioid epidemic, which have negative implications for local government finance.¹⁷ And the more opioids distributed by a dispensary, the lower the value of surrounding homes.¹⁸

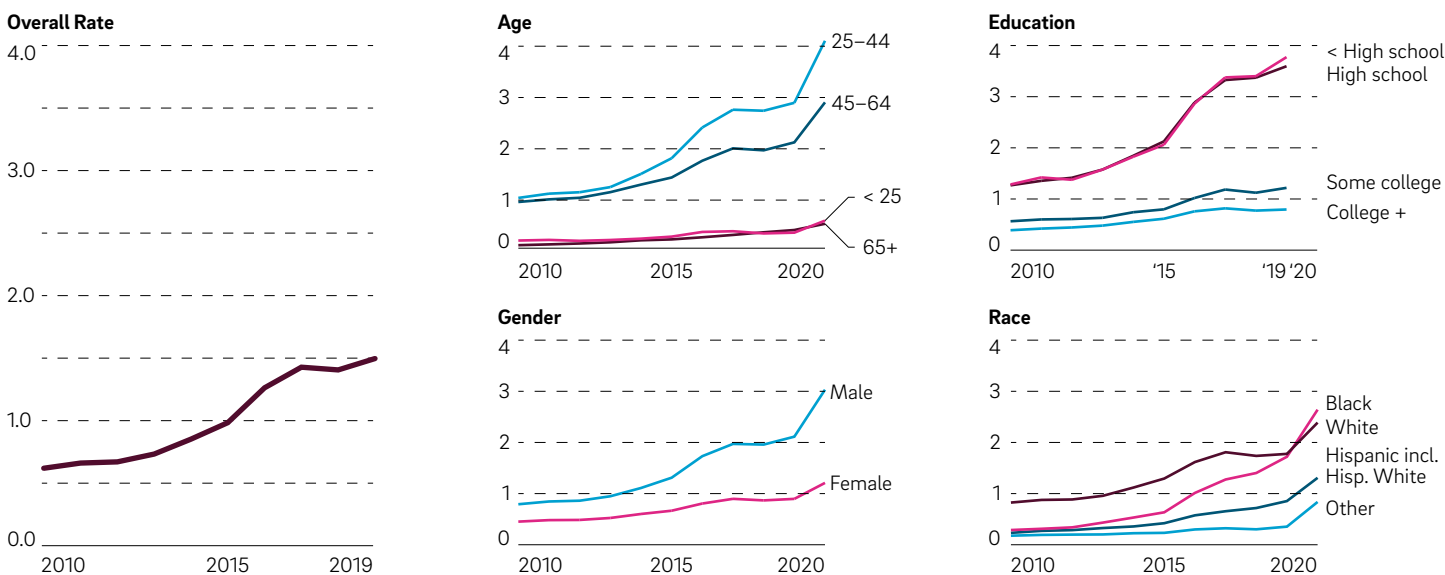
The Limits of the Law

Federal, state, and local policymakers have introduced many opioid-related laws and regulations to combat the opioid epidemic. In this article, we focus on state and local laws, as do

FIGURE 3

Opioid Death Rates Differ by Demographic Group

Opioid-related overall death rates per 10,000 people by consumer demographics, 2010–2020



Note: Rates are constructed relative to their respective population.

Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics, Mortality.

most previous studies.¹⁹ Broadly speaking, we can divide these regulations into two groups: those that aim to restrict opioid supply and those that aim to restrict opioid demand. However, none of these laws have been very successful at curbing opioid use and abuse.

On the supply side, some states limit opioid prescriptions to four-, five-, or seven-day supplies when used to treat acute or postoperative pain for first-time users. As of 2018, 32 states also limited the number of prescriptions or the overall quantity of opioids that physicians may prescribe to a patient.

To varying degrees, states have also implemented a prescription drug monitoring program (PDMP), which uses an electronic database to track controlled-substance prescriptions within that state. PDMPs provide health authorities timely information about prescribing and patient behaviors that contribute to the epidemic; these data facilitate a nimble and targeted response. Some states mandate the use of PDMPs by prescribers; others make it voluntary. As noted earlier, the opioid crisis began when some doctors overprescribed opioids, sometimes illegally, so the information collected is also used by licensing boards to identify doctors, dentists, and pharmacists who may be inappropriately prescribing or dispensing these highly abusable drugs.

Additionally, states with triplicate prescription laws require that physicians write prescriptions on special triplicate forms for all Schedule II drugs, including opioids.²⁰ In triplicate prescribing, the physician keeps one copy of the prescription for five years and sends two copies with the patient to the pharmacist. The pharmacist keeps one copy and forwards the third copy to a specified state agency. The state agency uses these prescriptions to track the physician's prescribing practices and the patient's use of controlled substances.²¹

On the demand side, states have implemented access laws for naloxone, which reverses an opioid overdose. The level of naloxone access varies by state. The most generous laws include a standing order that allows any resident to obtain the drug at a local pharmacy with no justification. The less-generous third-party prescription laws, by comparison, allow a resident who is not at risk of overdose to purchase naloxone for use on someone else.²² As of August 2020, all 50 states and the District of Columbia have some form of a naloxone access law.

Good Samaritan laws offer legal protection to people who give reasonable assistance to those who are, or whom they believe to be, injured, ill, in peril, or otherwise incapacitated. Such laws vary from state to state. Although they don't limit opioid addiction, they may reduce fatal opioid overdoses by allowing people to help an addict without fearing legal consequences related to drug use and possession.

Finally, in 37 states and the District of Columbia, medical marijuana permitting laws legalize the medical use of cannabis with a doctor's recommendation. Recreational use of cannabis has


been legalized in 21 states and the District of Columbia. The legalization of marijuana use, either medically or recreationally, may have spillover effects on opioid usage. Cannabis could offer an alternative to opioids for treating chronic pain and therefore reduce opioid overdoses and deaths. Additionally, cannabis might help people with opioid use disorder curb their addiction.

Evidence of the effectiveness of these laws, whether they target supply or demand, has been mixed. Two researchers found that PDMPs reduce prescription rates but do not reduce opioid deaths or improve socioeconomic outcomes.²³ However, other researchers have found that a state's implementation of a PDMP reduces opioid deaths and partially reverses some negative effects on municipal finance in that state.²⁴ Two other researchers found evidence of increased opioid abuse after easier access to naloxone. This is likely due to increased risk-taking by addicts, given that they know there is an antidote in place to save their lives.²⁵

When the three authors of this article, along with one other researcher, examined six state-level opioid-related laws, they found that all laws except the naloxone laws help reduce opioid prescription rates, with the strongest effects in states with triplicate prescription, PDMP, and medical marijuana permitting laws.²⁶ However, the effects on opioid deaths were more complicated. These researchers also found that, in terms of credit supply, a few of the laws—specifically, laws that limit opioid prescriptions, the mandatory PDMPs, and triplicate prescription laws—tend to improve consumer access to credit, while others—specifically, the naloxone, Good Samaritan, and medical marijuana permitting laws—appear to help less or even harm consumer access to credit. These laws may even intensify the opioid crisis.

To understand the impact or lack of impact of these antiopioid regulations, one researcher built a model of how consumers who use opioids for nonmedical reasons choose between legitimate prescriptions and illicitly manufactured opioids.²⁷ He demonstrated that the price gap between prescribed opioids and illicitly manufactured opioids is a critical determinant of whether the regulations reduce or increase the use of opioids and by how much. As a result, policies aimed at reducing prescription opioid consumption can lead to increased mortality in the short run due to widespread substitution with illicit opioids.

Conclusion

The opioid crisis has multiple and complex dimensions, as its evolution over the last few decades has demonstrated. Despite this complexity, we can safely conclude that (1) the crisis has negative economic outcomes; (2) the crisis has become less driven by opioid prescriptions, thanks to the many state laws and regulations that target the supply and prescription of opioids; and (3) designing effective policies that curb demand for opioids remains a challenge. 

Notes

- 1** See, among others, Quinones (2015), the Centers for Disease Control and Prevention (2021), and the Centers for Disease Control and Prevention (2022).
- 2** Economic Report of the President (2019).
- 3** See Alpert, Evans, Lieber, and Powell (2022) and Cutler and Glaeser (2021), among others, for more details.
- 4** National Institute on Drug Abuse (2018) and Unick, Rosenblum, Mars, and Ciccarone (2014).
- 5** See the review article by Maclean, Mallatt, Ruhm, and Simon (2020), the article by Cutler and Glaeser (2021), and the papers cited within.
- 6** See Case and Deaton (2015) and Krueger (2017).
- 7** See Ruhm (2019), Cutler and Glaeser (2021), and McGranahan and Parker (2021).
- 8** See Bickel, Athamneh, Snider, et al. (2020).
- 9** See Van Hasselt, Keyes, Bray, and Miller (2015).
- 10** See Krueger (2017), Harris, Kessler, Murray, and Glenn (2020), Park and Powell (2021), Aliprantis, Fee, and Schweitzer (2022), and Beheshti (forthcoming).
- 11** See Ouimet, Simintzi, and Ye (2020).
- 12** See Rietveld and Patel (2021) and Sumell (2020).
- 13** See Langford and Feldman (2021).
- 14** See Jansen (2019).
- 15** See Agarwal, Li, Roman, and Sorokina (2022).
- 16** See Cornaggia, Hund, Nguyen, and Ye (2021).
- 17** See Custodio, Cvijanovic, and Wiedemann (2021).
- 18** See D'Lima and Thibodeau (2022).
- 19** See Congressional Budget Office (2022) for a summary of federal interventions.
- 20** Drugs are classified as Schedule II drugs if they are determined to have a high potential for misuse, dependence, and addiction. Schedule II drugs have some accepted medical uses, although the uses vary depending on the type of drug.
- 21** With some exceptions, refills are not permitted for medications prescribed under this system.

22 Because naloxone remains a prescription drug as categorized by the U.S. Food and Drug Administration, standing orders and third-party prescriptions are enabled only when a state's surgeon general writes a prescription for all residents of that state.

23 See Kaestner and Engy (2019).

24 See Cornaggia, Hund, Nguyen, and Ye (2021).

25 See Doleac and Mukherjee (2019).

26 See Agarwal, Li, Noman, and Sorokina (2022).

27 See Mulligan (2022).

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