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The Grass Is Greener on the Other Side

How Extensive Is the Interstate Trafficking of Recreational Marijuana?

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Recreational marijuana will soon be available to nearly one in four U.S. residents. The potential for interstate spillovers and negative externalities as a consequence of these unilateral legal changes has attracted attention from policymakers across the political spectrum, including the U.S. Supreme Court and attorneys general from both parties. Indeed, Nebraska and Oklahoma sued Colorado after Colorado legalized marijuana, claiming that unilateral legalization increased their law enforcement costs.

We document and quantify the extent of these externalities for the first time by examining two neighboring states, Oregon and Washington, which legalized marijuana at different times—Washington first, then Oregon. By examining how sales in Washington at its border with Oregon changed when Oregon's market opened, we estimate the extent to which Washington's policy led to interstate trafficking before Oregon also started legally selling recreational marijuana; and we test for public health consequences of that trafficking in Oregon.

The need to measure the extent of these spillovers is magnified by the relative lack of knowledge about the

potential effects of recreational marijuana policy. While a body of medical literature points to significant risks of marijuana use, including an increased risk of traffic accidents, brain damage (particularly during development), and long-term addiction, we do not yet know much about the consequences of marijuana legalization. Legalized markets may simply crowd out black markets without leading to a significant increase in marijuana use and abuse. To fill this gap, recent studies in the public health literature have attempted to provide evidence on the health impacts of marijuana legalization. Recent studies that utilize difference-in-differences approaches to estimate the effects of recreational marijuana laws on traffic fatalities and teen marijuana use have not found significant impacts. However, if interstate spillovers are present, standard difference-in-differences approaches will be biased toward zero because the most appropriate controls—neighboring states—are in fact partially treated.

The immediate externalities and long-term economic costs of alcohol and tobacco are well established, and cross-border spillovers coming from differences in state-level policies have previously been observed in these markets. However, the incentives that drive interstate spillovers for legal goods may not

apply to goods that remain illegal in adjacent communities. Just the act of taking marijuana from one state to another is a federal crime, and black-market prices in states where marijuana is illegal may be lower given current tax rates. Moreover, the products that are available across legal and illegal markets and across states vary significantly.

Identifying any interstate spillovers of marijuana policy is uniquely challenging. Surveys with county-level identifiers do not ask questions about marijuana consumption. Though arrests for marijuana possession might seem like a reasonable proxy, law enforcement in one state may respond to legalization in a neighboring state by conducting more traffic stops and more vehicle searches, anticipating spillovers (and creating the appearance of spillovers in the data) even if they do not actually exist. These factors and others make it practically impossible to identify interstate spillovers when a single state in a region legalizes marijuana. However, identification is possible when two neighboring states legalize marijuana at different times. If sales drop in the border counties of the early-adopter state when the late adopter legalizes, this can only be due to interstate spillovers. Washington, which legalized in 2014, and Oregon, which legalized in 2015, provide ideal scenarios for this approach.

Using administrative data from Washington that contain all retail sales of marijuana throughout the state, we find that the quantity of marijuana sold in Washington-Oregon border counties (measured by weight) fell by 41 percent when Oregon's recreational market opened. This effect is almost entirely driven by firms located within 25 miles of a border crossing, which experienced an average decrease of 44 percent. We find the largest declines in counties that provide the nearest retail locations for the largest portions of Oregon's population. Sales in the rest of the state, including along Washington's borders with Idaho and Canada, were unchanged.

Though our results suggest Oregon consumers traveled to Washington to purchase marijuana, this alone does not constitute trafficking or lead to the threat of interjurisdictional externalities—the effect could be driven by tourists who purchase and consume marijuana within Washington's borders. If this “drug tourism” drove our results, we would expect to observe a larger effect on the weekends—we find no such effect. Moreover, when we examine the change in demand by transaction size, we find the largest declines occurred in the largest

transaction size category, consistent with the hypothesis that Oregonians were purchasing large quantities of marijuana and bringing it across the border before Oregon's market opened.

Having concluded that Oregonians purchased marijuana across state lines, we turn to the question of public health externalities. Indeed, even under the assumption that marijuana use leads to significant externalities, Washington's recreational market may have served simply to partially crowd out Oregon's black market—and thus Washington's legalization may not have led to negative effects in Oregon. Motivated by the medical literature and industry reports that have identified increased traffic accidents as a potential negative byproduct of recreational marijuana use, we estimate how the rate of traffic accidents in Oregon as a function of the distance to the Washington border changed when Washington legalized in July of 2014. We find no evidence to support the hypothesis that these spillovers increased the rate of traffic accidents, and some evidence that they may have decreased the number and rate of traffic accidents that involve alcohol, consistent with the hypothesis that alcohol and marijuana are substitutes.

Our estimates of trafficking rates have law-enforcement and public-finance implications. We apply our trafficking rate estimates directly to the quantity of marijuana purchased in Oregon and Idaho border counties and conclude that prior to Oregon's market opening, 11.9 percent of marijuana sold in Washington was diverted to other states. In the two months after Oregon's market opened, about 7.5 percent of marijuana was diverted, or approximately one million doses per month. We use these estimates to consider the tractability of potential state- and federal-level policy interventions designed to reduce trafficking, such as randomized vehicle searches. Furthermore, our estimates suggest that nearly \$60 million of the marijuana tax revenue collected by Washington since legalization came from purchases intended for out-of-state consumption.

NOTE

This research brief is based on Benjamin Hansen, Keaton Miller, and Caroline Weber, “The Grass Is Greener on the Other Side: How Extensive Is the Interstate Trafficking of Recreational Marijuana?” NBER Working Paper no. 23762, April 2018, <http://www.nber.org/papers/w23762>.