Articles

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Drug Control Policy in an Uncertain World

INTRODUCTION

My recent book *Public Policy in an Uncertain World* argues broadly that society should face up to the uncertainties that attend policy formation.[1] I observe that the current practice of policy analysis suffers from *incredible certitude*.[2] That is, researchers use

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untenable assumptions to make precise predictions of policy outcomes. I recommend performing credible policy analysis that explicitly expresses the limits to knowledge by providing interval rather than point predictions.[3] I consider how policy makers might make reasonable decisions in an uncertain world.[4]

These themes apply with considerable force to drug control policy. In 2001, the National Research Council (NRC) Committee on Data and Research for Policy on Illegal Drugs, which I chaired, found that society faces huge uncertainties when attempting to predict the consequences of alternative drug control policies.[5] In its final report, the committee called attention to "a woeful lack of investment in programs of data collection and empirical research that would enable evaluation of the nation's investment in drug law enforcement."[6] It called on the federal government to remedy this serious deficiency, observing that "[i]t is unconscionable for this country to continue to carry out a public policy of this magnitude and cost without any way of knowing whether and to what extent it is having the desired effect."[7]

Writing now, over a decade later, I am disappointed that the nation has not subsequently invested enough in data and research. Consequently, we remain unable to evaluate the effectiveness of drug control policy. Yet we have to formulate policy nonetheless. This Article considers how we might do so.

As a prelude, Part I uses a prominent case study examined by the NRC committee to illustrate how analysis of drug control policy has suffered from incredible certitude. Part II lists a set of data deficiencies and unsettled research questions that the NRC committee highlighted as severe impediments to policy evaluation. With this background, Part III asks how we might reasonably formulate drug control policy in an uncertain world. I sketch a proposal for adaptive diversification of drug laws.

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[1] CHARLES F. MANSKI, PUBLIC POLICY IN AN UNCERTAIN WORLD: ANALYSIS AND DECISIONS (2013).

[2] *Id.* at 2–3.

[3] *Id.* at 3.

[4] *Id.*

[5] COMM. ON DATA & RESEARCH FOR POLICY ON ILLEGAL DRUGS, NAT'L RESEARCH COUNCIL, INFORMING AMERICA'S POLICY ON ILLEGAL DRUGS: WHAT WE DON'T KNOW KEEPS HURTING US 3 (Charles F. Manski et al. eds., 2001), *available at* http://www.nap .edu/catalog/10021.html.

[6] *Id.* at 2.

[7] *Id.* at 11.

I

DUELING CERTITUDES: THE RAND AND IDA STUDIES OF COCAINE
CONTROL POLICY

Drug control policy has long been normatively contentious, with Americans varying in their moral judgment of drug use and in their concern with the collateral consequences of drug law enforcement. Policy analysis has also been contentious, with dueling policy studies using different data and methodology to reach sharply different conclusions about policy outcomes. Each of the two dueling studies may make sense in its own terms, combining data with assumptions to draw logically valid conclusions. However, there may be no way to determine which study (if either) makes realistic assumptions and which (if either) draws empirically correct conclusions.

A. RAND and IDA Studies

Dueling studies of cocaine control policy performed in the mid-1990s by analysts at RAND[8] and the Institute for Defense Analyses (IDA)[9] provide an apt illustration. The RAND and IDA studies considered the same hypothetical objective for cocaine-control policy, namely reduction in cocaine consumption in the United States by one percent.[10] Both studies predicted the monetary cost of using certain policies to achieve this objective. However, the two studies used different analytical approaches and data sources to reach dramatically different policy conclusions.

The RAND study specified a model of the supply and demand for cocaine that aimed to formally characterize the complex interaction of producers and users and the subtle process through which alternative cocaine-control policies may affect consumption and prices.[11] It used this model to evaluate various demand-control and supply-control policies and concluded that drug treatment is much more cost-effective than any policy aiming to reduce the supply of drugs:

> The analytical goal is to make the discounted sum of cocaine reductions over 15 years equal to 1 percent of current annual

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[8] C. PETER RYDELL & SUSAN S. EVERINGHAM, DRUG POLICY RESEARCH CTR., RAND, CONTROLLING COCAINE: SUPPLY VERSUS DEMAND PROGRAMS (1994) (reporting for the Office of National Drug Control Policy and the U.S. Army).

[9] BARRY D. CRANE ET AL., INST. FOR DEF. ANALYSES, AN EMPIRICAL EXAMINATION OF COUNTERDRUG INTERDICTION PROGRAM EFFECTIVENESS (IDA Paper P-3219, 1997).

[10] *See* RYDELL & EVERINGHAM, *supra* note 8, at xiii; CRANE ET AL., *supra* note 9, at 2–3.

[11] RYDELL & EVERINGHAM, *supra* note 8, at 7–8.

consumption. The most cost-effective program is the one that achieves this goal for the least additional control-program expenditure in the first projection year. The additional spending required to achieve the specified consumption reduction is $783 million for source-country control, $366 million for interdiction, $246 million for domestic enforcement, or $34 million for treatment . . . . The least costly supply-control program (domestic enforcement) costs 7.3 times as much as treatment to achieve the same consumption reduction.[12]

The IDA study examined the time-series association between source-zone interdiction activities and retail cocaine prices.[13] It reached an entirely different policy conclusion:

[A] rough estimate of cost-effectiveness indicates that the cost of decreasing cocaine use by one percent through the use of source zone interdiction efforts is on the order of a few tens of millions of dollars and not on the order of a billion dollars as reported in [the RAND study]. The differences are primarily attributed to a failure in the earlier research to account for the major costs imposed on the traffickers by interdiction operations and overestimation of the costs of conducting interdiction operations.[14]

Thus, the IDA study specifically rebutted a key finding of the RAND study.

When they appeared, the RAND and IDA studies drew attention to the ongoing struggle over federal funding of drug control activities. The RAND study was used to argue that funding should be shifted towards drug treatment programs and away from activities to reduce drug production or to interdict drug shipments.[15] The IDA study, undertaken in part as a re-analysis of the RAND findings,[16] was used

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[12] *Id.* at xiii.

[13] CRANE ET AL., *supra* note 9, at 1–2.

[14] *Id.* at 2–3.

[15] For example, in a statement to the National Security, International Affairs, and Criminal Justice Subcommittee in the U.S. House of Representatives, Lee Brown, then director of the Office of National Drug Control Policy, stated the following:

Let me now talk about what we know works in addressing the drug problem. There is compelling evidence that treatment is cost-effective and provides significant benefits to public safety. In June 1994, a RAND Corporation study concluded that drug treatment is the most cost-effective drug control intervention.

Effectiveness of the National Drug Control Strategy and the Status of the Drug War: Hearings Before the Nat'l Sec., Int'l Affairs, & Criminal Justice Subcomm. of the H. Comm. on Governmental Reform & Oversight, 104th Cong. 61 (1996) (statement of Lee Brown, Director, Office of National Drug Control Policy).

[16] CRANE ET AL., *supra* note 9, at I-3.

to argue that interdiction activities should be funded at present levels or higher.[17]

B. The NRC Assessment

The NRC committee was asked by the U.S. Office of National Drug Control Policy (ONDCP) to assess the two studies.[18] The committee concluded that neither study constitutes a persuasive basis for the formation of cocaine control policy.[19] The committee summarized its assessment of the RAND study as follows:

> [T]he RAND study does not yield usable empirical findings on the relative cost-effectiveness of alternative policies in reducing cocaine consumption. The study makes many unsubstantiated assumptions about the processes through which cocaine is produced, distributed, and consumed. Plausible changes in these assumptions can change not only the quantitative findings reported, but also the main qualitative conclusions of the study. The study is also seriously deficient in its use of the Treatment Outcomes Prospective Study (TOPS) data to estimate the effectiveness of cocaine treatment programs. Hence, the findings of the RAND study do not constitute a persuasive basis for the formation of cocaine control policy.[20]

It summarized its assessment of the IDA study this way:

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[17] For example, in a hearing specifically devoted to the IDA study, chairman William H. Zeliff began this way:

> We are holding these hearings today to review a study on drug policy, a study we believe to have significant findings, prepared by an independent group, the Institute for Defense Analysis, at the request of Secretary of Defense Perry in 1994.
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> . . . .
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> . . . [T]he subcommittee has questioned for some time the administration's strong reliance on treatment as the key to winning our Nation's drug war, and furthermore this subcommittee has questioned the wisdom of drastically cutting to the bone interdiction programs in order to support major increases in hard-core drug addiction treatment programs. The basis for this change in strategy has been the administration's reliance on the 1994 RAND study.

Review of the Internal Administration's Study Critical of Clinton Drug Policy and White House Supression of Study: Hearings Before the Subcomm. on Nat'l Sec., Int'l Affairs, & Criminal Justice of the H. Comm. on Governmental Reform & Oversight, 104th Cong. 1 (1996) (statement of Hon. William H. Zeliff, Chairman, Subcomm. On Nat'l Sec., Int'l Affairs, & Criminal Justice).

[18] COMM. ON DATA & RESEARCH FOR POLICY ON ILLEGAL DRUGS, NAT'L RESEARCH COUNCIL, ASSESSMENT OF TWO COST-EFFECTIVENESS STUDIES ON COCAINE CONTROL POLICY, at ix (Charles F. Manski et al. eds., 1999).

[19] *Id.* at 1–2.

[20] *Id.* at 28.

> [T]he IDA study does not yield useful empirical findings on the cost-effectiveness of interdiction policies to reduce cocaine consumption. Major flaws in the assumptions, data, and methods of the study make it impossible to accept the IDA findings as a basis for the assessment of interdiction policies. For example, the conclusions drawn from the data rest on the assumption that all time-series deviations in cocaine price from an exponential decay path should be attributed to interdiction events, not to other forces acting on the market for cocaine. Numerous problems diminish the credibility of the cocaine price series developed in the study, and an absence of information prevents assessment of the procedure for selecting interdiction events.[21]

Thus, the committee concluded that neither the RAND nor the IDA study provides a credible estimate of what it would cost to use alternative policies to reduce cocaine consumption in the United States.

C. Reflections

When I think now about the RAND and IDA studies, I consider their many differences to be less salient than their shared lack of credibility. Each study may be coherent internally, but each rests on such a fragile foundation of weak data and unsubstantiated assumptions as to undermine its findings.

What troubles me most about the studies is their injudicious efforts to draw strong policy conclusions. It is not necessarily problematic for researchers to try to make sense of weak data and to use unsubstantiated assumptions. However, the strength of the conclusions drawn in a study should be commensurate with the quality of the evidence and the credibility of the assumptions. When researchers overreach, they give away their own credibility and they diminish public trust in science. The damage to public trust is particularly severe when researchers inappropriately draw strong conclusions about matters as contentious as drug policy.

Unfortunately, these features of the RAND and IDA studies are not unusual. Studies that assert dueling certitudes regarding policy outcomes are common. Why do policy researchers so often provide conflicting perspectives on questions of public interest? I see two reasons.

One reason that policy researchers may assert such differing perspectives is the inherent difficulty of studying human behavior.

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[21] *Id.* at 43.

The conclusions that can be drawn from any analysis are determined by the assumptions made and by the data brought to bear. The range of plausible assumptions about human behavior is wide. The available data are limited to observations that can be made without undue intrusion. Researchers combining limited data with different maintained assumptions can, and often do, reach different logically valid conclusions.

A distinct problem is the failure of researchers to face up to the difficulty of their enterprise. Researchers sometimes do not recognize that the interpretation of data requires assumptions. Researchers sometimes understand the logic of scientific inference but ignore it when reporting their own work. The scientific community rewards those who produce strong novel findings. The public, impatient for solutions to its pressing concerns, rewards those who offer simple analyses leading to unequivocal policy recommendations. These incentives make it tempting for researchers to maintain assumptions far stronger than they can persuasively defend, in order to draw strong conclusions. I believe that this is what happened in the RAND and IDA studies.

II
DATA DEFICIENCIES AND UNSETTLED RESEARCH QUESTIONS

The NRC committee called attention to numerous data deficiencies and unsettled research questions that make it very difficult to evaluate drug control policy. Regarding data, the committee emphasized "the absence of adequate data on drug consumption and reliable data on drug prices."[22] Regarding research, it stressed our lack of knowledge of how drug suppliers and users respond to the threat of detection and punishment.[23] I explain below.

A. Data on Drug Consumption and Prices

Existing surveys of drug use collect information on frequencies of use but not on the quantity of drugs that users consume. The committee observed that quantity data are essential for "understanding the operation of drug markets; the dynamics of initiation [and termination of drug use]; the response of drug use[] to

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[22] COMM. ON DATA & RESEARCH FOR POLICY ON ILLEGAL DRUGS, *supra* note 5, at 3.
[23] *Id.*

changes in price; and the public health and economic consequences of drug use."[24]

The NRC committee called attention to the fact that the information on drug prices regularly used in research studies "is derived from data collected for the purpose of providing evidence in criminal trials" rather than from a well-designed sampling process intended to reveal the prices that drug users typically pay.[25] It may seem that the accuracy of estimates of the prices of illegal drugs is a technical concern of importance only to a small community of researchers. However, the committee observed that "accurate drug price data are critical for measuring the success of [drug control] policy, a primary aim of which is to increase the retail price of drugs and, thereby, to reduce consumption."[26]

B. The Behavioral Response of Drug Suppliers and Users to Sanctions

Considering the supply of drugs, the committee found "particularly strong needs for empirical research on" the following three questions:

1. *Geographic substitution*: To what extent can producers and traffickers thwart enforcement in one geographic area by moving production or smuggling routes elsewhere?

2. *Deterrence*: How can the deterrent effects of supply-reduction activities be measured? How large are they?

3. *Adaptation*: What is the time lag between successful enforcement operations and adaptive responses on the part of producers and traffickers?[27]

More generally, the committee recommended that ONDCP encourage development of "a sustained program of information gathering and . . . research aiming to discover how drug production, transport, and distribution respond to interdiction and domestic enforcement activities."[28]

Considering the demand for drugs, the committee observed that an important component of American drug control policy has been to attempt to reduce demand "by deterring use and by incapacitating

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[24] *Id.*

[25] *Id.*

[26] *Id.* at 3–4.

[27] *Id.* at 5.

[28] *Id.*

users."[29] A rational drug control policy must take appropriate account of the benefits and costs of enforcing sanctions against drug users. Here too, research has been sorely lacking. Hence, the committee recommended government support for "research on the declarative and deterrent effects, costs, and cost-effectiveness of sanctions against the use of illegal drugs."[30] The committee urged that "[p]articular attention . . . be paid to the relation between severity of . . . sanctions and . . . the rates of initiation and termination of . . . drug use among different segments of the population."[31]

III
ADAPTIVE DIVERSIFICATION OF DRUG LAWS

The data deficiencies and unsettled research questions described above, plus others, imply that we lack the knowledge needed to determine an optimal drug control policy. Yet policy choices must be made. How might we reasonably proceed?

When it is feasible to have policy vary across persons or groups of persons, I have argued that *adaptive diversification* offers an appealing strategy to cope with uncertainty and reduce it over time.[32] I first explain the general idea and then consider how it might be applied to drug control policy.

A. Adaptive Diversification

Financial diversification has long been a familiar recommendation for portfolio allocation, where an investor allocates wealth across a set of investments. A portfolio is "diversified" if the investor allocates positive fractions of wealth to different investments, rather than all to one investment. An investor with full knowledge of the returns to alternative investments would not diversify. He would be better off investing all of his wealth in the investment with the highest return.

The rationale for diversification arises purely from incompleteness of knowledge. Broadly speaking, diversification enables someone who is uncertain about the returns to investments to balance potential

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[29] *Id.*

[30] *Id.*

[31] *Id.*

[32] *See* Charles F. Manski, *The 2009 Lawrence R. Klein Lecture: Diversified Treatment Under Ambiguity*, 50 INT'L ECON. REV. 1013, 1038 (2009).

errors. Diversification prevents the massive losses that may occur if one puts "all eggs in one basket."[33]

The rationale for policy diversification is analogous. Policy choice is diversified if society randomly applies different policies to different persons. A society having complete knowledge of policy outcomes should not diversify; it should determine the best policy and apply it everywhere. A society that is unsure of the best policy may want to diversify to balance potential errors and prevent a very bad societal outcome.

Diversification differs from profiling. "[Policy d]iversification calls for randomly differential treatment of persons," or groups of persons.[34] "Profiling . . . calls for systematically differential treatment of [groups of] persons who differ in observable attributes thought to be associated with [policy] response."[35] Profiling may be good policy when society knows something about how policy response varies across groups of persons and can, therefore, tailor policy to the group. Diversification may be appealing when society does not know how policy response varies across the population. Then society cannot systematically differentiate policy, yet may find it beneficial to randomly vary policy to cope with uncertainty.

The above discussion concerns policy choice at a single point in time. Now suppose that society can periodically update its policy choices over time. Then society may learn, with observation of the outcomes experienced in earlier periods informing policy choice later on. Diversification is advantageous for learning because it randomly assigns persons to policies and, thus, yields the advantages for policy analysis of randomized experiments. The idea of adaptive diversification is to use the lessons learned from observation of earlier outcomes to update the allocation of persons to policies later on.

To illustrate, adaptive diversification might be implemented by a health care agency that assigns medical treatments to persons, such as the U.K. National Health Service or the U.S. Military Health System. Suppose that A is the status quo treatment for a disease and that B is an innovation. Suppose that the health agency *a priori* knows the effectiveness of treatment A but not that of B. Then the agency might initially diversify treatment in accord with its knowledge, assigning some fraction of patients to A and the remainder to B. Over time, the

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[33] *Id.* at 1038.

[34] MANSKI, *supra* note 1, at 140.

[35] *Id.*

agency observes the health outcomes of persons given treatment B and, thus, learns response to this treatment. As information accumulates, the agency can update the allocation of new patients in accord with what it learns. Eventually, it will fully learn response to treatment B and, thereafter, allocate all patients to the better treatment. Thus, a health agency that adaptively diversifies treatment gradually decides between A and B as knowledge of treatment response accumulates.

B. Adaptive Diversification of Drug Policy through Federalism

In the context of drug control policy, the analog of the medical treatments A and B may be alternative drug laws. For example, A may be a current law making recreational use of marijuana a criminal offense and B may be an alternative that decriminalizes this type of drug use. The purest form of adaptive diversification would have society randomly divide the population into two treatment groups, those who are subject to criminal penalties for marijuana use and the remainder who are not. Over time, we could observe the addiction, health, and socioeconomic outcomes of persons in the two groups, learn how the different policies affect personal life trajectories, and adaptively update the allocation of persons to the two groups.

In practice, random application of different laws to different individuals is infeasible in a society that places high value on the principle of *equal treatment of equals*. The Fourteenth Amendment to the U.S. Constitution, in fact, guarantees equal treatment of "similarly situated" persons.[36] However, American federalism does permit application of different laws to persons who reside in different states.[37] Hence, federalism enables implementation of an approximate version of adaptive diversification.

Indeed, the American progressive movement has long appreciated that federalism enables the states to experiment with new policy ideas. A century ago, Theodore Roosevelt wrote this about Senator Robert La Follette: "Thanks to the movement for genuinely democratic popular government which Senator La Follette led to overwhelming victory in Wisconsin, that state has become literally a laboratory for wise experimental legislation aiming to secure the

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[36] *E.g.*, Barbier v. Connolly, 113 U.S. 27, 32 (1885).

[37] *Cf.* U.S. CONST. art. IV, § 1; U.S. CONST. amend. X.

social and political betterment of the people as a whole."[38] Twenty years later, Supreme Court Justice Louis Brandeis, in his dissent to the 1932 case *New State Ice Co. v. Liebmann*, added what has become a famous remark on this theme: "It is one of the happy incidents of the federal system that a single courageous State may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country."[39] It has since become common to refer to the states as the "laboratories of democracy."[40]

In making these statements, Roosevelt and Brandeis clearly appreciated that policy variation across states could enable learning about policy response. Such variation is similar but not identical to adaptive diversification. A possibly important difference is that policy variation across states results from differences across states in their political orientation and, hence, may not emulate a randomized experiment. Nevertheless, policy variation across states can to some degree approximate adaptive diversification as a strategy to cope with uncertainty and reduce it over time.

At present, the federal Controlled Substances Act mandates a uniform national classification of drugs that limits the ability of the states to effectively vary the drug laws that persons face.[41] The Act consequently prevents implementation of the federalist version of adaptive diversification. The recent 2012 decisions by Washington and Colorado to eliminate state penalties for recreational use of marijuana[42] challenge the federal government to rethink the Controlled Substances Act. Should the federal government henceforth drop the uniform national classification of drugs in the Act or decline to enforce it, society may begin on a path towards better drug control policy.

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[38] Theodore Roosevelt, *Introduction* to CHARLES MCCARTHY, THE WISCONSIN IDEA, at vii, vii (1912).

[39] New State Ice Co. v. Liebmann, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting).

[40] *See, e.g.*, Michael S. Greve, *Laboratories of Democracy: Anatomy of a Metaphor*, FEDERALIST OUTLOOK, May 2001, at 1, *available at* http://www.aei.org/files/2001/03/31/Laboratories%20of%20Democracy%20Anatomy%20of%20a%20Metaphor.pdf.

[41] 21 U.S.C. §§ 801–904 (2006).

[42] Jonathan P. Caulkins et al., *Semi-legal Marijuana in Colorado and Washington: What Comes Next?*, OUPBLOG (Dec. 19, 2012, 10:30 AM), http://blog.oup.com/2012/12/semi-legal-marijuana-co-wa/.