***Testimony***

***of***

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# *Assessing Efforts to Reduce the Demand for Imported Illegal Drugs*

**Summary**

Violent criminal organizations earn more than $10 billion per year smuggling thousands of metric tons of illegal drugs across U.S. borders each year. It is reasonable to view this as a security concern in its own right (to the US and also to Mexico, Colombia and Peru), above and beyond the deaths and other harms caused by the domestic distribution and use of those drugs.

Legalization of all drugs would largely solve this problem, but at a potentially very severe cost in terms of increased addiction, death, and disability. Legalizing marijuana could eliminate marijuana's share of the problem, but only that share. It is hard to quantify precisely marijuana's share of the security problems associated with illegal cross-border flows, but it is probably less than one-quarter and is almost certainly more like one-quarter than three-quarters.

A variety of policy reforms short of legalization could reduce the drug flows, but even under the very best of circumstances they would continue on roughly the same scale as today. That is, an optimist might hope that cross-border traffic could eventually be halved even without legalization, but it goes beyond optimism to imagine reduction by a full order of magnitude within a decade, or even two. If one viewed the current situation as like leaving both sides of a two-car garage open to thieves, the best we could hope for via better implementation of conventional drug policy levers is to close one of the two doors.

When it comes to shrinking consumption of illegal drugs, there is not much low-hanging fruit that hasn't been tried. Media-based prevention campaigns in particular have not demonstrated much efficacy. Some other forms of prevention are viewed as cost-effective, but mostly because they are cheap, not because they are highly effective in an absolute sense. The research community is generally supportive of expanding treatment, but it is important to recognize that the "technology" of treatment is much stronger for heroin and other opiates than it is for stimulants such as methamphetamine and cocaine (including crack). And even for opiates, treatment is better thought of as a way of easing the suffering of the person who is dependent than as a "cure" that eliminates their demand.

There is one innovative strategy– called "swift, certain and fair" monitoring and punishment of users under criminal supervision – that has the potential to make a decisive difference if all the stars align. Early evaluations have produced some startlingly large reductions in rates of testing positive, but widespread implementation would require a very large change in organizational culture and practice.

The inability to solve the border security situation by shrinking demand raises the question of whether and how the magnitude of the security risk might be minimized even as drugs continue to be smuggled across the border in significant volumes. That question is sensible because there is no necessary relationship between the amount of smuggling and the security harm created. Indeed, most drug smugglers are in it just for the money; they harbor no particular animus toward the United States. If law enforcement could engineer an environment within which the most damaging smuggling methods are the least profitable, and the profit-maximizing smuggling strategies are relatively benign, then greed and competitive pressures might mold the smuggling "industry" into practices that are less bad from a security perspective.

I do not know whether that principle can usefully be operationalized. Principles that are appealing in the abstract often stumble when confronted by practical realities. Even talking frankly about the trade-offs inherent in such a "realpolitik" approach might be awkward. But my certainty that U.S. demand for imported illegal drugs will not disappear any time soon leaves me curious about exploring those possibilities.

The remainder of this document expands on these themes. Because the scope of the topic is so broad, for various matters I give just quick capsule summaries and references to articles in which I have discussed that issue in greater detail.

## I. Different drugs present different challenges

As Peter Reuter and I wrote in earlier Congressional testimony:[1] "To understand almost anything about the effectiveness of US drug policy it is first essential to distinguish between four categories of illegal drugs: (1) diverted pharmaceuticals, (2) all the minor illegal drugs (PCP, GHB, LSD, etc.): (3) the major "expensive" illegal drugs (cocaine/crack, heroin, and meth(amphetamine), and (4) cannabis."

The minor illegal drugs are not so important for present purposes. The scale of their markets is relatively small, some of the production happens within U.S. borders, and the importation is not, as far as I know, any more serious a threat, dollar for dollar, than is the more lucrative importation of the major drugs.

Diverted pharmaceuticals – primarily opiate pain relievers – kill an astonishingly large number of Americans every year. This problem is now belatedly getting considerable attention, though it is unclear what took so long. CDC reports that between 1999 and 2014, an astounding 165,000 Americans died from overdoses related to prescription opioids alone – far more than died in the Korean and Vietnam wars combined.[2]

Nevertheless, that ongoing catastrophe has little direct bearing on border security. Pharmaceuticals are diverted into non-medical use primarily within U.S. borders, so that diversion is not a threat to U.S. border security.

There may be an important indirect effect, however. For various reasons, many people who would not have proceeded directly to heroin use become dependent on prescription opioids, and then subsequently switch to heroin.[3] That may sound like a leap, but in terms of chemistry and psychoactive effects, all of the opioids – including both pharmaceutical companies' medical products and street heroin – are close cousins.

It is an active topic of research today trying to sort out, how much of the recent very large increase in heroin overdoses can be blamed on: (1) past failures to adequately monitor and circumvent diversion of prescription opioids, (2) recent successes – in some states – to clamp

[1] Reuter, Peter, and Jonathan P. Caulkins 2009. "An Assessment of Drug Incarceration and Foreign Interventions." May 19th testimony to the Domestic Policy Subcommittee of the Oversight and Government Reform Committee.
[2] http://www.cdc.gov/drugoverdose/data/overdose.html.
[3] Mars, S. G., Bourgois, P., Karandinos, G., Montero, F., & Ciccarone, D. (2014). "Every 'never'I ever said came true": Transitions from opioid pills to heroin injecting. *International Journal of Drug Policy*, *25*(2), 257-266.

down at least partially on that diversion, including by making the pills harder to grind up and inject, and/or (3) expansions in Mexico's heroin production that might have occurred anyhow. As far as I can tell, we do not yet know the answer and may never fully resolve the matter. For this sort of question, it is hard for scientists to construct counterfactuals describing what would have happened under alternate scenarios.

For present purposes, the simple fact is that the large pool of people who have now become addicted to prescription pain killers makes it all the more difficult to imagine large reductions in U.S. demand for heroin in the coming years.

In sum, neither the minor drugs nor diverted prescription pharmaceuticals are the (direct) source of large cross-border drug flows. The primary concern for border security is the traditional "big four" illegal drugs: cocaine (including crack), heroin, meth, and marijuana.

## II. The scale of the problem

It is understandable to want to know the volume of illegal drugs flowing into the United States each year, and it is also understandable why the best estimates available are both highly imprecise and potentially inaccurate. For obvious reasons, drug traffickers do not report their activities to official agencies.

Therefore, all numbers discussed in this section should be understood as good faith estimates of quantities that are very difficult to estimate. They could easily be off by a factor of two. That is, when I say that we think that (illegal) retail sales of cocaine in the U.S. are in the neighborhood of $25 - $30 billion per year, and that the value of that cocaine at the time it crosses the U.S. border is perhaps one-seventh its value at retail,[4] so roughly $4 - $5B per year, it is entirely possible that the value of cocaine crossing the border could be as low as $2B - $2.5B per year or as great as $8B - $10B per year.[5] Furthermore, there is even greater uncertainty concerning what proportion of the revenues earned within the U.S. by moving the cocaine from the import level down to the street represent profits earned by the same "organizations" that

[4] E.g., an import price of $17,000 per kilogram that is 82% pure vs. a retail price of $145 per pure gram gives a 1 to 7 ratio.

[5] Note: not all of the monetary value of the drugs imported ends up in the pockets of the smugglers who bring it across the U.S. border; some of that money flows further back up the supply chain because there are multiple layers of criminal enterprises between the farmers who grow the crops from which the drugs are made and the organizations that carry those drugs across the U.S. border.

control the importation. ("Organizations" is in quotes because the relationship between wholesale dealers in the U.S. and their suppliers who ship the drugs into the U.S. is more akin to a business partnership, than a single vertically-integrated enterprise in the sense of Henry Ford's River Rouge industrial complex of old).

With that big caveat, the best numbers on the scale of U.S. drug markets come from the series of publications called "What America's Users Spend on Illegal Drugs" (WAUSID). The latest in this series was produced by RAND and published by ONDCP in 2014 with annual estimates covering the years 2000 - 2010.[6] (I am a co-author.) Since the Arrestee Drug Abuse Monitoring (ADAM) system has been discontinued, it would be quite difficult to produce a new estimate updating those series.

(There are many excellent ongoing data collection efforts, including the National Survey on Drug Use and Health and the Monitoring the Future studies of high school students, but the smaller number of heaviest users truly dominate total spending and consumption. Those heavy users are badly under-represented in surveys, but many are criminally involved.[7] So when we used to interview and collect urine samples from arrestees, it was possible to produce plausible estimates of total consumption and spending, whereas at present we can only estimate the number of users – a number that is dominated by the less frequent users who collectively account for a quite modest share of demand.)

The table below reproduces the 2010 WAUSID estimates for weight and value, both of which are relevant. Four facts must be kept in mind when interpreting these numbers.
For cocaine/crack, heroin, and meth, weight is expressed in terms of pure weight. So if 24 MT of pure heroin crossed the border, but at an average purity of 50%, then it is 48 MT, not just 24 MT, of material containing heroin that was shipped across the border.

The dollar figures pertain to retail sales. Drugs are marked up enormously as they move down the multi-layered distribution chain within the U.S., so most of the retail revenue is earned

[6] Kilmer, Beau, Susan S. Everingham, Jonathan P. Caulkins, Greg Midgette, Rosalie Liccardo Pacula, Peter H. Reuter, Rachel M. Burns, Bing Han, and Russell Lundberg (2014). *What America's Users Spend on Illicit Drugs: 2000-2010.* RAND RR-534-ONDCP, Santa Monica, CA.

[7] A quote from a journal article we wrote based on the WAUSID study makes the point. For drugs other than marijuana, "the household survey under-estimates frequent use to a much greater degree. For example, based on the 2010 NSDUH, one would conclude there are only 60,000 daily or near-daily heroin users in the United States. Our ADAM-based projection models suggest that the correct total is closer to 1,000,000. " Caulkins, Jonathan P., Beau Kilmer, Peter H. Reuter, and Greg Midgette. (2015). Cocaine's Fall and Marijuana's Rise: Questions and Insights Based on New Estimates of Consumption and Expenditures in U.S. Drug Markets. *Addiction*. 110(5): 728-736.

by criminals operating within U.S. borders. In round terms, the value at import for Mexican marijuana may be about one-quarter of the value when sold on the street and the proportion is even lower for the other drugs, perhaps closer to one-seventh.[8]

Essentially all cocaine and heroin used in the United States is imported. Imports share of the meth market has fluctuated over time, with various rounds of precursor chemical control, but is generally believed to be high. The story for marijuana is more complicated because of domestic production and is discussed further below.

Somewhat more is imported than is consumed, because some of what is imported is seized within the United States.

Kilmer et al.'s (2014) estimates of the size of the major U.S. illegal drug markets

| | Retail Sales Value (billions of 2010 dollars) | Quantity Consumed (metric tons) |
|---|---|---|
| Marijuana | $41 | 5,700 |
| | $30 - $60 | 4,200 - 8,400 |
| Cocaine | $28 | 145 |
| (including crack) | $18 - $44 | 92 - 227 |
| Heroin | $27 | 24 |
| | $15 - $45 | 13 - 40 |
| Methamphetamine | $13 | 42 |
| | $6 - $22 | 19 - 71 |

There are many caveats and uncertainties surrounding these numbers, but the punchlines concerning U.S. border security remains clear. First, marijuana accounts for the majority of the weight but a minority of the <u>value</u> of the illegal drugs smuggled across U.S. borders. Second, these are big numbers: (1) Hundreds of metric tons of "hard drugs", (2) Thousands of metric tons of marijuana, and (3) The value of imports probably exceeds $10B per year.

Others who are expert in national security matters are better able than I to put those numbers in perspective through a terrorism and counter-terrorism lens, but my sense is that they are large. E.g., shortly after the September 11th attacks, along with co-authors I wrote a paper

[8] Data on import prices – as opposed to general wholesale prices – are scarce. The appendices to Kilmer et al. (2010) grappled with this issue and are the source for the guesses of roughly one-quarter and one-eighth. Kilmer, Beau, Jonathan P. Caulkins, Brittany M. Bond, and Peter Reuter (2010). *Reducing Drug Trafficking Revenues and Violence in Mexico: Would Legalizing Marijuana in California Help?* RAND OP-325-RC, Santa Monica, CA.

comparing the "war on terror" to the "war on drugs".[9] It was our understanding at the time that the direct financial cost to Al-Qaeda of launching the September 11th attacks was on the order half a *million* dollars, not something measured in the billions.

Law enforcement officials would be better able to characterize the mechanisms or tactics used to accomplish this smuggling, but they would certainly describe the method as diverse. Some are fairly low-tech, such as hiding the drugs within legitimate cargo or in secret compartments of vehicles that are crossing through ports of entry. Much also passes between ports of entry, whether by air, ground, sea, or even underground via tunnels.

## III. The legalization option

When contemplating tactics for reducing this illegal flow it is useful to distinguish legalization from all other options, and within the discussion of legalization to distinguish legalizing marijuana on the one hand from legalizing cocaine/crack, heroin, and meth on the other. For better and for worse, it seems reasonably likely that the U.S. federal government will legalize marijuana within the next decade; that would largely eliminate marijuana's share of the cross-border drug smuggling problem. That share is the majority of the weight, but only a minority of the value of the illegal drugs smuggled across U.S. borders.

There are many varieties of legalization,[10] but as a general matter, one would expect that legalizing large-scale production of a drug to eliminate most illegal cross-border smuggling. Of course there are caveats. Legalizing only home-production might not drive out the black market, particularly for the hard drugs. The cannabis plant lends itself to home cultivation, e.g., because its yield per square foot is extraordinarily large.[11] That is why I made the statement concerning "large-scale" production. Likewise if taxes or other regulatory hurdles were too great, there could still be "grey market" smuggling to evade those taxes or regulation. E.g., there is quite a large illegal industry smuggling cigarettes from low-tax to high-tax states, and in other regions of

[9] Mark A. R. Kleiman, Peter Reuter, and Jonathan P. Caulkins. 2002. "The War on Drugs and the War on Terror: A Comparison." *Public Interest Report*, Vol. 55, No. 2, pp.3-5.

[10] For a thorough discussion of the options for marijuana, see Caulkins, Jonathan P., Beau Kilmer, Mark A. R. Kleiman, Robert J. MacCoun, Gregory Midgette, Pat Oglesby, Rosalie Liccardo Pacula, and Peter H. Reuter (2015). *Considering Marijuana Legalization: Insights for Vermont and Other Jurisdictions*, Santa Monica, Calif.: RAND Corporation, RR-864. http://www.rand.org/pubs/research_reports/RR864.html.

[11] It takes more square feet of coca bushes or poppies to supply a heavy cocaine or heroin user than it does cannabis plants to supply a heavy marijuana user.

the world smuggling for purposes of tax-evasion involves transport of large quantities of tobacco and many other products across international borders. But there is nothing special about a commodity being a dependence-inducing intoxicant that necessarily produces cross-border smuggling. There is not, as far as I know, much smuggling of alcohol into the U.S. today; tax differentials across states are not large enough to make that worthwhile, particularly given the bulkiness of alcohol per dollar. Rather, it is primarily the illegality that creates the criminal opportunities.

It is important to stress, though, that decriminalization or legalization of possession are absolutely not half-way to legalization from the perspective of border security. Quite the contrary. One would expect decriminalization and legalization of use in the United States to exacerbate, not help solve, the border security problem, and also the problems drug traffickers create in source and transshipment countries such as Mexico.[12] They reduce barriers and disincentives to use while leaving the production and distribution chains wholly in criminal hands.

The conventional wisdom in the academic literature is that decriminalizing marijuana has not led to much of an increase in use,[13] but that statement comes with four qualifications:

- Some studies do suggest notable increases in use.[14]
- Essentially no one argues that decriminalization or legalizing use reduces use.
- In my opinion, some of the academic literature tends to have a pro-marijuana slant.
- Decriminalizing marijuana usually comes after a period when marijuana enforcement was already ebbing. If the U.S. were to decriminalize hard drugs, that would be a bigger change from the status quo and so might have a noteworthy effect on use even if the academic literature is correct that marijuana decriminalization has not had such an effect in the past.[15]

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[12] Caulkins, Jonathan P. and Eric Sevigny (2013). The U.S. Causes but Cannot Solve Mexico's Drug Problems. In *A War that Can't Be Won*, eds. Tony Payan, Kathleen Staudt, and Z. Anthony Kruszewski. University of Arizona Press, pp.285-310.

[13] See, e.g., Thomas Babor, Jonathan Caulkins, Griffith Edwards, David Foxcroft, Keith Humphreys, Maria Medina Mora, Isidore Obot, Jurgen Rehm, Peter Reuter, Robin Room, Ingeborg Rossow, and John Strang. 2010. *Drug Policy and the Public Good*. Oxford University Press, or Room R., Fischer B., Hall W., Lenton S., and Reuter P. (2008) *Cannabis policy: Moving beyond stalemate*. Beckley Park, UK: Beckley Foundation.

[14] E.g., Adda, Jérôme, Brendon McConnell, and Imran Rasul (2014). Crime and the Depenalization of Cannabis Possession: Evidence from a Policing Experiment. *Journal of Political Economy*, 122(5):1130-1202.

[15] Evidence concerning the effects of Portugal's 2001 policy changes are often presented, and often mis-represented, concerning this point. I would be happy to elaborate if that were useful, but in a nutshell, what Portugal did in 2001

I will not discuss further legalization of hard drugs. Of course one can track down advocates for almost any idea, but legalizing hard drugs does not at present appear to be a viable option politically within the U.S. In my opinion that is a good thing. Everything about legalizing hard drugs is much higher stakes and much riskier than is legalizing only marijuana. Furthermore, legalization is essentially an irreversible act, not something a country can try out for a few years and then easily revoke if addiction rates soar.[16]

Legalizing hard drugs is a much more appealing option from the perspective of the primary production and transshipment countries, not from the perspective of final market countries such as the United States. So a scenario that deserves greater attention than it has received to date is one that involves one or more Latin American countries legalizing cocaine, or all drugs generally. It is not altogether clear how that would affect the United States. There are scenarios under which the mere fact that cocaine could be purchased legally in, say, Bolivia, might have very little effect on the Mexican drug trafficking organizations (DTOs) that carry those drugs "the last mile" across the border into the United States. But one can also spin scenarios in which legalization in even one country could alter the strategic landscape for all countries.[17]

## IV. The effects of legalizing marijuana

The second edition of my book on marijuana legalization written with co-authors Mark Kleiman and Beau Kilmer came out this month.[18] Here I will just state the key points, all of which are elaborated in that book.

Production of marijuana for domestic consumption has shifted back and forth between the United States and foreign sources – primarily Mexico, but also Canada, Jamaica, and other

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was both less than and in other ways more than what is customarily meant by decriminalizing or legalizing amounts suitable for personal consumption. It is a very interesting policy innovation, but does not provide as strong a basis for projecting what outcomes might be in the United States as some observers claim it to be.

[16] Caulkins, Jonathan P. and Michael A.C. Lee. 2012. The Drug-Policy Roulette. *National Affairs*. 12, pp.35-51.

[17] I attempt to take a first step toward exploring such scenarios in the following publication, but am very blunt that thinking about these scenarios is highly speculative: Caulkins, Jonathan P. 2015. After the Grand Fracture: Scenarios for the Collapse of the International Drug Control Regime. *Journal of Drug Policy Analysis*. 24(1):60-68. Published online: DOI: 10.1515/jdpa-2015-0008.

[18] Caulkins, Jonathan P., Beau Kilmer and Mark A.R. Kleiman (2016). *Marijuana Legalization: What Everyone Needs to Know, 2nd Edition*. Oxford University Press.

countries. As recently as 2000 the vast majority of marijuana consumed in the United States was imported. By 2008, Mexico's market share might have fallen to somewhere between two-fifths and two-thirds.[19] Domestic production has almost certainly increased further since then, but the exact share today is hard to establish.

This shift is bound up in a change in the types of cannabis consumed. To simplify, Mexico used to dominate production of "commercial grade" marijuana whose THC potency was typically below 5%, although that potency has been increasing and is now perhaps more typically 5-7%. By contrast, most of the higher potency sinsemilla (10-20% THC) was produced in the United States, or in Canada. U.S. production was an amalgam ranging from purely illegal production (e.g., in networks of grow houses operated by organized crime groups) to legal with respect to state medical marijuana laws, with quite a bit that operated in a gray area in between, e.g., excess production by people who were authorized to produce some under a medical regime, and also "medical" regimes that allowed essentially any user to obtain a "medical" recommendation.

There was in parallel a shift from traditional forms of consumption (mostly smoking) to a wider range of forms, including edibles (brownies, candy, etc.), "vaping" (which can be thought of as analogous to an e-cigarette), and "dabbing" (flash vaporizing highly concentrated THC matter). Many of these newer modalities involve THC and other cannabinoids that have been extracted (e.g., with solvents such as butane) and concentrated, not the cannabis plant material as was the norm in the past.

Also, and importantly, price per unit of THC has been declining. (The price per gram of sinsemilla today may be higher than the price per gram of commercial grade marijuana in the past, but since sinsemilla is so much more potent, the cost per hour of intoxication has fallen.)

There is little question that:

- These trends have expanded marijuana consumption greatly, and reduced imports' share of that consumption.
- These trends were facilitated if not driven by liberalization of policy.
- Legalization to date is still only partial, and more dramatic change is to be expected.
- Legalization to date is on a continuum that is perhaps best dated to the beginning of quasi-regulated medical marijuana production in California in the early 2000s, not the

[19] Kilmer et al. (2010), Appendix D.

November 2012 passage of the legalization propositions in Colorado and Washington State.[20]

To give a sense of the scale of the increase in marijuana consumption, the number of days of marijuana use that Americans self-report to the national household surveys has increased from 2.2 billion in 2004 to 4.0 billion on the 2014 survey.

The increase comes in part from growth in the number of users, but even more from increases in the intensity of use. The number of Americans who self-report that they use marijuana daily or near-daily (defined as 21 or more days in the past month) has increased from 4.0 million in 2000 to 8.0 million in the 2014 survey. (Many people use less frequently, but those daily and near-daily users account for more than 80% of all marijuana consumption.)

There is generally a positive association between the amount used per day of use and the frequency of use (meaning days of use per month). That correlation exists in terms of raw weight, and probably also does in terms of THC consumption because frequent users may also gravitate toward more potent forms.

So although this cannot be measured directly, it is possible that on a THC-adjusted basis, the quantity of marijuana consumed may have increased between 2004 and 2014 to an even greater extent than is suggested by the increase from 2.2 to 4.0 billion days of self-reported use.

What does this mean for imports from abroad? Even if the share of marijuana that is imported has fallen, the total amount of use supplied by imports could have increased since total consumption has grown. In particular, even if imports' share of the market today is half of what it was back in 2004, the amount of use supplied by imports today could be nearly as large as it was ten years earlier.

Has the market share of imports fallen to 50% or less of its previous level? No one knows for sure. When Beau Kilmer and I, along with various colleagues, tried to look at this question in detail back in 2010, we found that imports were a substantially larger share of the market than most people thought based on the prices users reported paying.[21] My hunch is that

[20] Among other reasons, Colorado and Washington State both already had "medical" regimes that were so permissive that the bigger change actually came with the Obama Administration's decision not to prosecute companies operating within those state regulatory regimes, not the changes in the state laws per se.

[21] Kilmer, Beau, Jonathan P. Caulkins, Brittany M. Bond, and Peter Reuter (2010). *Reducing Drug Trafficking Revenues and Violence in Mexico: Would Legalizing Marijuana in California Help?* RAND OP-325-RC, Santa Monica, CA. In brief, much of the consumption was by people who reported paying prices for marijuana that were

this gap arose because most of the "conventional wisdom" about marijuana use patterns comes from people who participate in the "blogosphere" or the World Wide Web more generally. But it is important to remember that college graduates account for only about 15% of the market; more than half is consumed by people with a high school education or less. Those less educated, and presumably less affluent users, might be more likely to use less expensive, imported commercial grade marijuana and also less likely to write about it on the internet.

Furthermore, from a security perspective, what matters is not the amount of use supplied by imports, so much as the weight and value of those imports. The potency of marijuana imported from Mexico appears to have been increasing, so the weight imported per hour or day of intoxication supplied from abroad may have fallen somewhat. Also, wholesale prices in the U.S. have been falling on a THC-adjusted basis, so it is possible that import prices have also been falling although data on import prices are scarcer than data on wholesale prices.

Replicating the analysis done back in 2010 is possible, but it is more of a research project than something I could manage in time for this testimony. If I had to guess now, without having a chance to crunch the numbers, my best guess is that the growth in total marijuana consumption has offset an important part of the decline in imports' market share, so that the liberalization of marijuana policy to date has not yet greatly reduced exports to the United States. I am aware that there are journalistic accounts extrapolating from declines in seizures to presumptions about declines in exports,[22] but as Alejandro Hope has discussed,[23] other factors may explain the declines in seizures.

Still I want to stress that this is just my best guess based on professional judgment; the data systems are not adequate to answer the matter definitively.

However, if and when the federal government repeals its marijuana prohibition and/or the state legal marijuana industry has time to expand, innovate, and fully exploit the economies of scale that is now starting to achieve, domestic production under liberalized policy regimes ought to be able to out-compete imports.

This idea is discussed in detail in our book, but let me just cite two supporting facts. All of the THC consumed in the United States could be produced on less than 10,000 acres of

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simply too low for that marijuana to be sinsemilla, and the conventional wisdom at the time was that most domestic production was of sinsemilla.

[22] E.g., http://time.com/3801889/us-legalization-marijuana-trade/.

[23] http://www.samefacts.com/2015/02/crime-incarceration/mexicos-missing-marijuana-mystery/.

farmland. Ten thousand acres sounds enormous to the typical homeowner, but a 1,000 acre farm is not unusual in the Mid-West. So quite literally, ten farms could supply all of the country's THC.

And production costs could become very low once production shifts to large-scale, professionally-run farms. Outdoor production can yield something on the order of 600 pounds of marijuana "flowers" per year, plus about 2,000 pounds of additional vegetable material from which THC can be extracted. Production costs for other crops that require transplanting is typically $5,000 - $20,000 per acre, suggesting production costs for flowers of around $20 per pound. That is just 1% of current farm gate prices, which are roughly $2,000 per pound, and less than 10% of the going wholesale price for (lower-quality) marijuana imported from Mexico just after it has crossed the border into the United States.

In short, even if the policy liberalizations to date have not yet greatly reduced marijuana imports, if the trend toward liberalizing policy continues it is entirely plausible that importing of illegal marijuana will be largely curtailed.

Again, that would represent a very large decline in the weight of illegal drugs imported, but a much more modest reduction in the amount drug traffickers earn from bringing drugs into the United States.

## V. Policy reforms short of legalization

Within a regime that prohibits legal supply, the most effective way to reduce imports is through enforcement. Prohibition backed by a baseline level of enforcement drives up the prices of illegal drugs far, far beyond what they would be if drugs were legal.[24] This point has been made elsewhere, but consider for example that it costs cocaine producers roughly $15,000 per kilogram to get cocaine from Colombia into the United States, whereas any parcel delivery service would charge less than $100 per kilogram to ship any legal commodity to the customer's door. That spectacular increase in the cost of doing business is attributable to prohibition, backed by some enforcement, and it translates directly into extremely high prices. Cocaine, heroin, and meth all cost user many times their weight in gold.

[24] See, e.g., Caulkins, Jonathan P. (2014). Effects of Prohibition, Enforcement, and Interdiction on Drug Use. In *The Economics of International Drug Policy*, ed. John Collins (London: LSE IDEAS Special Report), pp.16-25 or Kleiman, M. A., Caulkins, J. P., & Hawken, A. (2011). *Drugs and Drug Policy: What Everyone Needs to Know*. Oxford University Press.

When drug prices are high, people use less. Indeed, the price responsiveness can be surprisingly large because most of the drugs are consumed by the minority of people for whom buying those drugs soaks up a very large share of their disposable income. So whereas people's first impulse is to think that those who are drug dependent may be unresponsive to changes in price, that is largely incorrect, as a now substantial body of economic literature now shows.[25]

However, the fact that prohibition plus some enforcement does a terrific job of holding down the quantity consumed – and hence the quantity imported – there appears to be no practical opportunity for reducing imports by further increasing enforcement intensity beyond their already very aggressive levels, and for two distinct reasons.

The first is simply that the mood of the country is sharply in favor of reducing not increasing enforcement "toughness".

The second is that it probably would not work well anyhow. Opportunities for investigating the question empirically are understandably limited, but the academic consensus is that further increases in enforcement beyond that needed to give the prohibition teeth and to impose the "structural consequences of product illegality" are extremely inefficient ways of driving down consumption of drugs with long-established markets. Peter Reuter and I made this point in our earlier testimony, referenced above,[26] and he has a recent article with Harold Pollack that further elaborates the argument by drawing on more recent literature.[27] Indeed, most drug policy scholars would argue that toughness could be reduced substantially with relatively few adverse effects, because policies in recent decades have gone so far past the point of diminishing returns.

As a result, most progressive discussions of improving American drug policy focus on so-called demand-side interventions. Here the analysis is at once promising and gloomy. There are of course many different types of demand-side interventions spanning a very broad range of modalities and target populations, but the generic finding is that they are often highly cost-effective but not very effective.

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[25] Gallet, Craig A. (2014). Can price get the monkey off our back? A meta-analysis of illicit drug demand. *Health Economics*, 23:55-68, published online in 2013 at DOI: 10.1002/hec.2902.

[26] Reuter, Peter, and Jonathan P. Caulkins 2009. "An Assessment of Drug Incarceration and Foreign Interventions." May 19th testimony to the Domestic Policy Subcommittee of the Oversight and Government Reform Committee.

[26] http://www.cdc.gov/drugoverdose/data/overdose.html. See also Caulkins, J. and Reuter (2006) "Re-orienting Drug Policy" *Issues in Science and Technology* **23(1).**

[27] Pollack, H. A., & Reuter, P. (2014). Does tougher enforcement make drugs more expensive?. *Addiction*, *109*(12), 1959-1966.

That is not a contradiction. Demand-side interventions can be cost-effective, even if they are not very effective in any absolute sense, because they are relatively cheap (certainly compared to imprisonment) and the thing they seek to reduce is so extraordinarily destructive.

The point is perhaps best made with some stylized numbers. Efforts to estimate the social cost of drug abuse face enormous challenges, and one should not imagine that the figures are terribly precise, but they give a sense that the scale of the problem is on the order of $200 billion per year for illegal drugs.[28] Most of those costs come from the 3 million or so heaviest users of the "expensive" illegal drugs (cocaine/crack, heroin, and meth). Dividing $200 billion by 3 million suggests that such individuals impose costs on the rest of society that exceed $50,000 per year. Since the residual length of the "drug using career" for such individuals is usually a decade or longer, that means that inducing such a person to give up drugs forever would be worth more than $500,000. So taxpayers ought to be perfectly happy to pay for a $3,000 treatment program even if it only had a 1% chance of causing the client to permanently cease use. A hypothetical $3,000 treatment program that had a 5% "cure rate" would offer taxpayers a spectacular "return on investment" even if it had no impact whatsoever on 95% of its clients.

Treatment advocates hate any discussion couched in terms of probabilities of achieving permanent abstinence, let alone a "cure rate". The modern language for discussing treatment is as a way of managing a chronic relapsing condition, akin to the way insulin is used to manage diabetes.

But the very reason that treatment advocates insist on framing the discussion in that way is precisely because we do not have treatment approaches which, when offered to a population of users, greatly reduce that population's drug consumption over the long-run.

This means that while it could be a terrific policy to expand treatment funding and availability (as the Mental Health Parity and Addiction Equity Act and also the Affordable Care Act have begun to do[29]), doing so would not do much – and certainly not much quickly – to reduce the quantity of illegal drugs being imported, and the attendant security problems.

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[28] See, e.g., Harwood, H. *Updating Estimates of the Economic Costs of Alcohol Abuse in the United States: Estimates, Update Methods, and Data*. Report prepared by The Lewin Group for the National Institute on Alcohol Abuse and Alcoholism, 2000.

[29] For more on this, see various writings by Keith Humphreys and Harold Pollack, e.g., Humphreys, K., & Frank, R. G. (2014). The Affordable Care Act will revolutionize care for substance use disorders in the United States. *Addiction*, *109*(12), 1957-1958 or Andrews, Christina, Colleen M. Grogan, Marianne Brennan, and Harold A.

When discussing drug treatment it is always important to distinguish the technology for treating opioid dependence – for which pharmacotherapies exist – and the much less successful technologies for treating other substances, including the stimulants. For opioids (including heroin), it is possible to "maintain" dependent users on a legally supplied substitute opioid. The best known such substance is methadone. Buprenorphine is another. The fact that some other countries use (legal, pharmaceutical grade) heroin itself in this manner, and that the class of interventions is called opiate *substitution* therapies, underscores the extent to which even for opioids we do not have very good methods of greatly reducing drug use. Rather, we just know how to get dependent individuals to substitute legal opioids for illegal ones.

The story with prevention is broadly similar. Even model-school based drug prevention programs tend not to be very effective in an absolute sense,[30] but they are inexpensive and preventing drug use is very valuable, so they can nonetheless be cost-effective.[31] Furthermore, many can produce diverse collateral benefits, ranging from reducing smoking and alcohol abuse to better academic outcomes. So again, a robust investment in drug prevention may be good policy, but it is not plausible that expanding those efforts will solve the border security issues created by drug imports.

Furthermore, with prevention – unlike treatment – there are inevitably quite long lags between when the program is implemented and when it affects the drug use that is of greatest concern. Many prevention programs target young teens; some work with much younger children. There are even evaluations of prenatal nurse home visitation programs from a drug control perspective. But the median age of initiation for hard drugs is 21, and even crack is not "instantly addicting". There is a lag between initiation and progression to dependence, and then that dependence can continue for many years. So there can a lag of a decade or more between implementation of a prevention program and the beginnings of its significant effects on hard drug use.

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Pollack. "Lessons from Medicaid's Divergent Paths on Mental Health and Addiction Services." *Health Affairs* 34, no. 7 (2015): 1131-1138.

[30] For a recent review, see Faggiano, F., Minozzi, S., Versino, E., & Buscemi, D. (2014). Universal school-based prevention for illicit drug use. *Cochrane Database of Systematic Reviews*, *12*.

[31] C.f., Caulkins, Jonathan P., C. Peter Rydell, Susan S. Everingham, James Chiesa, and Shawn Bushway. 1999. *An Ounce of Prevention, a Pound of Uncertainty: The Cost-Effectiveness of School-Based Drug Prevention Program*, RAND, Santa Monica, CA and Caulkins, Jonathan P., Rosalie Pacula, Susan Paddock, and James Chiesa. 2002. *School-Based Drug Prevention: What Kind of Drug Use Does it Prevent?* RAND, Santa Monica, CA.

Worse, there are many well-meaning and seemingly sensible interventions that do not even work that well. Indeed, many when evaluated rigorously do not show any statistically significant effect on drug use (even if they perhaps affect attitudes toward or knowledge about drugs). The most popular school prevention program, DARE, is an example of such a victim of rigorous evaluation.[32]

Unfortunately mass media campaigns often fall into this category. Media campaigns are quite difficult to evaluate; it is often hard to know for sure exactly how big a "dose" any individual youth received. Nevertheless, it is really no longer tenable to think that these campaigns are effective but just not appreciated. Despite persistent attempts, the serious evaluations have produced rather disappointing findings. In particular, Hornik et al. (2008) reached pessimistic conclusions concerning the national youth anti-drug media campaigns in the United States,[33] and more comprehensive literature reviews suggest that the limitations are systemic, not due to any particular flaws with that campaign.[34]

In sum, while there may be abundant opportunities for improving U.S. drug policy, it would be naïve to think that doing more or better with any of the traditional drug control levers could close down or cut by more than half the flow of drugs across the border.

## VI. One ray of hope: Swift, certain and fair

There is one radically innovative approach to reducing drug use that stands outside the usual list of programs and which may offer a real opportunity to dramatically reduce drug use and, hence, drug imports. The name of that approach has evolved, originally sometimes being referred to as "coerced abstinence" but now is more often referred to as "swift, certain, and fair" (SCF).

[32] E.g., West, S. L., & O'Neal, K. K. (2004). Project DARE outcome effectiveness revisited. *American Journal of Public Health*, *94*(6), 1027-1029.
[33] Hornik, R., Jacobsohn, L., Orwin, R., Piesse, A., & Kalton, G. (2008). Effects of the national youth anti-drug media campaign on youths. *American Journal of Public Health*, *98*(12), 2229-2236.
[34] See, e.g., Ferri, M., Allara, E., Bo, A., Gasparrini, A., & Faggiano, F. (2013). Media campaigns for the prevention of illicit drug use in young people. *The Cochrane database of systematic reviews*, *6* and Hawks D., Scott K., McBride N., Jones P., and Stockwell T. (2002) *Prevention of Psychoactive Substance Use.* Geneva, Switzerland: World Health Organisation.

Within the academic community the idea is most closely associated with New York University professor Mark Kleiman and his book *When Brute Force Fails,*[35] although Mark would be quick to point out that the best-known examples of its implementation were developed by practitioners who arrived at the key ideas independently. Those examples include the Hawaii's Opportunity Program with Enforcement (HOPE)[36] and the 24/7 Sobriety program launched first in South Dakota.[37] The Physician Health Programs (PHPs) operate on a similar behavioral principle, albeit with a very different population.[38]

That principle is that deterrence can work when the sanctions are swift, certain, and fair even in contexts where a lower likelihood of delayed but draconian sanctions fails to induce behavioral change.[39] For example, South Dakota's 24/7 Sobriety program required alcohol-involved offenders to submit to *twice daily* breathalyzer tests or wear continuous alcohol monitoring (at their own expense), and imposed an automatic and instantaneous jail term for any positive test – but the duration of that term was typically just a day or two.

What is distinctive about all of these efforts is a focus on testing-with-consequences as a way of suppressing drug use.[40] It is not drug treatment as it is typically defined. If individuals in the program believe that conventional treatment will help them achieve abstinence, they are free to pursue it, but the program itself does not mandate or deliver drug treatment. To the extent that these programs fit within any of the conventional boxes it would be community supervision, including as an alternative to incarceration,[41] but they are not just that either.

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[35] Kleiman, Mark A.R. (2009). *When Brute Force Fails: How to Have Less Crime and Less Punishment*. Princeton University Press, Princeton, NJ.

[36] Hawken, A., & Kleiman, M. (2009). Managing Drug Involved Probationers with Swift and Certain Sanctions: Evaluating Hawaii's HOPE: Executive Summary. *Washington, DC: National Criminal Justice Reference Services* and Hawken, A. (2010). HOPE for probation: How Hawaii improved behavior with high-probability, low-severity sanctions. *Journal of Global Drug Policy and Practice*, *4*(3), 1-5.

[37] Kilmer, B., Nicosia, N., Heaton, P., & Midgette, G. (2013). Efficacy of frequent monitoring with swift, certain, and modest sanctions for violations: insights from South Dakota's 24/7 sobriety project. *American journal of public health*, *103*(1), e37-e43. Kilmer, B., & Humphreys, K. (2013). Losing Your License to Drink: The Radical South Dakota Approach to Heavy Drinkers Who Threaten Public Safety. *Brown J. World Aff.*, *20*, 267.

[38] DuPont, R. L., McLellan, A. T., White, W. L., Merlo, L. J., & Gold, M. S. (2009). Setting the standard for recovery: Physicians' Health Programs. *Journal of Substance Abuse Treatment*, *36*(2), 159-171.

[39] Durlauf, S. N., & Nagin, D. S. (2010). The deterrent effect of imprisonment. In *controlling crime: Strategies and Tradeoffs* (pp. 43-94). University of Chicago Press.

[40] DuPont, R. L., & Humphreys, K. (2011). A new paradigm for long-term recovery. *Substance abuse*, *32*(1), 1-6.

[41] Kleiman, M. A. (2011). Justice reinvestment in community supervision. *Criminology & Public Policy*, *10*(3), 651-659.

What is also distinctive about these programs is their astonishingly high success rates.[42] In South Dakota well over 99% of breathalyzer tests come back clean (and that includes no-shows in the denominator) and there is evidence that the program was associated with a reduction in all-cause mortality among adults for the state in its entirety, not just for offenders.[43] Much remains to be learned about such programs, but South Dakota has extended the program from DUI to other alcohol-involved offenders (there is also a drug testing component) and the program is being adopted in other states[44] and there are plans to extend a modified version of the program throughout London.[45]

For present purposes, the other key point is one Mark Kleiman made long ago, and that is that the majority of hard drugs used in the United States are consumed by people who are nominally under criminal justice supervision, either on probation, parole, or pre-trial release.[46] So if there were a way to force those individuals to stop using, that would have a much bigger impact on drug use than any other plausible program. (In some respects SCF has much in common with drug courts, but drug courts usually focus only on nonviolent offenders and so are necessarily somewhat limited in scope since much drug use is by repeat and/or violent offenders.[47])

Nevertheless, the program has to swim upstream in several respects. First, to at least some, it is a stark challenge to the dominant paradigm of the "brain disease model of addiction" because it seems to produce bigger changes in drug use than does drug treatment.[48] (Note, though, that Angela Hawken argues that testing-with-consequences can be seen as the behavioral triage front end to an integrated system that focuses scarce treatment resources on the minority of

[42] Kleiman, M. A., Kilmer, B., & Fisher, D. T. (2014). Theory and Evidence on the Swift-Certain-Fair Approach to Enforcing Conditions of Community Supervision. *Fed. Probation*, *78*, 71.
[43] Nicosia, N., Kilmer, B., & Heaton, P. (2016). Can a criminal justice alcohol abstention programme with swift, certain, and modest sanctions (24/7 Sobriety) reduce population mortality? A retrospective observational study. *The Lancet Psychiatry*, *3*(3), 226-232.
[44] Midgette,G. (2016). A New Approach to Reducing Heavy Drinking and Alcohol-Involved Crime? Insights from RAND Research on 24/7 Sobriety Programs. Testimony presented before the California State Assembly, Committee on Public Safety on March 29, 2016. http://www.rand.org/pubs/testimonies/CT455.html
[45] http://www.bbc.com/news/uk-england-london-35660946.

[46] Kleiman, M 1997. "Coerced abstinence: A neopaternalist drug policy initiative," In *The New Paternalism: Supervisory Approaches to Poverty*, ed. Lawrence M. Mead, 182–219. Washington, DC: Brookings Institution and
[47] Sevigny, E. L., Pollack, H. A., & Reuter, P. (2013). Can drug courts help to reduce prison and jail populations?. *The ANNALS of the American Academy of Political and Social Science*, *647*(1), 190-212.
[48] Satel, S., & Lilienfeld, S. O. (2012). Addiction and the brain-disease fallacy. *Frontiers in psychiatry*, *4*, 141-141.

problem users who do not respect to a SCF regime.[49]) Second, there can be a reflexive response that punishing drug users is bad, or even a violation of their human rights, even if the evidence suggests that threatening occasional very short sentences can dramatically improve life outcomes for those same users, not just for the rest of society. Third, implementing SCF requires extraordinary cooperation across different components of the criminal justice system, and it remains to be seen whether it can be implemented in larger jurisdictions.

In sum, it seems very unlikely that any traditional drug control intervention, or combination of those interventions, has a plausible hope of reducing drug use by as much as 50% over ten years. SCF is one of the very few interventions that offers even a hope of achieving such reductions.[50] It is not that one should bet that SCF will deliver such large reductions within the next decade, but if anything will produce those gains, it seems more likely that it will be SCF than anything else we know of today.

## VII. Another angle: Finding less awful drug traffickers

If the chances of dramatically reducing U.S. consumption of hard drugs are slim to none within the next decade or so, that begs the question of whether there is some way to mitigate the security risk created by cross-border drug trafficking other than by shrinking its size. I certainly do not know. But the question is reminiscent of a line of argument I and others have suggested for addressing the collateral damages created by drug markets more generally.

Oddly, perhaps, the origins of the idea lie in the so-called "harm reduction" movement. The term "harm reduction" is still highly controversial in some quarters, but as used here it should not be understood as a code word for legalization. Rather, it should be taken at face value as seeking to reduce the harms associated with drug use, even if there is no reduction in the

[49] Hawken, A. (2010). Behavioral triage: A new model for identifying and treating substance-abusing offenders. *Journal of Drug Policy Analysis*, 3(1).

[50] Five years ago I might have been even more decisively pessimistic, but it is now clear that US cocaine consumption fell by something like 50% between 2006 and 2010. (Caulkins, Jonathan P., Beau Kilmer, Peter H. Reuter, and Greg Midgette. (2015). Cocaine's Fall and Marijuana's Rise: Questions and Insights Based on New Estimates of Consumption and Expenditures in U.S. Drug Markets. *Addiction*. 110(5): 728-736.) That decline is extraordinary, all but unprecedented, and still largely not understood (Kilmer, B., 2016). Cunningham et al. argue the decline is associated with new controls on essential chemicals; if they are correct (and that is not yet widely accepted), then that could in theory offer another mechanism. Cunningham, J. K., Callaghan, R. C., & Liu, L. M. (2015). US federal cocaine essential ('precursor') chemical regulation impacts on US cocaine availability: an intervention time–series analysis with temporal replication. *Addiction*, *110*(5), 805-820.

quantity of drugs used. Robert MacCoun has written some classic articles that explain the idea.[51] In thumbnail sketch, he notes that total harm can be thought of as the product of the amount of drug use times the harmfulness per unit of use, so in principle total harm can be reduced by cutting either drug use or by cutting harmfulness, two tactics that might usefully be labeled "use reduction" and "harm reduction".

The paradigmatic example of harm reduction for drug users is that if an intervention leaves an injection drug user (IDU) continuing to inject drugs, but now does so with a new syringe each time, that might reduce the spread of HIV/AIDS, hepatitis C, or other blood-borne diseases even if it has zero effect on drug use.

The literature of interest here tries to apply that sort of reasoning to the collateral damage caused by drug markets, rather than by drug use. In caricature, if last year drug dealers murdered 1,000 people in the course of distributing 200 metric tons of cocaine in the United States and next year they murder "only" 200 people while distributing 200 metric tons, that can be seen as progress in reducing the societal costs associated with illegal drugs even if there is no change in cocaine consumption.

More generally, the total harm caused by drug distribution can be expressed as the product of the amount of drugs distributed times the harmfulness of those markets per kilogram distributed. So one ought to be able to make the nation safer either by reducing the amount of drugs distributed or by reducing the threat per kilogram shipped.

The usual focus at least in the United States has been on drug market related violence, with the Boston Gun Project's Operation Ceasefire and the High-Point North Carolina drug market intervention being among the best known examples.[52] For more general discussions of

[51] E.g., MacCoun, Robert J., "The Psychology of Harm Reduction: Comparing Alternative Strategies for Modifying High-Risk Behavior," Wellness Lecture Series, Volume VI , 1996 and MacCoun, Robert J., "Toward a Psychology of Harm Reduction," *American Psychologist*, 53(11):1199-1208, 1998.

[52] See Kennedy, David M. "Pulling Levers: Chronic Offenders, High-Crime Settings, and a Theory of Prevention." *Valparaiso University Law Review* 31, no. 2, 449-484 (Spring 1997), Braga, Anthony A., David M. Kennedy, Anne M. Piehl, and Elin J. Waring. *Reducing Gun Violence: The Boston Gun Project's Operation Ceasefire*. National Institute of Justice Research Report (September 2001), Kidd, Don (2006). The High Point West End Initiative: A New Strategy to Reduce Drug-Related Crime. The Criminal Justice Institute's Management Quarterly, Fall, Little Rock, AR: University of Arkansas, and Saunders, J., Lundberg, R., Braga, A. A., Ridgeway, G., & Miles, J. (2015). A synthetic control approach to evaluating place-based crime interventions. *Journal of Quantitative Criminology*, *31*(3), 413-434.

the principle see Caulkins (2002), Caulkins & Reuter (2009), Caulkins and Kleiman (2011), Greenfield and Paoli (2012), and Kleiman et al. (2015).[53]

To the best of my knowledge, no one has tried to apply the principle specifically to the question of security threats created by cross-border drug trafficking. The closest analog of which I am aware is Mark Kleiman's argument that the principle could be used to address violence perpetrated by Mexican DTOs within Mexico.[54]

The reason to hope that such strategies might work is that at least in theory it ought to be much easier to get drug traffickers to change the way they smuggle drugs than to get them to stop smuggling drugs entirely. By and large drug traffickers are in it for the money; they are businesses, albeit illegal businesses. If trafficking route or strategy B offered lower risks, lower costs, or greater profits than strategy A, then the traffickers ought to be willing to switch to B. They are wedded to making money, not, by and large, to using a particular tactic. This is not to say there is no stability in drug trafficking patterns. There is. But that stability is perhaps better understood as contentment with current outcomes and nervousness about the unknown risks of a change, not any arbitrary or ideological commitment to any given tactic.[55]

So the questions become, are there some smuggling routes, tactics, or organizations that pose noticeably greater security risks to the United States than do others and, if so, are there ways to differentially "penalize" the most noxious routes, tactics, and organizations to put them at a competitive disadvantage, so that over time the market naturally evolves away from them and toward less bad routes, tactics, and organizations?

I genuinely do not know the answer to those questions. So to be clear, I am definitely not suggesting that this sort of market jujutsu is an effective way of mitigating the security risks posted by cross-border drug trafficking. Rather, I am merely saying that, given how unlikely it is

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[53] Caulkins, Jonathan P. 2002. "Law Enforcement's Role in a Harm Reduction Regime." Crime and Justice Bulletin Number 64. New South Wales Bureau of Crime and Justice Research; Caulkins, Jonathan P. and Peter Reuter. 2009. Toward a Harm Reduction Approach to Enforcement. *Safer Communities*, Vol. 8, No. 1, pp.9-23; Caulkins, J. P., & Kleiman, M. A. (2011). Drugs and crime. *The Oxford handbook of crime and criminal justice*, 275; Greenfield, V. A., & Paoli, L. If supply-oriented drug policy is broken, can harm reduction help fix it? Melding disciplines and methods to advance international drug-control policy. *International Journal of Drug Policy* (2012), 23(1):6-15; Kleiman, M. A., Caulkins, J. P., Jacobson, T., & Rowe, B. (2015). Violence and drug control policy. *Oxford Textbook of Violence Prevention: Epidemiology, Evidence, and Policy*, 297.

[54] Kleiman, M. (2011). Surgical strikes in the drug wars. *Foreign Affairs*, *90*(5), 89-101.

[55] Note: sometimes the actual smuggling is carried out by what might best be thought of as independent contractors, not by the owners of the drugs. Those independent contractors might perhaps be more locked into a single tactic. E.g., a light airplane pilot might not be able to alter business practices if suddenly became more economical to smuggle drugs through tunnels.

that the volume of hard drugs moving across U.S. borders will shrink appreciably in the next decade, it seems sensible to look toward outside the box tactics for addressing the security threat.