NEW YORK UNIVERSITY

CENTER ON INTERNATIONAL COOPERATION

DRUG PRODUCTION AND TRAFFICKING, COUNTERDRUG POLICIES, AND SECURITY AND GOVERNANCE IN AFGHANISTAN

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Preface
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This report by Jonathan Caulkins, Mark Kleiman, and Jonathan Kulick contributes to the ongoing debate about counter-narcotics policies in Afghanistan, and in relation to counter-insurgency operations by adding a heretofore missing element–applied economic analysis of the effect of counter-narcotics policies. It does so by applying to a stylized depiction of the Afghan situation a standard model that economists and policy analysts have applied to a large range of policy areas.

The authors were reluctant to make policy recommendations, as they recognize that their necessarily simplified model of Afghanistan does not take into account fine-grained realities. The overall conclusion—that counter-narcotics policy in the context of a weak state facing violent challengers is likely to aggravate rather than alleviate insurgency, corruption, and criminal violence—opposes much that has been written on the subject. Previous critiques of official counter-narcotics policies in Afghanistan, including those published by CIC, focused on the counter-productive political and economic effects of the Bush administration's press for poppy eradication and recommended a focus on alternative livelihoods and high-level interdiction.[1] The Obama administration has largely adopted this policy.

This report's critique, however, is more radical. At the risk of oversimplification, its main points are:

1. Global production of heroin and opiates will remain concentrated in Afghanistan for the foreseeable future regardless of counter-narcotics efforts, other things being equal, because Afghanistan is by far the lowest cost producer and has invested a great deal of social capital in illicit transnational networks. Unless another potential producer suffers a political crisis making illegality cheaper to sustain, or demand declines, Afghanistan will remain the main producer meeting the global demand.

2. All feasible attempts at suppression or reduction of the opiates industry in Afghanistan under present conditions will result, other things being equal, in increasing the economic size of the industry, and therefore increasing the rents and taxes accruing to insurgents and corrupt officials. This applies equally to crop eradication, interdiction, and alternative livelihood programs. Therefore counter-narcotics programming increases rather than decreases both violent insurgency and official corruption. If counter-narcotics policies are effectively targeted at pro-insurgency traffickers, they may be able to reduce insurgency by enabling pro-government traffickers and corrupt officials to enjoy a monopoly.

3. Interdiction and law enforcement strengthen those actors best placed to use illicit power and violence to avoid interdiction and law enforcement, thus leading to concentration of the industry on the one hand and empowerment of insurgents on the other. Again, it may be possible to target counter-narcotics specifically against the insurgency by selective enforcement that effectively tolerates pro-government traffickers and corrupt officials.

4. Alternative livelihood programs targeted at insurgent controlled areas to reduce the resource base of the insurgency contribute directly to funding the insurgency through taxes levied by the insurgents on the alternative livelihood programs.

An anonymous reviewer questioned the assumption that "price is king," arguing that the cost of opiate production is not just an economic cost dependent on factors of production, but an overall cost that includes security, corruption, and other overhead costs. Consequently, the drug economy can be and has been eliminated from whole areas or provinces by improvements in security, governance, and other economic opportunity, even if opiate production would earn more money.

This line of argument is valid as far as it goes – opium poppy cultivation can be eliminated from regions or provinces without providing another crop offering the same gross revenues per hectare. A comparison of the cost and benefits of opiate production, whether between two jurisdictions to determine comparative advantage, or between opiate production and another activity, must

include on the cost side both the conventionally calculated cost of the factors of production and the additional costs imposed by criminality, such as protection payments, risk of punishment, and insecurity. Therefore overall improvements in security and economic opportunity can lead to a decline of illicit activities, even if the licit activities are not equally profitable in a purely monetary sense.

It does not follow, however, that one can generalize from successes in some regions of Afghanistan to the entire country. Such a generalization may entail a fallacy of composition, a logical error defined as inferring the characteristics of the whole from the characteristics of a part. Elimination of cultivation and associated activity in part of the country will lead to an increase in prices that will eventually make production profitable somewhere else. Under current conditions, that place is likely to be another part of Afghanistan for the following reasons:

- Global demand for an addictive product remains relatively inelastic with respect to price, so short-term price increases due to suppression of production will not reduce demand; demand is likely to remain at or close to current levels. Heroin and the raw materials required for its production, including raw opium, will continue to be produced in sufficient quantity to meet demand – as the authors note, "the question is where—not whether—illegal opiates will be produced to meet this demand."

- Production and trade in heroin remains a crime. Consequently, the location of production will be determined by a combination of comparative advantage and the presence of social capital in criminal or illicit networks.

- The effectiveness of criminal law enforcement remains variable among jurisdictions, both among and within states. Insecure environments in which state authority is contested and geographically limited provides a relatively permissive environment for large-scale illicit activities, including drug production.

Afghanistan, for now, has an insuperable comparative advantage over all other countries in both the conventional cost of production of heroin and opiates and the low cost of evading or blocking law enforcement; therefore, for the foreseeable future, the global production of heroin and opiates will be concentrated in Afghanistan.

This will change only when either another country becomes a low-cost (in all senses) center of production or Afghanistan develops sufficiently economically or politically so that it raises costs of the factors of production as well as of evading or defying law enforcement above potential competitors.

Therefore counter-narcotics policy in Afghanistan alone may move production around Afghanistan – to relatively more insecure areas – but cannot sustainably decrease the size of the opiate industry in the country. This was demonstrated during the 2000-2001 ban on poppy cultivation. The Taliban stopped poppy cultivation when the price was $40-$60/kg; under political pressure the next year and facing prices of $400-$600/kg, they rescinded the ban. By that time, however, almost nobody supported them against the pro-drug dealing warlords aligned with the United States and its coalition allies. The locus of production moved to the territory controlled by the warlords.

It is not possible to end world opiate production in the face of demand by expanding the type of improvements in governance and security that have reduced cultivation in Nangarhar province and elsewhere in Afghanistan. In the short run, reduction of Afghanistan's production will drive up the price, which will increase the returns to illegality both in Afghanistan and elsewhere; whether production remains in some newly outlaw area of Afghanistan or moves somewhere else (for instance, to Tajikistan or Baluchistan) depends on political factors. It is still true that at the macro level "demand is king." Yes, there are successful counter-narcotics policies in some regions; but it is unlikely that they can be extended to the whole country given its comparatively weak state compared to other potential producers and the continuity of demand.

The authors' third point regarding the likely targets of interdiction and law enforcement also appears valid.

Attempts at enforcement through a weak state privilege the most effective corrupt and violent actors and lead to consolidation of the industry. That is has been borne out on the ground in Afghanistan. Additionally, insurgency and corrupt officials are integrated with each other through the tribal structure. Members of the same extended family or clan can be in the government and the insurgency, and coordinate for maximum collective profit.

That alternative livelihood programs directly fund the insurgency via taxation – the fourth conclusion – was confirmed in Zhari district, Kandahar, in April 2010. According to press reports, US troops in Zhari wanted to refurbish an irrigation canal in the village of Senjaray. The elders finally agreed, but only after they went to Quetta to clear the project with the Taliban leadership. The Taliban approved the project on the condition that the elders pay them 50 percent of the wages the United States would pay.[2] The example underscores that, although U.S. COIN doctrine in practice equates control of territory with control over population, NATO forces can "clear" territory without gaining control over the population, which still fears the Taliban enough to pay taxes.

The report is most open to question in its analysis of the relationship of narcotics or counter-narcotics to insurgency or counter-insurgency. In our authors' model, focused solely on the drug economy, the only variable that affects the strength of the insurgency is its access to funding from narcotics. In practice, however, there are other sources of funding for the insurgency (e.g., foreign private donations, taxes on military supply convoys, and international reconstruction assistance), and funding is not the only or main variable explaining success. The authors' main tentative policy suggestion – assure that drugs enrich only corrupt officials – is in effect what the Bush administration tried during 2001-2004. It is true that illicit economies need not lead to insecurity and disorder: in several Central Asian countries narcotics profits strengthen stable authoritarian rule.[3] This situation, however, requires a state strong enough to suppress competition. In Afghanistan's situation, characterized by a weak state and porous borders, the type of governance that resulted from warlord domination pushed communities to seek support from outside, in this case the Taliban based in and supported by Pakistan. The Taliban revival started without access to drug money. Other sources of funding and supplies enabled them to organize and recruit, which in turn gave them the capacity to tax both the drug economy and the wider war economy.

The conclusion? The current counter-narcotic policy of seizures and destruction of drug bazaars and labs, combined with alternative livelihoods, probably does the least harm of any counter-narcotics policy to the COIN effort. Interdiction can and does harm farmers economically dependent on poppy cultivation – seizures from smugglers still results in lost income for individual farmers – but less than eradication, while alternative livelihoods potentially can lessen reliance on drug traffickers.

The analysis by Caulkins et al. shows that the existing drug policy regime places us in a bind. Any feasible level of enforcement in Afghanistan tends to enlarge the size of the opium economy and privilege violent actors of one sort or another. There are alternatives to the drug economy, but as long as the global demand remains and no other potential producer state displaces Afghanistan, the drug economy will likely mutate around Afghanistan, and no "counter-narcotics" policies focused solely on Afghanistan can affect it.

Executive Summary

Drug production and drug trafficking are effects as well as causes of political instability. They flourish under weak states and sustain that weakness by financing insurgency and warlordism and by intimidating or corrupting the officials of enforcement agencies and security forces. Afghanistan is a primary instance of this complex of social and political pathologies.

Since drugs problems are linked to deficiencies in security and governance, it might seem that "counter-narcotics" (CN) policies—efforts to shrink the drug traffic—necessarily contribute to improvements in political stability. But this need not be, and generally is not, true. In particular, it is not true in Afghanistan today.

One reason for pessimism about outcomes is pessimism about effectiveness. Suppressing drug trafficking is difficult in the best of circumstances, and circumstances are far from ideal in Afghanistan. But even if counter-drug operations in Afghanistan overcome these implementation challenges, a more fundamental obstacle remains.

Global demand for illegal opiates has been growing, and, even if initiation ceased today, significant demand would persist for many years because the minority of users who are chronically dependent consume the bulk of all drugs. Since poppies are easy to grow and heroin is easy to refine, the question is where—not whether—illegal opiates will be produced to meet this demand. In the short and even medium term Afghanistan is likely to be the primary locus of production. Afghanistan currently has a severalfold price advantage over its nearest rivals as a producer of illicit opium. It supplies about 90 percent of the world market, and an even larger share of the Eastern Hemisphere market. In the long run, if Afghanistan develops into a middle-income country and corruption ceases to be systemic, it might be possible for enforcement and rising standards of living to displace illegal opiate production to other countries that would then have competitive advantage; opiates could be and have been produced in many other places. But Afghanistan is currently dominant, and illicit production displays considerable "path dependence": established ways of doing business tend to persist.

Hence, the most that can be expected of even nominally successful counter-narcotics efforts in Afghanistan over the next few years is that they will (1) move the loci of production within the country, and (2) increase the prices of opium and opiates. Since the export price from Afghanistan constitutes only a tiny share of the retail price at which heroin is sold in consumer countries from Iran to Britain, price changes in Afghanistan have only modest impacts on prices faced by heroin consumers elsewhere, and therefore only a slight effect on the amount of heroin traffickers in those countries buy from Afghanistan. Thus even if counter-narcotics efforts in Afghanistan succeed in increasing the prices of opium and refined opiates, the result will not be a decrease in trafficking revenues: on the contrary, higher prices and only slightly lower volumes will result in increased revenues.

At present, insurgents appear to be capturing only a small share of those trafficking revenues. If new policies cause a redistribution of gains among the various market participants—farmers, ordinary criminals, corrupt officials, warlords, and insurgents—that redistribution could well increase rather than reduce insurgents' share. More effective enforcement, by increasing the risks traffickers face, also increases the value of buying protection against enforcement, in the form of either violence or corruption. So successful CN efforts, unless strategically designed, would have the natural effect of further enriching insurgents, warlords, and corrupt officials.

These pessimistic conclusions apply not just to crop eradication but also to enforcement aimed at collection, refining, and exporting activities, and even to development efforts insofar as they make it more expensive to produce opium and refine heroin in Afghanistan.

To be sure, the *complete* or virtually complete elimination of drug trafficking in Afghanistan would perforce eliminate the flow of funds to traffickers and their protectors and thus improve the security and governance situation. But a *partial* reduction in drug trafficking will not produce a

proportional improvement in security and governance if it is—as it generally will be—accompanied by price increases or by a shift in revenue shares toward the most problematic purveyors of unlawful violence.

Insofar as some drug-trafficking organizations, and drug production in some areas, are more closely linked to insurgents, warlords, and corrupt officials than others, it might in principle be possible to craft counter-narcotics efforts to contribute to security and governance objectives by focusing them on the most noxious traffickers, as ISAF is now endeavoring to do. Whether such strategies can be successfully deployed under Afghan conditions is an open question. A particular challenge is to prevent the process of selectivity from itself being corrupted.

A potential exception to this caution is continuing to suppress poppy cultivation in areas that are already essentially poppy-free; once production has been largely eliminated, preserving that desirable situation takes much less effort, and incurs much less hostility from local residents, than does achieving it in the first place.

Of course, drug production and trafficking create harms other than their contributions to political instability. Drug abuse and dependency is a rising problem within the Afghan population, and Afghanistan is the major supplier of opiates to many places with serious drug problems: Iran, Pakistan, Central Asia, Russia, and Europe. Insofar as less vigorous counter-narcotics efforts would lead to greater production and lower prices, those drug-use problems would tend to worsen. However, due to the nature of the price chain already described—the price of raw opium, and even refined heroin ready for export from Afghanistan, contributes only modestly to the retail prices facing heroin users in drug-importing countries—the effect of falling opium prices in Afghanistan would be tiny in remote markets such as western Europe, larger but still quite modest in nearer markets, and substantial only within Afghanistan itself. Effects in the United States, if any, would be even smaller than those in western Europe, since the U.S. heroin market is currently supplied primarily from Colombia and Mexico.

Demand-reduction efforts, in Afghanistan and the countries Afghanistan supplies, have the potential to reduce both drug problems and political instability, but the promise of such efforts should not be overstated. Efforts at harm mitigation (e.g., HIV prevention) can reduce the damage incident to any given level of drug abuse, but again only to a limited extent.

Consequently, the objectives of suppressing drug supply and suppressing insurgency may conflict. Neither is identical to the goal of improving the economic well-being of Afghans, and particularly of the rural poor. Successful policies are more likely to result from confronting those tensions than from ignoring or denying them. Since counter-narcotics efforts in Afghanistan currently have so little prospect of achieving traditional CN objectives, it may make sense to pursue CN strategies that most help (or least harm) other objectives: development, security, and good governance.

This analysis yields several policy implications:

1. Plan and evaluate CN efforts largely in terms of their impacts on security, governance, and the well-being of the population, not in terms of their capacity to reduce the volume of drugs produced and exported. Reduced CN effort poses minimal risks of increased drug abuse in the United States, and only modest risks for the countries that currently consume Afghan-produced heroin.

2. Plan and evaluate rural development in terms of its benefits to individuals and families and its contribution to security and governance, not as the "alternative livelihood" component of a drug-control program.

3. Insofar as feasible—an open question—deploy CN efforts to comparatively disadvantage insurgents and the traffickers they tax and protect warlords, and unaffiliated traffickers vis-à-vis insurgents and warlords. Try to create incentives for exporters to shun opium and opiates protected or taxed by insurgents.

4. Emphasize anti-corruption measures, even at the expense of generating fewer arrests and seizures. Diversifying rather than concentrating drug-enforcement efforts may help to minimize corruption.

5. Expand demand-reduction efforts and retail-level enforcement in consumer countries; de-emphasize drug seizures as a goal and a measure.

6. Expand efforts to prevent and treat drug abuse, and to reduce the damage it causes, within Afghanistan itself.

1. Introduction

Afghanistan has long been the world's leading producer of illicit opium, and now accounts for over 90 percent of global production.[1,2] Since the 1970s the country has been continually wracked by civil war and invasion. Groups of violent political actors—both "insurgent" groups attempting to overthrow the current government and "warlord" organizations at least nominally allied with that government[3]—derive revenues from the opium-and-heroin trade[4] directly through trafficking or indirectly by taxing poppy farmers and extorting protection money. Government officials are also believed to profit considerably from bribes, other protection payments, and as "shadow-state" principals in the narcotics trade.

The superficially obvious prescription is to aggressively pursue counter-narcotics policies as a way of reducing the insurgents' and warlords' resource base and the temptations to corruption. And it is true that if the Afghan drug market disappeared entirely (for example, as a result of an upsurge in lower-cost production elsewhere) the insurgent cause would suffer and the security-and-governance situation in Afghanistan would improve substantially.[5,6] But a complete remission of drug dealing is not among the anticipated outcomes of any feasible set of policies, and a straightforward analysis of the microeconomics of drug dealing suggests that attempts to shrink production tend to be counterproductive from a security-and-governance perspective. Expanding counter-narcotics efforts[7] generally is more likely to increase rather than reduce drug traffickers' revenues and power, while doing nothing to shrink the drug problems in the United States and little to shrink those problems in other consumer countries, with the impact tending to fall with distance from Afghanistan.

New U.S. government policies, reversing a longstanding emphasis on the eradication of poppy crops, partially reflect this analysis.[8] The reasoning behind that change was direct and largely sound. [9] It is not feasible to eradicate enough of the crop to affect heroin use in downstream countries, destroying farmers' livelihoods encourages sympathy with the insurgency, and raising the farmgate price of opium also increases the total revenue available to opium growers, and thus the potential yield of "taxes" imposed on them by violent political actors or corrupt officials. [10]

The new U.S. strategy pursues higher-level traffickers who are connected to the insurgency, while continuing the emphasis on efforts to entice farmers away from poppy growing by offering them more attractive licit opportunities. But insofar as such "alternative livelihood" or "alternative development"[11] efforts yield reduced supplies of, and higher prices for, opium and refined products, they—like eradication—have a built-in tendency to enrich insurgents, warlords, and corrupt officials.

The analytic framework of microeconomics—despite its necessary abstractions from some of the complexities of the situation on the ground—can be a useful tool in assessing the likely consequences of various counter-narcotics strategies on both drug-market outcomes and the security-and-governance situations in Afghanistan.

Confidence in the soundness of the analytic framework does not, alas, allow us to make confident predictions, let alone confident quantitative predictions, about the effects of alternative policies. The usual "*ceteris paribus*" qualification attaching to microeconomic reasoning applies, and there is no assurance that all else will, in fact, be equal.

How the "drugs-terror system" will respond to interventions, or even how it is likely to evolve over time apart from the

effect of interventions, depends strongly on details such as the sizes of inventories at various stages of processing (from raw opium to finished heroin), the decision making processes of Afghan farmers in various regions, and the capacity and limitations—corruption aside—of the Afghan drug-enforcement machinery. This is a complex, dynamic, and poorly understood system, so all forecasts and estimates of effects deserve wider-than-normal confidence intervals.

That said, the fact that outcomes might be different from the ones we project does not mean that they are likely to be so different as to reverse the direction of our conclusions. The uncertainties about data and about the forces at work seem to be as prone to underestimate the damage done to governance and security objectives by drug-control efforts as to overestimate that damage.

Experience and analysis agree that drug-trafficking problems in ill-governed states are intractable to most practicable interventions; the activity is more easily moved around—within the country or to another country in the same market—than sharply diminished.[12] Policymakers should remain skeptical of the capacity of almost any counter-narcotics intervention to achieve its desired outcomes. It is likely that there is no set of policies that can satisfy the demand for a "solution" to Afghanistan's drug-production problems, and it is not clear that more is, generally, better. In such a situation, the primary maxim of prudence may be not "Fix the problem" but "Do no harm," or, at least, "Do as little harm as possible."

2. Premises

Drug production and distribution are market activities. Individuals and groups participate out of self-interest, not primarily for ideological reasons,[13] and the overall system is populated by large numbers of individuals and small groups whose actions are coordinated by price signals.[14] In the absence of centralized or monopoly control, market or microeconomic analysis is the essential analytical perspective.

The legally recognized government of Afghanistan has limited capacities to enforce its will on the nation. The central government has no meaningful control over large sections of the country, including insurgent-held areas and nominally loyal areas under the sway of the leaders of localized armed political groups, often referred to as "warlords." Much of the functional governance activity at the local level is informal, conducted neither by well-defined entities with local sovereignty (as in a federal republic) nor by administrative departments accountable to Kabul, but by traditional kin-group structures. Local, tribal, and ethnic identities—sometimes lumped together as "valleyism"—compete with the nation in defining the loyalties of individuals and families. Moreover, corruption constitutes a limit on capacity at both national and local levels; Transparency International places Afghanistan among the five most corrupt countries in the world.[15]

The security situation in Afghanistan is problematic. Throughout large sections of the country, not coincidentally including areas with the greatest poppy cultivation, there is limited ability for personnel of any outside organization—whether based abroad or in Kabul—to function without either direct military escort or by buying cooperation from (corrupt) local power brokers.

The insurgency is neither monolithic nor greatly dependent on opium growing and heroin refining and export for its revenues. Casual discourse treats "the Taliban" as a single entity, but the term encompasses at least three networks of insurgents (even apart from the Taliban in Pakistan), and there are many additional militias that are fighting against ISAF forces and the Karzai government but which ally with "the Taliban" only because—and only for as long as—it seems to them expedient to do so. Thus actions against insurgent-traffickers do not merely weaken a monolithic foe, but influence the competitive balance of power among a complex array of political entities. Furthermore, there are sources of income besides opium for both the allied militias (e.g., extortion and other general criminal activity on their territory) and the core insurgent groups (e.g., donations from sympathizers in the Gulf Arab states and smuggling of goods other than drugs across national borders).

3. Heroin production in Afghanistan

Heroin is produced and distributed through a multi-layered network with little direct contact or coordination between non-adjacent layers. The top several layers exist within Afghan borders; in this respect Afghanistan resembles Burma, which exports heroin made from its own opium,[16] rather than Bolivia, which has much coca growing but exports most of its crop before it is refined.

Farmers grow poppies (in addition to other crops—few grow poppies exclusively). Farmers, their families, and hired labor harvest opium latex from the poppies at harvest time. This is a labor-intensive process, and labor supply rather than arable land can constitute the limiting factor of production.[17] The opium latex is sold to traders who visit the farm or via a local bazaar. The opium traders' price at the bazaar (wildly variable,[18] but below $80 per kg of dry opium at most recent report) is only slightly higher than the farmgate price,[19] reflecting a smoothly functioning market without substantial monopsony power. Farmers can often make more money growing opium than other crops, but they shift back and forth between crops in response to perceived profits and risks, and also the ability to get their crop to market. (Opium traders come to the farmers, sparing them the burden of transporting to market that the farmers must bear with wheat and some fruit crops.[20]) Perhaps the largest driver of changes in hectares under poppy cultivation is not eradication or enforcement risk, but rather last year's opium prices as compared to current prices of wheat and other crops. Low opium prices in 2008 contributed to reduced cultivation in 2009.

It is not quite the case that farmgate opium prices have been bid down to the opportunity cost of the labor and land used in its production; there is still some risk of legal sanction or involvement in criminal violence, or moral premium,[21] making poppy cultivation generally more remunerative. However, farmgate prices should probably be seen as fair-market compensation for the farmers' (and farm laborers') efforts, not as reflecting a high profit margin.

Heroin is produced from opium and reagents, notably acetic anhydride. The proportions are roughly seven kg of opium plus two kg of acetic anhydride to make one kg of heroin.[22] That kilogram of heroin, which contains 7 × $80 = $560 worth of opium, is worth roughly $1500–$3000 in Afghanistan. That means that conventional farming costs account for about 25 percent of the value of the heroin in Afghanistan. The remaining 75 percent is not pure profit; it includes compensation for precursor chemicals, labor, weapons, bribes, etc. However, all that 75 percent essentially motivates or rewards criminals and criminal activity, so long as we include corrupt and violent political actors within the definition of criminals.

United Nations Office on Drugs and Crime (UNODC) estimates that opium production is roughly 7000 metric tons per year.[23,24] If that estimate is correct, farmgate revenues are roughly $500 million per year, and total net revenues of opium-affiliated criminals within Afghanistan (not counting the farmers) are on the order of $1.5 billion per year.[25] Based on the markup to heroin prices in neighboring regions of adjacent countries, another roughly $1.5 billion in net revenue is generated by smuggling the heroin (and some that is left as opium) out of Afghanistan, for total criminal revenues from opiate trafficking of about $3 billion, or roughly one-quarter of estimated Afghan GDP.

The portion of that $3 billion that goes to the Taliban is subject to considerable debate; estimates run from about $40 million (a little more than one percent of the total) to four or five times that amount.[26] The factors that limit the insurgents' share of the total are not well understood, but clearly the current situation is not nearly the worst possible in terms of money available to insurgents.

Successful efforts to reduce cultivation in the north have pushed most of the poppy production into the southern parts of the country, where the insurgency is stronger.[27] However, southern-produced opium and heroin still flows out across Afghanistan's northern border,[28] so at least some of the Taliban's nominal political rivals must be helping to export the heroin made from poppies whose production enriches the insurgency. It seems unlikely that they can be

persuaded to do otherwise in the absence of alternative, non-Taliban-linked sources of opiates for export.

4. Impacts of policies on trafficking revenues

The money available to insurgents, to other illegal armed groups (IAGs), and to corrupt officials depends on:

(1) the volumes of opium and refined opiates produced, processed, and exported, which in turn are the products of total consumption worldwide and Afghanistan's market share;

(2) the prices of those commodities; and

(3) the share of the total price that can be extracted as "taxes," bribes, or protection payments.

The volume of heroin consumed depends far less on conditions in producer countries than on conditions in consumer countries: end-user demand and the presence of illicit distribution networks capable of delivering drugs at retail.

Since the price of opium, or even of heroin as exported from Afghanistan, constitutes only a small fraction of the retail prices in consumer countries—a fraction that gets smaller with distance—and since land suitable for poppy growing is not scarce (less than five percent of Afghanistan's arable land is planted in poppies each year) enforcement targeted at production should be expected to have only weak effects on end-user prices and therefore only weak effects on the quantity consumed.[29] The insensitivity of final demand to price can be concealed as opium stockpiles buffer market fluctuations; the ban on poppy production in 2000–2001 succeeded spectacularly in reducing poppy growing but did not reduce the volume of heroin exports by even a close-to-comparable proportion.[30]

Afghanistan currently has a dominant market position in the Eastern Hemisphere. Afghan heroin prices are one-third to one-fifth the levels in its nearest competitors. Afghan heroin has little penetration in the Western Hemisphere, but 90+ percent of global consumption of illegal opiates is in the Eastern Hemisphere.

Although in theory many countries could produce heroin, in practice once illegal drug production becomes established in a particular location, it tends to remain there. There is a mutually reinforcing feedback loop whereby drug production undermines government control and weak government control facilitates drug production.[31] Moreover, established trafficking routes and relationships—the relational capital that is the central asset for any organization dedicated to illicit transactions—is a fixed asset that cannot easily be transferred. Those fixed assets constitute a barrier to exit from the industry, further accentuating inertia and path-dependence as determining factors in shaping trafficking patterns.

Only if the costs of doing business in Afghanistan rose to the point where other countries (e.g., Pakistan or Burma) became relatively low-cost producers—which would allow traffickers in those countries to displace Afghan opium and heroin—would enforcement in Afghanistan substantially reduce the volume of narcotics produced and exported. (That would likely have deleterious effects on the areas to which the traffic shifted.) The scenarios under which Afghanistan loses its comparative advantage in illegal opium production are either wild cards (synthetic opiates undercut the market for plant-based opiates) or are themselves problematic (a competing country becomes a failed state).[32]

Conversely, even a dramatic fall in the price of Afghan opium would probably not allow it to gain substantial market share in the Western Hemisphere, where Colombia and Mexico have the decisive advantages of being closer to market geographically and already-elaborated distribution networks. And even if Afghanistan did displace Colombian and Mexican production, that would represent less than a 10 percent increase in Afghan sales. Thus the Afghan share of the world opium and opiate markets can probably be treated as a constant with respect to any feasible set of counter-narcotics strategies that could be deployed over the next five years, absent radical changes

in the security-and-governance situations in Afghanistan or potential competing export countries.

Afghan opium and even heroin are agricultural commodities. Opium latex is directly a farm product. Heroin is a processed farm product, but the processing is simple, on the technological level: more like baking bread or brewing beer than making pharmaceuticals. The proportion of value directly attributable to farm products is much higher for Afghan heroin than it is for shredded-wheat cereal at a U.S. grocery store.[33]

Like many agricultural products, opium and heroin are relatively undifferentiated. Quality distinctions are minor compared with cannabis, for which sinsemilla[34] is quite different from "commercial grade." In particular, while there are many different qualities of opiates, most of the quality difference reduces to purity, meaning heroin (or morphine) content by weight. There are processing stages: opium itself, morphine base, brown heroin, and white-powder heroin (crystalline diacetylmorphine hydrochloride). And a particular batch can be more or less pure, with different contaminants. But controlling for purity and processing stage, there are not important distinctions by "brand." Thus illicit opiates are effectively commodity products.[35]

Agricultural commodities are subject to a classic paradox: bad harvests are good news for landowning farmers, except for those whose crops are unusually hard hit. When yields are high, landowners collectively suffer economically because prices decline. Landowners collectively tend to benefit when poor harvests or restrictive policies drive up prices, at least when there are not close substitutes. If a blight affected one kind of apple but not any others, the blight-affected farmers would not benefit; consumers would just substitute the other kinds of apples. Likewise, if the blight affected all apples but in only half the apple-growing region, farmers affected by the blight would likely be worse off. But a blight that reduced the apple harvest uniformly would benefit all apple farmers. At least in the short run, there are few substitutes for Afghan opium—except for stockpiled Afghan opium from previous harvests.

Hence, interventions that reduce Afghan opium or heroin production are likely to increase Afghan drug-market revenues, again, at least in the short run (first few years). That applies to reducing poppy production via rural-development efforts or attempting to buy the opium crop as well as to eradication; anything that reduces the supply of opium increases its price, and, since retail demand is very inelastic to prices near the source, increases revenue as well.[36] The same is true of seizing opium or finished heroin in the downstream markets.

The effect of a heroin-price increase in Afghanistan on the revenues of Afghan heroin traffickers (and those who prey on them) depends centrally on two factors: how Afghan prices influence retail prices in consumer countries, and how sensitive consumption is to changes in those retail prices.

To start with the consumer: the relevant statistic is what economists call the price-elasticity of demand—the percentage change in consumption resulting from a one percent increase in price. Estimates vary, and the true value probably varies according to the relationship between prices and incomes: the more of a consumer's income a drug accounts for, the more he has to cut back if the price goes up. But a reasonable guess at the average would seem to be an elasticity of –0.75: that is, a 10 percent increase in retail price would lead to a 7.5 percent decrease in consumption. (An elasticity of –1.0, "unit elasticity," means that volume goes down proportionally to an increase in price, leaving retail revenues constant. An elasticity of –0.75, reflecting less sensitivity of volume to price, is in the range called "relatively inelastic," and implies that a price increase leads to a revenue increase. The reverse is true for values such as –2.0; in such "relatively elastic" markets revenues rise as prices fall.)

The problem, from the viewpoint of Afghan counter-narcotics strategy, is that a given increase in Afghan prices does not translate directly into the same percentage increase in retail prices in distant markets.

The kilo of heroin that sells in bulk for around $2250 in Afghanistan sells at retail in London for something

between 50 and 100 times that figure.[37] So at first blush it would seem that increasing Afghan prices should have almost no impact on prices in distant consumer markets. If so, it also has almost no impact on volume. In that case, a 10 percent increase in Afghan prices leads to almost a 10 percent increase in the revenues of Afghan traffickers.

But that "additive" model probably isn't quite right; some of the costs of "downstream" activity—bribes, for example, and the cost of seized drugs—are proportional to the value, rather than the bulk, of the drugs trafficked. If that "multiplicative" model fully captured reality, then doubling prices in Afghanistan would double prices in London. Still assuming a price elasticity of retail demand of –0.75, then a 10 percent increase in price in Afghanistan would lead to a 7.5 percent decrease in consumption in London, and Afghan traffickers' revenue from heroin sold in London would be 1.1×0.925 (a 10 percent price increase balanced against a 7.5 percent volume decrease) leading to a revenue increase in Afghanistan of 1.75 percent.

On either assumption, demand for Afghan heroin is less elastic to its price than the demand for retail heroin is to its price. That means both that the drug problems in consumer countries will not sharply increase or decrease as a result of conditions and policies in Afghanistan, and that more vigorous counter-narcotics efforts in Afghanistan will tend to increase the revenues of Afghan traffickers.

The truth presumably lies somewhere between a purely additive and a purely multiplicative model; if so, and still assuming that heroin consumption at retail is relatively inelastic, then the actual impact on Afghan trafficking revenues of a 10 percent increase in price brought about by counter-narcotics policies will be a several percent increase: a perverse result in terms of governance and security.

5. Division of trafficking revenues among insurgents, warlords, and corrupt officials

Both enforcement attention and trafficking revenues are divided along two dimensions: "horizontally" among different types of criminals, and "vertically" up and down the supply chain. (To the extent that one group has greater or lesser participation at higher or lower market levels within Afghanistan, there could be interaction between "horizontal" and "vertical" dimensions.) We will discuss the "horizontal" division first.

5.1. Insurgents

There are at least two reasons to fear that increasing drug control will increase not only the total criminal revenues from trafficking, but also the share that goes to insurgents. The first is simply that the division of trafficking profits among trafficking groups and those who provide services to them or collect extortion payments from them is determined by a very complicated and dynamic political-economic balancing. Stirring the pot can have effects that are hard to predict. Since, currently, insurgents seem to capture only a small share of the roughly $3 billion in potential trafficking-related revenues (counting cross-border smuggling revenues), randomly redistributing revenue shares could make things much worse. Highly strategic market interventions might possibly reduce insurgents' share of the pie still further. However, a recurring theme in the history of drug markets is that they often respond to interventions in unexpected ways. Thus a degree of humility may be appropriate when contemplating clever strategies for re-engineering drug-market conditions.

Second, a line of reasoning suggests that tougher drug control generally is more likely to shift market share toward rather than away from insurgents.[38] The drug traffic in Afghanistan is not centralized; it involves many competing organizations, farmers and growing areas, and export routes. In addition to extracting "taxes" on poppy growing and other drug-market activities in areas they control, insurgent groups can become more directly involved in the traffic by selling protection services to traffickers, deploying their capacity for intimidation and corruption to shelter the traffickers' activities from enforcement. The per-unit value of that protection increases with the level of enforcement activity;[39] the total value of the protection depends on the effect of enforcement on quantity produced as well.

Increased enforcement is necessarily concentrated in areas under government control; thus the success of the campaign against poppy growing in most of Afghan territory has concentrated production in insurgent-held areas.

Consequently, more enforcement tends to produce higher total revenues, an increased share of the illicit take for purveyors of protection, and a diminished share of activity in areas under government control. All three of these effects will tend to increase financial flows to insurgents, so the natural tendency of drug-suppression activity is to aid the insurgency rather than to suppress it.

The recent decision to reduce poppy eradication efforts reflects this logic, as well as the fact that eradication constitutes a financial disaster for some farmers whose crops get hit, leaving them hostile to the government and its allies. But the economic logic applies with equal force to higher-level enforcement efforts (interdiction) aimed at processing, exporting, and money laundering. It also applies to efforts to reduce poppy cultivation via incentive payments or efforts to provide better licit opportunities for rural households.

Parallel analysis can be adapted to cover two other contributions of the drug trade to security-and-governance problems: the support it provides to illegal armed groups (IAGs) not affiliated with the insurgency and the temptations it creates for corruption within Afghan government agencies.

5.2. Illegal armed groups (IAGs, or "warlords")

Some of these "warlord" enterprises, especially along the northern borders, are more actively involved in the drug traffic than are the insurgent groups. They are engaged as principals actually buying, transporting, and selling drugs rather than merely as "taxing" authorities or purveyors of protection services. Their revenues depend on prices, volumes, their market share, and the share of the value added within the supply chain that they can capture for themselves. If enforcement drives up prices while leaving volumes largely unchanged, warlords as well as insurgents tend to benefit.[40]

Moreover, insofar as the IAGs have a competitive advantage over drug traffickers without armed backing or political clout in being better able to deploy violence and corrupt influence in defense of their activities, increased enforcement tends to increase the relative value of that advantage. For example, increased border security is more likely to be a problem for small-scale smugglers than it is for the smuggling enterprise affiliated with a warlord army or a former (or current) army or police commander's gang. Small-scale operators who are not entirely deterred by increased enforcement have three choices: they can accept increased arrests and seizures as a cost of doing business, change their operations in more or less expensive and inconvenient ways to evade enforcement, or offer bribes to officials and other power brokers. IAGs, with their private armies, have a fourth option: they can use violence or the threat of violence to intimidate enforcement agencies. (This tactic can be combined with bribery, especially where traffickers have political as well as military muscle.) If increased enforcement raises costs for IAGs and the traffickers they protect less than it raises costs for competing trafficking organizations, the result will be larger profits and greater market share for the warlords.

In principle, targeted drug enforcement—concentrating on those production activities and actors that contribute funds to warlords and insurgents—could create competitive disadvantage for those groups vis-à-vis their competitors, thereby reducing the market share of insurgent-affiliated and warlord-affiliated traffickers. Such targeted enforcement would depend on both the capacity to identify which products are taxed and which trafficking groups pay taxes or protection to armed groups, and on the capacity to differentially target such groups, once identified. Since, as noted above, insurgents and warlords collaborate to some extent, with opium and heroin from southern-grown poppies moving across the northern borders, a variation on this strategy would attempt to increase enforcement pressure specifically on those IAGs that continued that sort of collaboration with insurgents after having been warned not to. In general, though,

pressure on one IAG or insurgent group will tend to benefit the rest by reducing competition.

5.3. Corrupt officials

Corruption creates several different kinds of problems. Corrupt officials may be less diligent, even on matters where they are not paid for malfeasance, than honest officials would be. And the money from corruption can flow up the chain from officials to those who appoint them, in effect closing off the path to public service to those unwilling to channel cash to their superiors and helping to extend corruption further into important decision-making processes. Moreover, the reputation for corruption saps public support for the government, especially when it is believed—rightly or wrongly—that some competing power centers are more nearly honest than the lawful government.

Anticorruption enforcement has limited capacity to reduce the size of the problem as long as corruption is supported by the broader political culture and especially insofar as individual officials can have discretion to confer great benefits or impose great costs on private-sector actors. But it may be worth expanding that effort anyway, because corruption arrests—if they are believed to represent honest efforts rather than merely being used as an implement of political struggle—indicate the government's non-acquiescence in corrupt practices, with possible benefits in terms of its level of public support.[41] The higher into the government corrupt influence reaches, the harder it will be to mount credible anticorruption efforts aimed at lower-level officials.

While anticorruption efforts can help counter-narcotics enforcement efforts, the converse is less likely to be the case. The greater the enforcement pressure, the greater the benefits enforcement officials can confer on traffickers by turning a blind eye to their activities and by interfering with the activities of their competitors.[42] (Again, as with traffickers' profits, this is true under the conditions that we believe obtain in Afghanistan; if enforcement were perfect, then there would be no opportunity for corruption.) If enforcement is to be stepped up, the need for better-trained, better-disciplined, and better-paid counter-narcotics police becomes all the greater. The fact that honest drug-law enforcement relies heavily on information from some participants in the illicit traffic to make cases against other participants—including competitors informing on one another to achieve competitive advantage—makes it all the more difficult for officials running anticorruption efforts to distinguish honest from corrupt enforcement activity.

The value to traffickers of corrupting enforcement agents—an activity described as currently inseparable from most drug-trafficking in Afghanistan—can be reduced in at least two conceptually distinct ways. *Simply cutting back on the level of enforcement effort will tend not only to reduce the total monetary value of the drug traffic but also to reduce the share of total revenues that corrupt enforcement agents can extract.* The alternative approach is to multiply the number of agencies whose officials have investigative and arrest powers over any given trafficker, thus reducing the capacity of any one agent or agency to provide a "license" to traffic. That strategy is harder to pursue with prosecutors and judges, as the courts are more hierarchical and less conducive to overlapping jurisdiction than law enforcement agencies.[43]

6. How drug enforcement targeted at different points in a distribution chain affects net revenues along that chain

In addition to the "horizontal" division among different sorts of market participants described above, drug revenues are also divided "vertically" up and down the supply chain. As argued above (Section 4), tougher enforcement within Afghanistan will likely increase—not decrease—total revenues of traffickers in Afghanistan, because Afghanistan collectively acts like the producer of an agricultural product facing a relatively inelastic demand: when supply goes down the price goes up, but the quantity demanded does not go down by the same proportion.

A close analysis of the "vertical'" dimension shows that demand at the Afghan export-market level is relatively inelastic.

If one followed a given gram from the opium bazaar to a final user outside Afghanistan, that bit of opiate might be bought and sold several times within Afghanistan, several times in transit countries, and—depending on the final destination—as many as five times within the final market country before it is consumed. Each of those transactions occurs at a different market level.[44]

The effect of drug enforcement in Afghanistan on production, consumption, and profits overall and by region and market level depends on:

(1) How drug users respond to changes in price (the "price elasticity of demand"), and how retail elasticity in different submarkets is aggregated and reflected up the distribution chain toward the source. Elasticity of demand at the Afghan export level is low, so enforcement that drives up Afghan export prices increases the total revenues of the Afghan drug sector.

(2) How parallel producers/suppliers compete for market share and how enforcement affects the outcome of that competition. Enforcement has some limited ability to shift market share from one set of traffickers to another by creating risk differentials.

(3) How enforcement at one level of a distribution chain affects prices, quantities, and net revenues both further up the chain (i.e., toward the poppy grower) and further down the chain (i.e., toward the drug user) from the enforcement target. Seizures downstream of the market levels from which armed political actors (whether insurgents or warlords) derive profits are a boon to the armed political actors, increasing their revenues and profits.

6.1. How drug users respond to price changes, and how that elasticity is reflected up the distribution chain

Drug consumption responds to price;[45] when the retail price goes up, consumption goes down, somewhat in the short run, more in the longer run.[46]

When aggregating across different markets supplied by one overall distribution chain, the overall elasticity of demand is the weighted sum of the elasticity in each submarket, weighting by the quantity demanded in each submarket.[47] Most of the opium products (mostly heroin, but also some morphine) exported from Afghanistan are consumed in Asia (e.g., in Iran).[48]

When the export price increases, consumption in downstream markets is not affected by the same proportion in every market. Some downstream markets will see a larger proportional change in consumption, acting as "shock absorbers," partially insulating other downstream markets from the effects of those price changes;[49] for example, Asian markets may absorb the shock to European markets. In effect, customers who are richer (and therefore less price responsive) can "bid away" supplies from poorer customers.

Every market level has its own demand curve and supply curve, which are all closely related. The demand at one level is said to be "derived" from demand at the adjacent level. Likewise, prices differ across market levels but are related inasmuch as the sales price at one level determines the price of the principal factor of production at the next lower level. However, the slopes of the demand curves at the different market levels are different. In particular, demand at higher market levels is relatively less responsive to price changes at those market levels than is the corresponding demand at lower market levels to price changes at those market levels.

Hence, the elasticity of demand reflected up the distribution chain is smaller than the elasticity of demand at the retail level. So, for example, if the elasticity of retail demand for heroin in Europe and Asia, with respect to the retail price of heroin there, were –0.75,[50] the elasticity of demand for heroin being exported from Afghanistan would be much smaller in absolute value. As a result, demand for Afghan opiate exports is, almost certainly, relatively inelastic. Even the retail elasticity of demand may be relatively inelastic; this seems to be the general finding in the empirical literature. But, even if retail elasticity were somewhat above one in absolute value, by the time that demand is

reflected up to the Afghan export level, the demand at the export level would almost certainly be relatively inelastic.

Opiate prices increase enormously as the drugs move down the distribution chain—on the order of fifty-fold between export from Afghanistan and retail sale in wealthy countries (which is primarily where the elasticity of retail heroin demand has been measured empirically). This means that a large proportional increase in the Afghan export price will lead to much smaller proportional increases in the retail prices to consumers. So a given change in quantity consumed is associated with a small percentage change in retail price and a larger percentage change in the export price. Since price responsiveness (elasticity) is the ratio of percentage change in consumption divided by the percentage change in price, that ratio is much smaller at the Afghan export level than at the retail level.[51]

Looking at it another way, the price of opium at the farmgate constitutes a much larger share of the retail price of heroin, and even more of the retail price of opium, to Afghan consumers than it does of the retail price of heroin in Europe. So we would expect Afghan consumption to respond much more to changes in opium prices than does consumption in western Europe, with the responsiveness of consumption in the rest of Asia somewhere between the two. Indeed, this seems consistent with such data as exist pertaining to the temporary price increases resulting from the Taliban opium ban.[52]

So, as noted above, inasmuch as Afghanistan is almost a monopoly supplier of opiates to Europe and large swaths of Asia, at least in the short and even medium term, this means that enforcement that limits Afghan supply will increase gross revenues to the Afghan drug sector.[53] However, the *distribution* of those revenues matters as much as the total amount; enforcement policies that transfer revenues from the politically most destabilizing traffickers to relatively benign criminals should not be regarded as failures, even if gross revenues go up.

6.2. How drug suppliers divide up market share

The adaptability of drug markets poses a challenge to any sort of drug enforcement effort designed to reduce volumes. When enforcement eliminates one group of dealers or one dealing tactic, or shrinks the volume of drugs that group or tactic can handle, the market expands somewhere else: this is sometimes called the balloon effect.

It has been suggested that a useful response is for enforcement to apply "market jiu-jitsu" by pushing down hardest on the most noxious elements, with the full knowledge that the suppressed trafficking will likely be displaced, rather than eliminated. However, if the trafficking is displaced to less noxious forms, the total damage done by the drug markets may be reduced even if the quantities of drugs distributed and consumed change little.[54]

In theory, this idea could be relevant to Afghanistan. For example, one might try to push trafficking activity away from the Taliban and to other, less ideological militias. However, the enforcement-risk differentials needed to induce such a reallocation of market share may be greater for large-scale traffickers in Afghanistan than for retail sellers in the United States.

The prevailing "risks and prices" theory says that drug markets act like financial markets, with factors of production entering and exiting in response to price signals to equate returns available from other employment.[55,56] In particular, enforcement, by imposing risks, can increase prices and thereby reduce volumes. This model represents progress over alternative, non-market models, but "risks and prices" is an idealization. Practical considerations mean that behavior can differ from that ideal in important ways, particularly at market levels where the market is more virtual, embedded within social networks. Thus, "risks and prices" is a better model of retail markets and of poppy cultivation than it is of high-level distribution.

There are three reasons why "risks and prices" is an imperfect model of high-level distribution. First, insolvency does not weed out inefficient drug distributors, because essentially all dealers enjoy positive accounting profits, even if some have negative economic profits.[57] Second, information flows are highly imperfect in social-network-based markets, so the law of one price breaks down; arbitrage can bid away only gross price discrepancies. Substantial (±30 percent) price dispersion can persist indefinitely in drug markets.[58] Third, actual human beings do not respond to risk differentials in precisely the ways assumed in conventional economic reasoning.

Moreover, the proper model of risk of arrest from trafficking is not a simple Bernoulli process, with a coin tossed once for each dealing "cycle" with a fixed probability of tails (getting arrested). Instead, it is more like a two-stage Bernoulli process. The first time a trafficker attempts a particular *modus operandi*, there is a coin toss: heads means the technique is sound and tails means it is a bad method (e.g., police know about it). In that case, the game is over before it starts. A trafficker who gets a heads on that first toss then tosses a second coin: heads on the second coin means things went normally and the deal succeeded, while tails means, through some bad luck or random event, the trafficker got caught. The key point is that the probability of tails with the second coin is much lower than it is with the first coin, so once traffickers have stumbled upon a viable *modus operandi*, they will tend to stick with it.

The upshot is that market share does not reallocate quickly in response to modest differences in enforcement pressure or profitability among high-level traffickers. If the economic benefit of legal crops exceeds that of poppy production, we expect farmers to react fairly quickly (the next growing season), the same way we expect retail sellers to respond quickly to an enforcement crackdown. However, this same logic may not apply to higher-level trafficking. It takes a quite large profit differential (and, by implication, a quite large differential in enforcement pressure) to induce a high-level trafficker to experiment with a new technique (e.g., to begin using a new route or supplier) because, even if the probability of a tails on the second coin increases somewhat or the profits per completed transaction on a heads fall somewhat, it would be even riskier to toss the first coin for a new technique. Since a trafficker with an established technique faces lower costs than a new trafficker, or a trafficker entering a new market—who must run that dangerous first-toss risk—the incumbent trafficker is likely to be earning some pure profit ("rent" or "quasi-rent", in economic terms). This means that the trafficker can absorb a cost increase while remaining profitable.

For example, most traffickers in the distribution pipelines connecting Afghanistan to markets in Iran and Europe will be reluctant to begin flying to Bangkok and trying to connect with heroin produced in Burma, even if they have to start paying 20 or 35 percent more for Afghan heroin. They would rather stick with their current *modus operandi* and pass along the higher costs, leading to (slightly) lower consumption, and be content with a slightly diminished market, or, alternatively, absorb the costs, accepting some reduction in their economic rent; the same behavior applies to farmers.

Likewise, suppose enforcement created extra cost on the Afghan-Iran-Turkey-Europe pipeline that effectively doubled the export price from Afghanistan's southern border from $2000 per kg to $4000, but did not increase the cost on the northern Afghanistan-Tajikistan-Russia-Europe pipeline. A strict "risks and prices" approach would predict a shift in market share, with more heroin going through Russia, up until such a point as limited factors of production along the Russian route raised the marginal cost on that route to equilibrate the total cost on the two pipelines converging on the same European market, where one might imagine a law of one price held. Realistically, however, distributors along the southern pipeline, where the price rose from $2000 per kg to the European wholesale price (perhaps $30k) would just live with a reduction in net revenue from $28k per kg ($30k – $2k) to $26k ($30k – $4k).

Thus there is enough slack in operating margins for the distribution chains to absorb even large percentage changes in the export price in Afghanistan's southern vs. northern routes.

Similar but less extreme versions of this principle apply within Afghanistan. There is some possibility of shifting who owns and hence profits from the bazaar-to-export links in the distribution chain, but the enforcement-risk differential has to create more than an incremental change; the incentive differential has to be large enough to shake people out of their current, known, and trusted *modus operandi*.

The implication of this market inertia or stickiness is that the "push-down, pop-up" balloon model of displacing trafficking away from particularly noxious forms (e.g., away from the Taliban and to other, less ideological militias) may be more difficult to implement with large-volume traffickers in Afghanistan. Or, it may work only if the enforcement activity is so intense as to actually dismantle the target organizations rather than merely seizing easily replaced product and arresting easily replaced employees. Reconstituting a shattered organization is a much greater challenge.

6.3. How enforcement at one market level affects "upstream" and "downstream" quantities, prices, and revenues

The drug-distribution business is not entirely vertically integrated. Within Afghanistan, there are at least four levels of the traffic, characterized by sales from one level to the next rather than employer-employee relationships: (1) farmers, (2) opium-bazaar merchants, (3) aggregators and refiners, and (4) cross-border smugglers.

Drug seizures in Afghanistan will have different effects on insurgent profits depending on whether those profits come primarily from the upstream end (farmers and bazaars) or the downstream end (cross-border smuggling). Inasmuch as the goal is to affect insurgents' profits and power, it is probably useful to hit upstream of the insurgents (i.e., between the insurgents' level of operations and the farmgate), and counterproductive to hit downstream (between the insurgents' operations and the consumer). For example, if insurgents made most of their profits from carrying drugs across the Afghan border, then seizures within Afghanistan would reduce insurgents' profits, whereas seizures outside Afghanistan—including in final-market countries—would increase insurgents' profits. However, if (as seems less likely[59]) insurgents' profits came primarily from taxing farmers, then heroin seizures anywhere would increase insurgents' revenues, but other forms of enforcement (e.g., seizing traffickers' money) would still reduce their revenues.

The details depend on the elasticities of demand and supply at different points, but downstream seizures behave almost like an increase in demand by users: they enrich upstream suppliers. Downstream non-seizure enforcement is a modest win. It increases the retail price, which slightly reduces demand, which slightly adversely affects upstream demand and profits.[60]

Enforcement upstream, both seizures and other cost-generating actions, has a modest adverse effect on downstream suppliers. Such upstream enforcement increases the cost downstream suppliers pay. The downstream suppliers would pass along those price increases, eventually raising the retail price and reducing total consumption. The effect is likely very modest since prices in Afghanistan are such a modest fraction of retail prices (tiny in Europe, merely small in Iran). But at least the sign is in the right direction. However, seizing and destroying heroin in Afghanistan makes upstream players—farmers and those who tax their activity—richer.

Thus arrest, imprisonment, and the imposition of enforcement-avoidance costs do not increase demand for upstream product, but seizures do. If the sole consideration were reducing insurgents' profits from drug trafficking, enforcement downstream of the Taliban should avoid seizing drugs.

(These "comparative-statics" effects on equilibrium are conceptually entirely distinct from the familiar disequilibrium effects, where bottlenecks at one point in the distribution chain cause product values upstream from the bottleneck to fall. For example, coca-leaf prices in Peru collapsed when the Peruvian air bridge carrying coca paste from Peru to Colombia was interdicted.[61] Likewise, it has been reported that Iranian forces massing on the Af-

ghan border in 1998 halted an upward trend in prices in Afghanistan.[62])

7. Effects on drug consumption, dependency, and harms to drug users

Drug policies have drug-related goals and impacts as well as security-and governance-related goals and impacts, and the optimal set of policies from a security-and-governance perspective may not be the optimal set of policies, all things considered. Easing up on crop eradication and other types of enforcement, or reducing rural-development efforts, may risk an increase in drug supply that lowers prices and as a result exacerbates problems of drug use and abuse. This is not a serious risk for the United States, because Afghanistan is not, and is unlikely to become, a substantial supplier of heroin to the U.S. market. However, the magnitudes of the potential effects will be greater nearer the point of production; Europe will be influenced more than the United States, Russia more than Europe, Pakistan and Iran more than Russia, and Afghanistan's domestic consumption most of all. This is so because the price of opium is a more substantial contributor to the price of heroin in Afghanistan than to its price in Europe, and also because Afghan consumers, being poorer, are likely to be more price responsive.

The effects of Afghan opium prices and volumes on the drug problems in the countries that consume Afghan heroin (including Afghanistan itself) will be mediated by those countries' domestic policies. Inasmuch as those policies influence the quantity of drugs consumed, they also influence drug trafficking in Afghanistan and, in turn, the security-and-governance situation there. As a practical matter, it is not easy for any country to quickly or dramatically alter its drug consumption, so effects on Afghanistan of actions taken elsewhere will be relatively minor—except perhaps for border interdiction efforts by immediate neighbors or a wildcard such as some country legalizing production. Even actions within Afghanistan should not be expected to produce dramatic results, although it is worth considering whether there are opportunities to take advantage of the United States' natural credibility as a zealous anti-drug crusader to present itself to Afghan publics as concerned about the suffering associated with drug abuse in that country.

7.1. Impacts on drug markets[63]

The impacts of increases or decreases in Afghan opium production brought about by enforcement or rural-livelihood programs (with the resulting decreases or increases in prices) will vary geographically. Richer countries and those farther from Afghanistan will feel the least impact: the United States probably not at all, western Europe slightly, eastern Europe somewhat more, Afghanistan's neighbors perhaps significantly, and Afghanistan itself most of all.

7.1.1. Impact on U.S. consumers

For three reasons, we expect counter-narcotics interventions in Afghanistan to have essentially no effect on drug use in the United States.

(1) Heroin used in the United States primarily comes from Western Hemispheric sources, and Afghanistan is not well positioned to compete in the U.S. market.

(2) Inventories of Afghan opium and heroin are sufficient to keep markets supplied during any production interruption or transition from current production patterns to some other method or location.

(3) Users in developed countries with high retail prices account for a small share of global consumption, and they are likely to be the least affected by changes in production volumes.

With respect to the first, there is not so much one global market for illegal opiates as two hemispheric markets. Most of what is consumed in the Western Hemisphere is produced in the Western Hemisphere, notably in Mexico and Colombia. Thus, at present Afghanistan is not a substantial supplier of heroin to the United States (and Afghanistan plays no significant role in supplying any other U.S. illegal drug market).[64]

With respect to the second point, it is now believed that there are very substantial inventories of opium; global demand has never exceeded 5,000 tons per year, yet illicit stockpiles may be approaching 10,000 tons.[65] So reductions in production might only slow the rate of accumulation of excess inventory, and even near-total eliminations of production that lasted only a year or two might not have appreciable effects on consumers. Indeed, to some extent that is what was observed during the 2001 Taliban poppy ban, at least in Europe.[66]

With respect to the third point, note that, unlike cocaine, the great majority of opiates are consumed in countries where retail prices are much lower than they are in the United States or western Europe. The United States is a relatively minor player in global consumption of illegal opiates and, as noted, is supplied primarily by Western Hemispheric production. Afghanistan is the primary supplier of heroin to Europe, but the converse is not true. Europe is not the primary consumer of Afghan opiates. Indeed, fewer than 10 percent of Eastern Hemispheric opiate users are in western and central Europe.[67]

This implies that, even if production cuts were substantial and sustained, there would not necessarily be a substantial impact on U.S. or even western European heroin markets. When supplies are tight, traffickers will maintain supplies to the more lucrative markets. (Or, to put the same thing differently, poor-country consumers will tend to cut back more.) The full analysis of how production shortages are likely to be distributed among different final market countries is more involved,[68] but the bottom line is that, to an important extent, consumers in developing countries with lower retail prices can serve as shock absorbers, insulating higher-priced markets in developed countries from variations in production.

Hence, counter-narcotics operations in Afghanistan have no realistic prospect of ameliorating drug problems in the United States, and reducing the effort put into such programs has little if any risk of exacerbating the U.S. heroin problem. Counter-narcotics efforts in Afghanistan should not be thought of as drug-control programs, from the perspective of controlling U.S. drug use.

There have been times in the not-so-distant past when a substantial share of U.S. heroin supplies came from Southwest Asian and, more recently, Southeast Asian sources.[69] Even today, Asian sources supply an important share of the Canadian market and, via Canada, at least partly supply some northern U.S. cities. Nevertheless, the great bulk of what is produced in the Eastern Hemisphere is consumed in the Eastern Hemisphere.

Still, the isolation of the U.S. market from Afghan heroin is not an inevitable state of affairs, and there are two conceivable mechanisms by which Afghanistan could contribute to the U.S. drug-abuse problem: the development of drug habits by Americans in Afghanistan that continue after their return, and the involvement in drug trafficking back to the United States of Americans in Afghanistan or Afghan groups helping the counter-insurgency mission. These problems are, for now, speculative, but the Vietnam experience shows that they are not outside of the realm of possibility.

The price of heroin in Afghanistan is roughly one percent of the U.S. price and, all other things being equal, the lower the price, the greater the use. Hence, U.S. citizens operating in a country where heroin prices are so extraordinarily low face an increased risk of using and becoming dependent, and all the more so if they are placed under enormous psychological stress. This was a serious problem among the largely conscript U.S. military in Vietnam, and the heroin-abuse problem in Vietnam contributed to the growth of the heroin-abuse problem domestically, as soldiers returning to areas where heroin was available continued to use.

The move to an all-volunteer force, and the introduction of a rigorous drug-testing program with separation from the service being the consequence of a second positive test, seems to have greatly reduced the problem among uniformed personnel. However, employees of contractors—better paid and, generally, less rigorously supervised—may be at greater risk.

Cheap heroin has been readily available far from U.S. shores for decades and, in all likelihood, that will continue

to be the case in decades to come. What protects U.S. consumers from a flood of cheap heroin is not shortages in global production but the absence of direct smuggling routes connecting source countries like Afghanistan with U.S. markets.[70] As long as U.S. citizens and U.S.-based organizations operate in Afghanistan there will be logistical connections between cheap Afghan heroin and U.S. markets. An entire year's worth of U.S. heroin consumption could fit in a single shipping container.

During the war there, Vietnam became a substantial supplier of heroin to the United States, with varying levels of involvement by military personnel, civilian government employees and contractor personnel, and groups of Vietnamese and Laotian nationals allied with the counter-insurgency effort.

To date, there is no evidence of such developments in Afghanistan, but there is also no reason to think them impossible, especially in light of the rather lurid allegations about the behavior of some contractor personnel and some of the contractors at a corporate level in Iraq. There is a cheap and easy test to detect drug use. There is no cheap test for drug trafficking.

7.1.2. Impact on Europe and Asia

Reductions in Afghanistan's poppy or heroin production most likely will also have minimal effects on heroin use in the Eastern Hemisphere because of excess production and inventories. However, sustained substantial reductions in production or ability to export could affect Eastern Hemispheric users, with different effects on different countries.

The great majority of Eastern Hemispheric opiate consumers live in Asia. The biggest consuming nations are Iran, India, China, and Pakistan, with Afghanistan itself perhaps rising into those ranks. (Both Asian and European areas of Russia are also substantial consumers.) Hence, unless the reduction in production or exports were extremely severe, there would still be enough heroin to supply relatively high-priced European markets.[71]

Data are weak, but one would expect any reductions in Afghan exports to affect most dramatically consumption in the lowest-price markets, which tend to be in the countries closest to Afghanistan (e.g., Pakistan, India, and Iran). Eastern Europe (including European Russia) has intermediate prices and so may be in an intermediate situation; consumption there may be affected more than in western Europe but less than in Afghanistan's neighbors. Hence, to the extent that counter-narcotics operations reduce Afghan exports, the countries benefiting most in terms of reduced use and addiction would probably be Iran and Pakistan. (India has substantial domestic production of illegal opiates via diversion from its legal, licensed poppy cultivation.[72]) Conversely, they are at the greatest risk should reduced counter-narcotics efforts in Afghanistan lead to increased production and decreased prices; already Russia has begun to complain about the suspension of poppy eradication.[73]

7.1.3. Impact on Afghanistan

Afghanistan itself has a substantial problem with opiate addiction. Data are poor and estimates vary, but it appears that on the order of half a million to 1.5 million Afghans are dependent on heroin or opium. The mid-range number of one million is triple, in per capita terms, the rate of addiction in the United States to all hard drugs combined.[74]

Tightening supply via intensified enforcement would be expected to drive up prices and reduce use in Afghanistan. Conversely, one risk of easing up on counter-narcotics activity in Afghanistan is the possibility of exacerbating Afghanistan's rapidly expanding addiction problem. However, for three reasons, beneficial effects on Afghan consumption may be hard to detect.

First, even in relatively wealthy countries with efficient government institutions it is hard for drug-enforcement programs to substantially reduce drug use.

Second, drug-use trends often follow an epidemic cycle, and Afghan use appears to be in the rapid escalation stage. In other countries a common scenario has been that expansion during that stage overwhelms control efforts.

Hence, even determined efforts in Afghanistan over the next few years might only reduce the rate of increase in addiction, not actually reduce the magnitude of the problem.

Third, inasmuch as Afghanistan has not much more than five percent of the world's opiate users, and inventories being held there could be on the order of one or two years of global consumption, it is hard to imagine an across-the-board tightening of supply in Afghanistan unless it became riskier for traffickers to hold that inventory in Afghanistan than to hold it further down in the international distribution network.

Hence, it seems plausible that the greater contributor to market availability and price experience by Afghan users is the strength or weakness of local enforcement operations, and simply whether the users are or are not in regions where drug traffickers operate with relative impunity. It is easier to imagine the elimination of production in one Afghan province having an effect on availability in that province than it is to imagine reductions in total Afghan production affecting availability throughout Afghanistan.

7.1.4. Effects of rural-development programs

Economic development plays a central role in any strategy to strengthen the hand of the government against insurgents, criminals, and other armed unofficial political actors. (And, conversely, security is an essential element of development strategy.) One consequence of successful economic-development actions would be to make the areas where they succeed less attractive places to cultivate poppy, process it into heroin, or export it; making licit activity more economically attractive makes illicit activity comparatively less attractive.

There are many other rationales for promoting economic development in Afghanistan, including via programs targeting opium farmers. To ask those programs to do the impossible by shrinking the total volume of drug trafficking is to set them up for failure.

The idea that improving economic opportunities for farmers in drug-producing countries should not be viewed as a drug-control program or be judged by its success in those terms is already familiar to many in the professional community that works on development. But many people in the drug-control community view rural development as a drug-control strategy, alongside interdiction, treatment, and other such interventions. Furthermore, some hold unrealistic hopes for the ability of rural development to affect drug markets (beyond shifting the location of production).

7.1.4.1. Rural development is not a counter-narcotics program

Offering carrots is intuitively appealing and often more feasible politically than wielding sticks, and rural-development programs have been implemented in a host of drug-producing countries, sometimes with success in terms of reduced production where the substitution efforts are implemented. But rural development does not hold out the promise of reducing the supply of opiates or improving the security of Afghanistan via its effects on opium markets.

Babor et al. (2009) observe, "Though there are a few instances of well-executed local crop substitution programs, they do not appear to have reduced drug production in any region of the world, let alone consumption in downstream markets."[75] This point bears repeating. There has never been a single documented instance in which crop substitution has had any meaningful impact on U.S. drug use. This is not for lack of trying, as our experience with coca growers in South America has demonstrated. Babor et al. couch their statement in terms of "crop substitution," but it remains true more broadly for source country interventions that try to woo farmers away from growing the crops from which the common illegal drugs are made.

What may be even more frustrating is that crop substitution alone is unlikely to have a meaningful effect on total Afghan poppy cultivation within the next five or more years, and hence on drug use elsewhere in the world

over that time horizon. If some growers are convinced to switch, others will take up their slack. Folklore holds that peasant farmers grow illegal drug crops only out of dire necessity; if they could earn even subsistence wages they would gladly opt out of the illegal economy. In fact, for a sufficiently large minority of growers as to determine the outcome, poppy (or coca or cannabis) is simply a crop to be grown along with others when it is in their interest to do so.[76] They would grow poppies even if it were not a matter of life or death, as a means to make their poverty slightly less abject and their ability to keep their families fed somewhat more secure. The marginal utility of income declines sharply for middle-income countries; wherever the knee is in that curve, Afghanistan is so poor that its farmers need not wonder whether or not the next Afghani will improve their welfare.

Even if well-executed rural-development programs could hugely increase the economic returns from growing legal crops, the drug traffickers can easily raise the prices they pay to compete. Farmers' earnings account for much less than one percent of the retail value of heroin in rich countries. Even in Afghanistan's neighbors, where heroin is considerably cheaper than in Europe, the farmgate price accounts for less than ten percent of the retail price. Therefore, even if rural development works as intended, its principal effect will be to raise farmers' earnings, not to reduce illegal crop cultivation.

There will always be farmers somewhere in the world willing to grow the illicit crop, even if economic development in one country makes its farmers no longer the low-cost producers, thereby shifting production to another place. So the usual conclusion is that rural development might help any given source country even if it does not disturb global production. Indeed, in the long run, that is a reasonable way to think about rural development even for Afghanistan. If in 30 years Afghanistan is a stable middle-income country, its poppy growing might all have shifted to other, poorer countries. However, Afghanistan is by far the lowest-cost producer at present, so the total volume of opium and heroin produced in Afghanistan will depend almost entirely on the demand in importing countries. (Inventories can buffer year-to-year changes, but eventually whatever is sold must be produced, and whatever is produced—since neither opium nor heroin is perishable—will eventually be sold, unless it is seized.)

So in the short or even medium run, when rural development or other factors eliminate Afghan production in some provinces or district the displacement is likely to be to somewhere else in Afghanistan, not to another country. Furthermore, given how little of the world market is supplied by other countries, it would take unprecedented growth in both absolute and percentage terms for other countries to replace more than half of Afghan production within the next five years.

7.1.4.2. Rural development is not a counter-insurgency program

If the only objective of a rural-development program is to reduce the drug supply in destination countries, it can be thought of as a relatively benign failure. Indeed, to the extent that rural-development efforts funded by counterdrug ambitions are really just economic development masquerading as counterdrug programs, to access more generous funding streams, some might view it as a clever way to fund "good" interventions (development aid) from "dark" (counterdrug) budgets.

However, in Afghanistan, the downside is potentially much worse. The Taliban do not single out the opium trade for taxes or protection payments because of Koranic proscriptions against intoxicants. They collect money from anyone who has it and who is not in a position to say no, and so do other powerful actors—criminals, warlords, and corrupt officials. Inasmuch as all economic activity is potentially subject to "taxation" or extortion, development programs can create revenue streams that are vulnerable to being exploited by power brokers in that area. Even simply trucking materials (e.g., seedling trees) into a region might create opportunities to demand payments to "ensure" (allow) safe passage of the truck. Furthermore, if rural-development efforts driven by a counterdrug agenda are channeled toward areas that are growing poppies, they are de facto being channeled toward provinces where the insurgency is relatively stronger and government control

relatively weaker.[77] This is an uncomfortable conclusion, and it runs counter to the winning-hearts-and-minds ethic. At the very least, it should require a higher-than-usual degree of confidence that a program is effective before implementation.

A simple calculation suggests that this could be a first-order concern. Some claim that the Taliban assess a 10 to 20 percent "tax" in the areas they control.[78] If the United States and its allies were to spend some hundreds of millions of dollars annually on rural-development programs in areas vulnerable to such taxation or extortion, the resulting increase in "tax" revenues would rival some estimates of what the Taliban earn from the drug trade. That no development efforts go on in Taliban-held territory does not mean that the Taliban is unable to extract a share of the supplies that must pass through such territory on the way to projects in government-held areas.

Even a very successful set of development efforts should not be expected to change hectares planted or kilograms produced nationwide, and changing those quantities locally will be desirable only insofar as activity is displaced into areas where it causes less, rather than more, damage to the larger project of improving security and governance and fostering economic development.

From the perspectives of counter-terrorism and counter-insurgency, then, rural-development assistance is best targeted where the "tax" rates are relatively low and are collected by less objectionable parties. (Common criminals are presumably less objectionable than insurgents; the relative status of corrupt officials is another question.) From a counter-insurgency perspective, rural-development programs should be given as a reward to provinces that have rid themselves of poppies and insurgents, as provinces that are still growing poppies are precisely those where the insurgents are strongest.

Given the damage that poppy-growing does to governance and security, preventing the introduction or re-introduction of poppy growing in areas that are poppy free, or virtually so, is a worthwhile objective. Against that, however, must be set the costs of concentrating poppy growing in insurgent-dominated areas. Giving farmers taxed by the Taliban a virtual monopoly in the opium trade will tend to increase the revenues available to the Taliban and make those farmers more resistant to having the places they live come back under central-government control.

Instead of pretending that "rural livelihoods" are a drug-policy initiative, it might be wiser to frankly acknowledge, as a goal, the relief of poverty in non-insurgent-held Afghanistan, and then ask what approaches to doing so—including the simple approach of handing out dollars to villages, or even to individuals and families—might be most effective.

7.2. Demand and harm reduction in importing nations

Anything that reduces demand for opiates in the Eastern Hemisphere reduces the profitability of growing poppies and making heroin, in Afghanistan or anywhere else in Asia. So the consumer countries currently complaining about the suspension of eradication efforts in Afghanistan can reasonably be asked if they are doing all they can do to reduce heroin consumption within their borders.

In most countries, the answer is clearly "no," even within existing economic and organizational constraints.

Opiate addiction is the most treatable of the substance-abuse disorders because of the existence of substitute drugs: methadone is the first and best-known of these, but there also exist LAAM—a chemical relative of methadone with a much longer duration of action (and which therefore does not have to be taken daily)—and buprenorphine. While most stimulant abusers will not enter and remain in the therapies available for stimulant abuse, opiate-substitution therapies have little difficulty in attracting patients and reducing (though usually not eliminating) their illicit drug use.

Because the substitutes are also psychoactive and habituating, they remain politically controversial, despite their clearly established efficacy in improving the health and social functioning of opiate abusers and reducing

their rates of economic crime. In much of western Europe, and also in Iran, concern about HIV has overcome governmental resistance to substitution therapies, but Russia, despite major heroin and HIV problems, remains resistant. Nothing that happens in Afghanistan, for good or ill, would affect the Russian drug problem nearly as much as the adoption of methadone and its competitors, and that step would also help Afghanistan—albeit to a modest extent, since Russia takes only a modest share of Afghan heroin—by shrinking the market for the heroin Afghanistan produces and exports.

Domestic drug-law enforcement can also help control heroin consumption, though typically at a high cost in enforcement resources and incarceration. Insofar as it is possible to increase not just the price of the drug, but also the difficulty users face in finding sellers (sometimes referred to as "search time"), domestic drug enforcement reduces import demand (although, as noted above, seizures of drugs tend to have the opposite effect).

The United States, where a large proportion of heroin users are under the jurisdiction of the criminal-justice system—on pre-trial release or under post-conviction probation or parole supervision—has begun to experiment with the use of frequent drug tests and quick sanctions in the form of short jail stays (measured in days, not weeks) for continued drug use. The first trial of that approach showed very dramatic reductions in drug use, while also reducing the amount of time participants spent in jail or prison. That trial involved primarily methamphetamine users, but the small number of opiate users in the sample had roughly similar outcomes.[79] (The availability of substitutes should be expected to make heroin users more amenable to this approach than methamphetamine users, who have no lawful way to satisfy their craving.) The extent to which such a system—even if replications bear out the initial positive findings—can reduce overall heroin demand in any given country depends both on the proportion of its opiate users under criminal-justice supervision and on the capacity of the agencies that supervise pre-trial and post-conviction offenders to carry out the testing-and-sanctions regime, which while not very resource-intensive requires substantial cross-agency coordination.

Still, since domestic drug-control measures tend to change slowly, it would be imprudent to rely on controls in importing countries to provide much relief to Afghan authorities struggling to control the export market.

Harm-reduction measures such as the provision of clean needles and safe injecting sites do not contribute to reducing the demand for Afghan-produced heroin. They can reduce, to some extent, the damage done by any given level of drug abuse. Hence, they, along with prevention and domestic enforcement efforts, arguably are a more practical response for importing countries than is railing against the failure of the Afghan government and its allies to prevent the production process which is supported, in the final analysis, by consumption in those importing countries.

Overall, then, it seems quite unlikely that Eastern Hemispheric traffickers will experience any reduction in collective demand for illegal opiates. But consumer nations do have potential contributions to make to demand reduction, and in addition have harm-reduction options available to protect themselves against the ill effects of increased Afghan heroin production, were that to occur as a result of changes in the policies of the Afghan government and its allies.

7.3. Interventions with users and potential users in Afghanistan

At any given levels of price and availability of opium and opiates, the levels of consumption and damage depend on how consumers react to the offers made to them. That raises the possibility that Afghanistan could pursue "demand-side" approaches to limiting the impact of drug abuse on Afghan society. The prospects for major improvement are not bright, but there could be some beneficial effects and fewer risks of unintended adverse consequences than with supply-side interventions. Furthermore, the Afghan government and its allies might benefit from being seen as making sincere attempts both to prevent drug abuse and to deal with the plight of drug abusers and their families.

The material in this section warrants a particular caveat. Our primary expertise is with the drug-policy literature, not with Afghan culture, and to the extent that we understand Afghan institutions that expertise primarily pertains to law enforcement and security. We attempt to be explicit about the assumptions underlying conclusions concerning interventions with and for users so that, if and when we err in those assumptions, it will be transparent to those with greater understanding of relevant cultural constraints and considerations.

7.3.1. Offering treatment in Afghanistan

One virtue of demand-control interventions is that they not only reduce drug use, they also tend to reduce prices. So if Afghans consume between five and ten percent of Afghan production,[80] shrinking that demand would probably reduce revenues of the Afghan opium industry more than proportionally.

The cost of substitutes (higher than the cost of heroin in Afghanistan), added to the lack of infrastructure (including both trained therapists and diversion controls) and likely cultural resistance means that large-scale opiate-substitution therapy may not be a practical option for Afghanistan.

Although they are not nearly as effective, there are also drug-treatment modalities that do not employ opiate substitutes (colloquially, "talk therapies"). Indeed, many treatment counselors in the United States are former addicts, and not all excelled in formal schooling. Conceivably, funding these forms of treatment would offer a double benefit of improved services for current users and better job prospects for some who might otherwise be unemployed.

Even if funding treatment has no prospect of making a material difference to Afghan drug problems, there may be a second, entirely distinct potential benefit. Inasmuch as counter-insurgency is ultimately a battle for the hearts and minds of the populace and the Afghan people collectively suffer substantially from addiction, even appearing to be making efforts to provide drug treatment might offer an opportunity for earning good will.

There are few treatment centers in Afghanistan, so it would be relatively cheap to achieve a large proportionate increase in treatment.[81] Obviously, it is the absolute number of treatment slots that matters if the objective is substantially reducing the burden of addiction in Afghanistan, but percentage changes can also score public-relations points. The United States, funding, the majority of treatment slots/beds in Afghanistan might reflect both our national concern about drug abuse and our compassion for the poor and vulnerable in Afghanistan.

7.3.2. Funding drug prevention in Afghanistan

It is natural to ask whether funding drug prevention programs in Afghanistan might be useful. For two reasons the short answer is probably "no," at least if by prevention one imagines information- or persuasion-based programs aimed at youth.

First, the scientific literature finds little rigorous evidence of success for most prevention programs, and usually modest effects for most for which the evidence is favorable.[82] It has been argued that model school-based programs may be cost-effective in the United States, but that is mostly because they are so cheap, not because they are highly effective at changing behavior.[83] Furthermore, the conventional wisdom is that prevention programming must be culturally congruent with the target audience, and that giving materials designed for one ethnic or social group in the United States to another group is unlikely to be effective. However different are the cultural backgrounds of different communities in the United States, the culture of youth in Afghanistan is surely that much more different. This should not be construed as strong evidence against the success of prevention in Afghanistan, since there is little if any directly relevant literature. However, investments in prevention would be to some extent investments on faith, not ones backed by evidence.

Second, the effects of prevention accrue only over considerable time. In round terms, effects on hard-drug use do not usually begin to be felt until five or more years after the programs are established, and do not reach

their full magnitude until twenty or more years later. The relevant time horizons have not been well specified for this project, but they probably do not extend long enough for the effects of primary prevention to be relevant.[84]

There is a third concern as well. In the United States, some parents are deeply suspicious of government-funded programming for youth that addresses any of a range of deviant behavior, from drug use to precocious sexual behavior. For example, there is concern that even talking about those behaviors will normalize them in the students' eyes, or pique their curiosity. We have no idea how trusting or suspicious Afghan parents would be, but wonder if there might be suspicions of U.S.-sponsored programs that talk to their children about drugs.

Since prevention programs are fairly ineffectual—nothing like getting a vaccination for measles—it is inevitable that some children receiving U.S.-funded drug prevention would go on to become addicted, potentially creating a public-relations debacle rather than the hoped-for coup.

7.3.3. Harm reduction in Afghanistan

Afghanistan is at risk of substantial spread of HIV due to injection drug use. This suggests the potential value of an HIV-prevention campaign; these have had more impact on the target problem in some developing countries than is typical of drug-abuse prevention or indeed other drug-control interventions. The usual recommendation would be needle-and-syringe programs (NSP). This may well be the most effective public-health intervention, but given the conservative culture in Afghanistan, we have no idea whether promoting NSP would help or hurt efforts to win hearts and minds. The fear would be that these programs would backfire and trigger paranoia that the United States is secretly condoning or promoting drug use. The strategy may also be difficult to explain within the United States. Hence, it may be that organizations and countries that have been successful in implementing NSP themselves are more natural leaders of any such efforts in Afghanistan.

7.3.4. Potential for other drug-related information campaigns

Given the scale of Afghanistan's drug-addiction problem, conventional treatment programs can probably reach only a small subset of those in need of treatment. As a practical matter, the principal potential source of assistance to Afghan addicts may be their families. Hence, an important set of decisionmakers vis-à-vis Afghan drug problems are the family members—particularly the patriarchs—of Afghans who become drug dependent.

We have personal/anecdotal information that in some Muslim countries (Qatar, Saudi Arabia, Egypt, Kosovo) a common family response to addiction is what might in the West be called "shunning." The dependent individuals are seen as having brought dishonor on their family and are essentially cut off from family support.

Being cut off from family support is problematic even in affluent industrialized nations with government-funded social services. Presumably, it is an even harsher fate in Afghanistan. With the economy so weak, one may wonder whether dependent users in Afghanistan might be prone to turn to crime or other activities that undermine economic progress generally.

Hence there might be a role for a different sort of public education campaign in Afghanistan, one aimed at educating the families of dependent users about addiction and ways of responding to it, rather than aimed at persuading youth not to try drugs.

Presumably, such outreach would be done in conjunction with religious leaders. Perhaps the only thing the United States would have to offer is technical assistance to opinion leaders, including religious leaders, helping to explain the biology, neuroscience, and typical life course of addiction as observed in countries that have made systematic studies. Or, perhaps the United States could also bear some material costs, for example, the expense of paper and printing, or of bringing local leaders to the equivalent of "continuing education" classes taught by religious leaders who received the technical assistance.

Conclusion

The counter-narcotics effort in Afghanistan does not naturally contribute to the security-and-governance effort through effects on drug markets. The natural tendency is to increase revenues from narcotics trafficking, to channel more of them to armed groups, and to increase corruption. This is no less true of high-level enforcement, improved border security, and rural development than it is of poppy-crop eradication.

Afghanistan will remain the dominant, low-cost supplier of illicit opium for the Eurasian market for at least the medium term. Retail demand for Afghan opium and its products is inelastic to farmgate price, so illicit opium is inelastically demanded. There is no reason to expect that changes—up or down—in the level of counter-narcotics efforts in Afghanistan would have a major impact for good or ill on the level of heroin abuse in the countries that import Afghan heroin. The impact on the U.S. market will in any case be close to nil.

Therefore, counter-narcotics efforts in Afghanistan mainly move production around geographically and socially, and change the distribution of revenues, rather than reducing production overall.

It is possible that achieving better security and governance in Afghanistan, or the allied goal of rural economic development, might in the long run reduce production of opium and exports of opiates; but policies aimed *directly* at reducing the size of the drug markets are unlikely to succeed either in their own terms or in terms of political and military objectives via their effects on drug markets.

Consequently, drug policies in Afghanistan should properly be chosen largely in consideration of their potential direct contributions—again for good or ill—to security, governance, and economic development. In general, this will call for a lighter footprint. But keeping poppy-free regions that way is a good investment, as is focusing enforcement on those forms of trafficking and those organizations most tightly linked to insurgency, warlordism, and corruption. Likewise, diversifying Afghan drug-enforcement agencies so as to reduce opportunities for corruption should be considered.

The exception to the less-is-more principle is demand-reduction efforts. These may not have much impact on drug use, harm, or other objectives, but the sign of the impact is unambiguously positive. The importers of heroin made from Afghan opium can help Afghanistan by getting their consumers to consume less: retail enforcement, treatment, and mandated abstinence all have potential.

Harm-control efforts seem to have very little impact on consumption, one way or the other. So it does not matter to Afghanistan what Russia does about HIV among its heroin users. But efforts to reduce the misery caused by opium and heroin addiction in Afghanistan could reflect well on the Afghan government and its partners.

Endnotes

Preface

[1]See Barnett Rubin and Jake Sherman (2008), "Counter-Narcotics to Stabilize Afghanistan: The False Promise of Crop Eradication," CIC; Vanda Felbab-Brown (2010), *Shooting Up: Counter Insurgency and the War on Drugs*, Washington, DC: Brookings; The International Council on Security and Development (2007), "Poppy for Medicine."
[2]Joe Klein (2010),"Afghanistan: A Tale of Soldiers and a School," *Time*, April 15. Available at www.time.com/time/world/article/0,8599,1982093,00.html.
[3]David Lewis (2010), "High Times on the Silk Road: The Central Asian Paradox" *World Policy Journal*, Vol. 27 (1), pp. 39-49; Richard Snyder (2006), "Does Lootable Wealth Breed Disorder?" *Comparative Political Studies*, Vol. 39 (8), pp. 943-968.

Drug Production, Trafficking, Counterdrug Policies and Security and Governance in Afghanistan

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The findings of the report are the views of the authors and do not necessarily represent those of CIC or OSI.

[1]Statements that production has increased 40-fold since U.S.-led military occupation began are grossly misleading. Production in 2001 was abnormally low, and trafficking in that year was largely buffered by inventories. Current cultivation is approximately double the average for years before the invasion.
[2]United Nations Office on Drugs and Crime. (2008) "World Drug Report." Vienna: Policy Analysis and Research Branch. 41.
[3]In Afghanistan, terms such as "insurgent" and "warlord" are of limited utility. Motivations and allegiances of political actors are neither transparent nor stable. For present purposes, we think of "insurgents" as armed political actors more hostile to, and less susceptible to persuasion by, the central government and NATO, and "warlords" as less hostile and more persuadable armed political actors.
[4]There is also a substantial cannabis trade, whose structure and operations are poorly understood; UNODC is undertaking a cannabis study, which faces serious methodological constraints. As best can be told, opiate revenues for traffickers and other criminals (as opposed to farmers) seem to exceed corresponding cannabis-trafficking revenues severalfold. Here we concentrate on the larger part of the problem.
[5]Recent estimates have downgraded narcotics trafficking as a source of revenue for the primary insurgent groups, but estimates remain in the hundreds of millions of dollars for them. Those revisions have not altered judgments about total criminal revenues, just the share that goes to insurgents as opposed to other types of criminals. While the elimination of the narcotics trade would not deal a crippling blow to insurgents, it would improve security and governance by freeing up resources now used to combat it and by reducing opportunities for corruption.
[6]United States Senate. (2009) "Afghanistan's Narco War: Breaking the Link Between Drug Traffickers and Insurgents. A Report to the Committee on Foreign Relations." 111th Congress, August 10.
[7]In a country where narcotics are so central to the economy and the political-security environment, it is not always clear what constitutes "counter-narcotics." Unless otherwise specified, we construe the term broadly, to include narcotics-targeted operations by dedicated organizations, such as stockpile seizures by the U.S. DEA or prosecutions by the Afghan Criminal Justice Task Force, as well as broader economic-development or anticorruption efforts that aim to reduce the harm from the narcotics trade.
[8]Rubin, Barnett R. and Jake Sherman. (2008) "Counter-Narcotics to Stabilize Afghanistan: The False Promise of Crop Eradication." New York: Center on International Cooperation.
[9]One exception would be if the threat of eradication—backed by only occasional actual eradication—might be enough to keep farmers in areas that are now poppy free from going back to poppy growing. Eradication in areas with widespread growing adversely affects many farmers; eradication in areas that are largely poppy free only directly affects the small number who are deviating from the local norms and can achieve a high probability of a given plot being eradicated with relatively modest total amounts of eradication.
[10]This conclusion depends on the particular dynamics of the Afghanistan narcotics market. In some circumstances, a marginal reduction in poppy cultivation will yield a reduction in available revenues, and in others an increase; as our analysis will show, it appears that the latter circumstance obtain in Afghanistan, and that moving to the former is unlikely.
[11]As David Mansfield has pointed out, both of these commonly used terms are problematic, as they put the focus on reduced poppy cultivation, rather than on economic development—which should reduce poppy cultivation as a consequence. Referring to "rural development" would place the horse before the cart.
[12]Even countries better governed than Afghanistan that have reduced drug-crop cultivation, such as Thailand and Pakistan, have not necessarily improved their drug-trafficking problems, as they have moved up the value chain to become transit points for refined opiates. Moreover, it was precisely the increase in Afghan opium production that made it possible to shrink the volumes in competing production areas.
[13]A primary dimension of self interest is money, and we will focus on criminal revenues. There is a certain fungibility between power and money: money can buy power, and power can be used to make money. So, arguably, it would be more precise to always refer to money, power, and other private interests, but such terminological precision risks obscuring the central analytical logic.
[14]Clearly, prices in illegal markets are not as transparent as they are in financial markets. Nevertheless, it is also clear that prices in drug markets correlate with other indicators (e.g., overdose) and incentivize behavioral response from traffickers as well as users (Caulkins, Jonathan P. and Peter Reuter. (1998) "What can we learn from drug prices?" *J. Drug Issues.* 28(3):593–612; and Grossman, Michael. (2005) "Individual behaviours and substance use: The role of price," in Grossman, Michael and Björn Lindgren (eds.). *Substance Use: Individual Behaviour, Social Interactions, Markets and Politics*, Advances in Health Economics and Health Services Research Series, Vol. 16. Amsterdam: Elsevier). This should not be surprising; imperfect information is the norm even in most legal markets, but that does not undermine fundamental aspects of market behavior.
[15]Coghlan, Tom and Jerome Starkey. (2009) "Corruption is just the way things are done in Afghanistan." *The Times*, November 4.
[16]International convention now accedes to the name "Myanmar," but we prefer Burma.
[17]Farmers may also voluntarily grow less poppy than their resources allow, in order to limit their risks through crop diversification. As with actors in other markets, Afghan farmers are not simple profit maximizers.
[18]The price varies by year, region, quality, and what point in the growing season it is sold; farmers needing money sometimes sell their future production prior to harvest, at considerably less than the harvest-time price.
[19]United Nations Office on Drugs and Crime. (2009) "Afghanistan Opium Price Monitoring: Monthly Report." Kabul. June.
[20]Opium growing also helps farmers whose primary livelihood is from other crops by providing diversification; thus it remains attractive even if the expected return is below that of some competitor. In addition, poppies, an annual crop, have major advantages over tree fruit in high-insecurity environments. Mansfield, David. (2008) "Responding to risk and uncertainty: Understanding the nature of change in the rural

livelihoods of opium poppy growing households in the 2007/08 growing season." London: Afghan Drugs Interdepartmental Unit. iv. Like other aspects of the drug trade, poppy growing tends to reflect local clustering and path dependence: growing opium is more attractive when others in the area are also growing (which dilutes enforcement pressure and ensures the availability of buyers); a farmer who has produced before faces lower costs in producing than does a novice; and there are lower barriers to expanding production for a farmer already engaged in production.

[21]Religious authorities and popular attitudes differ on whether opium poppy cultivation is prohibited under Islamic law, but it is not regarded as utterly benign.

[22]These figures represent central tendencies rather than either universal constants or precisely measured averages. Yields and proportions of reagents depend on the morphine content of the opium, which varies by region, and on the morphine-extraction and heroin-synthesis processes. Our qualitative results do not change within the ranges of these values encountered in Afghanistan.

[23]UNODC's estimates are the most widely cited, but are subject to a host of methodological and political constraints, as are any estimates. Other estimates are at considerable variance; official U.S. estimates were lower than UNODC's by about 2000 MT in 2008, and about 1600 MT in 2009. Our qualitative results do not change within the range of production estimates.

[24]United Nations Office on Drugs and Crime. (2008) op. cit. 38.

[25]This $500 million is spread over about 250,000 households, leaving revenue per household of $2000 per year, but some of that presumably goes to laborers hired for the harvest.

[26]United States Senate. (2009) op. cit.

[27]United Nations Office on Drugs and Crime. (2009) "Afghanistan Opium Survey." Kabul.

[28]Ibid. p. 7 suggests 40% through Iran, 30% through Pakistan, and 30% through Central Asia.

[29]The logic is parallel for cocaine and heroin and has perhaps been better articulated in the cocaine literature. See, e.g., Riley, Kevin J. (1996). *Snow Job: The War Against International Cocaine Trafficking*. Santa Monica: RAND.

[30]Paoli, Letizia, Peter Reuter, and Victoria Greenfield. (2009) *The World Heroin Market: Can Supply Be Cut?* New York: Oxford University Press. 78.

[31]In the jargon of social science, there is "path dependence." If past events had played out differently and there were no opium production in Central Asia at present, that absence of opium might persist. However, the reality is that Afghanistan dominates illegal opiate production to an extent that no other single country in modern times has ever dominated global production of an illegal drug, so its large-scale production is also likely to persist. Another way to express this is that it is much easier for a country with no drug production to continue to have no production than it is for a country with drug production to eradicate that production.

[32]Section 6 has a more detailed analysis.

[33]A 60-lb bushel of wheat sells for about $5 ($5.57 on November 17, 2009 according to quotewheat.com), or less than 10¢ per pound, which is less than 5% of the retail price of $3–$5 for a 16-oz. box. By contrast, the farmgate price of opium accounts for more like 25% of the price of heroin in Afghanistan. Of course, that same kg of heroin sells for a much higher price in European cities. Thus, heroin in European capitals is primarily the product of criminal labor, and secondarily a farm product. But in Afghanistan, heroin is an agricultural commodity.

[34]Sinsemilla, consisting of the flowers of the unpollinated female plant, with a very high cannabinoid content, sells for several times the price of ordinary cannabis.

[35]This is very different than with familiar consumer goods such as cars, music, or college education. Car quality is multi-dimensional, and different people put greater emphasis on different features. So we can think of one kind of car as being a good match for one type of consumer but not another. For heroin, in contrast, most of the time most buyers would prefer whatever bag of heroin is the cheapest in terms of cost per purity-adjusted unit weight.

[36]The short-run demand for most farm products is inelastic. This effect is the basis for price-support programs for American farmers, which require them to take land out of production in order to increase revenues.

[37]Reuter, Peter. (2008) "Can Production and Trafficking of Illicit Drugs Be Reduced or Merely Shifted?" The World Bank: Development Research Group, Macroeconomics and Growth Team.

[38]Thoumi, Francisco E. (2003) *Illegal Drugs, Economy, and Society in the Andes.* Washington: Woodrow Wilson Center Press.

[39]Snyder, Richard. (2006) "Does lootable wealth breed disorder? A political economy of extraction framework." *Comparative Political Studies.* 39:943–969.

[40]Reuter, Peter. (2009) "Do no harm: Sensible goals for international drug policy." *The American Interest*. IV(4):46–52.

[41]On the benefits of anticorruption efforts more generally, see, e.g., World Bank. (2008) "Fighting corruption in Afghanistan." Note prepared for ARTF donors meeting.

[42]Snyder. (2006) op. cit.

[43]In any event, the Afghan drug courts are criticized less for openness to corruption by traffickers than for reflexively issuing guilty verdicts. See Starkey, Jerome. (2010) "Lawyers boycott 'sham' drugs court." *The Scotsman*, January 28. thescotsman.scotsman.com/afghanistan/Lawyers-boycott-39sham39--drugs.6020737.jp.

[44]This is a simplification. There can also be so-called lateral transactions in which a dealer sells the entire amount purchased to a single customer who is at the same market level within the same country.

[45]Grossman. (2005) op. cit. offers a useful literature review. Studies that estimate retail heroin demand elasticity include Bretteville-Jensen, Anne Line and Erik Biorn. (2003) "Heroin consumption, prices and addiction: Evidence from self-reported panel data." *Scandinavian Journal of Economics*. 105(4):661–679; and Dave, Dhaval. (2006) "The effects of cocaine and heroin price on drug-related emergency department visits." *Journal of Health Economics*. 25(2):311–333.

[46]To say that the demand for drugs is "relatively inelastic," does not mean that there is *no* response to price, but that quantity demanded responds less than proportionally to changes in price.

[47]For example, if there were three markets, A, B, and C, with respective demand elasticities of –0.8, –0.7, and –0.6 and respective market shares of 30%, 50%, and 20%, then the overall demand elasticity would be $(-0.8) \times 0.3 + (-0.7) \times 0.5 + (-0.6) \times 0.2 = -0.71$.

[48]United Nations Office on Drugs and Crime. (2009) op. cit.

[49]Caulkins, Jonathan P. and Haijing Hao. (2008) "Modeling drug market supply reductions: Where do all the drugs not go?" *Journal of Policy Modeling*. 30(2):251–270.

[50]This means that if the retail price of heroin were to change by +10%, then the quantity demanded would change by $-0.75 \times 0.1 = -7.5\%$.

[51]The full analysis has to adjust for seizures and changes in the price relationship across levels, but those factors are minor compared to the one outlined here. See Caulkins and Hao (2008) op. cit. for details.

[52]Paoli, Letizia, Peter Reuter, and Victoria Greenfield. (2009) *The World Heroin Market: Can Supply Be Cut?* New York: Oxford University Press.

[53]In theory, increased enforcement pressure might allow other regions (e.g., Burma) or competing products (e.g., fentanyls from the Baltics) to expand production and take market share away, eventually lowering drug revenues in Afghanistan. None of this is likely to happen in the next few years. Nor are there practicable policies that would greatly increase the likelihood of such shifts, even if it seemed desirable on balance to do so.

[54]For one articulation of these ideas, see Caulkins, Jonathan P. and Peter Reuter. (2009) "Toward a harm reduction approach to enforcement." *Safer Communities*. 8(1):9–23.

[55]The "risks and prices" model can be summarized in an equation: Economic return on dealing = Revenue from selling drugs – Cost of obtaining the drugs – Conventional business costs – Non-monetary costs. (Reuter, Peter and Mark A.R. Kleiman. (1986) "Risks and prices: An economic analysis of drug enforcement," in Morris, Norval and Michael Tonry (eds.). *Crime and Justice: An Annual Review of Research*. 7:289–340.)

[56]Caulkins, Jonathan P. and Robert J. MacCoun. (2003) "Limited rationality and the limits of supply reduction." Berkeley: Center for the Study of Law and Society.

[57]Boyum, David. (1992) "Reflections on Economic Theory and Drug Enforcement." Ph.D. Dissertation. Cambridge: Harvard University. Accounting profit is simply revenues minus expenses, while economic

profit accounts for opportunity costs (potential alternative uses of labor and capital). Very few drug dealers earn more than the minimum wage, so their economic profits are negative. Levitt, Steven D. and Sudhir A. Venkatesh. (2000) "An economic analysis of a drug-selling gang's finances." *Quarterly Journal of Economics*. 115(3):755–789.

[58]On persistent price dispersion in drug markets, see Reuter, Peter and Jonathan P. Caulkins. (2004) "Illegal lemons: Price dispersion in cocaine and heroin markets." *Bulletin on Narcotics*. LVI(1-2):141–165.

[59]"The biggest source of drug money for the Taliban is the regular payments made by large drug-trafficking organizations to the Quetta shura, the governing body of the Taliban whose leaders live in Quetta, the Pakistani border city." (United States Senate. (2009) "Afghanistan's Narco War: Breaking the Link Between Drug Traffickers and Insurgents. A Report to the Committee on Foreign Relations." 111th Congress, August 10. 9).

[60]Henry, Donald Putnam. (1988) "The effects of interdiction on drug exports. Appendix A," in Reuter, Peter, Gordon Crawford, and Jonathan Cave. *Sealing the Borders: The Effect of Increased Military Participation in Drug Interdiction*. Santa Monica: RAND.

[61]Crane, Barry D., A. Rex Rivolo, and Gary C. Comfort. (1997) "An empirical examination of counterdrug interdiction program effectiveness." Alexandria: Institute for Defense Analysis.

[62]Mansfield, David. (2008) "Responding to risk and uncertainty: Understanding the nature of change in the rural livelihoods of opium poppy growing households in the 2007/08 growing season." London: Afghan Drugs Interdepartmental Unit.

[63]This section concerns primarily effects on drug consumption from changes in supply. A different set of impacts consists of the collateral effects of possible shifts in market share by organization, ethnic group, or route. For example, actions in Afghanistan might affect whether heroin destined for western European markets flows north through the countries of the former Soviet Union, south through Pakistan, or southwest through Iran and Turkey. As Section 6.2 discusses, in theory, if it were clear which routes were most damaging it might be possible to change conditions in ways that put those routes at a competitive disadvantage, shrinking their market share. This sort of analysis tends to be underutilized in the planning of drug-enforcement strategies, but in the case at hand there is no first-blush reason to think that one route is more or less damaging than any other.

[64]It should be noted that this conventional analysis has not gone entirely unchallenged. The counterargument notes that estimated U.S. consumption (22 tons) greatly exceeds estimated South and Central American production (perhaps 10 tons). However, given the frailty of both consumption and production estimates, we remain persuaded by the fact that heroin seized in the United States rarely displays the chemical signature of Southwest or Southeast Asian production. It seems unlikely that people trafficking Asian heroin are singularly successful at avoiding seizures or that Asian heroin is produced in ways that make it look like counterfeit Colombian or Mexican heroin. Note: concerns about the signature program's non-representative sampling are more problematic for determining the market shares of Colombia and Mexico relative to each other; the near-zero proportion for Asian-sourced heroin remains near zero when using various model-based adjustments for whether proportions are computed by weight, by number of samples, or by region-weighted proportions of samples.

[65]United Nations Office on Drugs and Crime. (2009) "Afghanistan Opium Survey." Kabul. 7.

[66]Paoli, Reuter, and Greenfield. (2009) op. cit.

[67]United Nations Office on Drugs and Crime. (2009) "World Drug Report." Vienna: Policy Analysis and Research Branch. 59.

[68]Caulkins and Hao. (2008) op. cit.

[69]Heroin Signature Program (HSP) data suggest that the window when Southwest Asian heroin accounted for an important share of the U.S. market was from 1979 to 1987, when it approached half the market as reflected in HSP data (Childress, Michael. (1994) *A Systems Description of the Heroin Trade*. Santa Monica: RAND). Before then Mexico was the primary source. After that Southeast Asian heroin predominated, until Western Hemispheric sources supplanted them (Colombia and Mexico in the 1990s but more recently primarily Mexico).

[70]United Nations Office on Drugs and Crime. (2009) op. cit. 43.

[71]As noted above, increasing the price by a given amount upstream in the distribution system represents a much larger increase in the effective retail price in countries such as Iran and even Russia than it does in the retail price in western Europe. This stands in contrast to physical distribution systems such as irrigation. When rainfall is insufficient for all farmers to get enough water, consumers closest to the source will be least affected. However, heroin flows through markets, not physical channels, and when supplies are tight it is reasonable to expect suppliers to allocate scarce supplies preferentially to those able to pay the most.

[72]Paoli, Letizia, Victoria Greenfield, Molly Charles, and Peter Reuter. (2008) "The global diversion of pharmaceutical drugs. India: The third largest illicit opium producer?" *Addiction*. 104:347–354.

[73]Russia's complaints have been reported widely in the media, including outside both Russia and the United States. For example, Radyuhin, Vladimir. (2009) "Russia slams U.S. on Afghan drugs." *The Hindu* (thehindu.com/news/international/article51088.ece, accessed November 18, 2009).

[74]Reported estimates are somewhat incommensurate; they include: 1.5M opiate addicts (Afghanistan Ministry of Narcotics, 2009); 900k opiate users (Gen. McCaffrey, 2008); 1M addicts (UNODC, 2009), at least 2M addicts (CBS News, 2009); 150k opium users and 50k heroin addicts (UNODC, 2007). The bulk of the U.S. drug abuse problem concerns licit alcohol; if we added heavy drinkers to the users of other addictive drugs, the rate of dependence in the United States (and western Europe) might well outstrip that in Afghanistan.

[75]Babor, Thomas, et al. (2009) *Drug Policy and the Public Good*. New York: Oxford University Press, Chapter 10.

[76]United Nations Office on Drugs and Crime. (2009) "Afghanistan Opium Survey." Kabul. For example, the government ban and low prices were the most common reasons cited for not growing, and high prices was the most common reason cited for growing by those who did grow (p. 36).

[77]Again, this applies to *all* economic activity. Even ISAF spending on construction, materiel, and local employees is subject to extralegal taxation or extortion.

[78]Felbab-Brown, Vanda. (2009) "Narco-belligerents across the globe: Lessons from Colombia for Afghanistan?" Madrid: Real Instituto Elcano.

[79]Kleiman, Mark A.R. (2009) *When Brute Force Fails*. Princeton: Princeton University Press, ch. 3.

[80]If Afghanistan is home to 1 million of the Eastern Hemisphere's roughly 15 million opiate addicts, this seems a plausible range of estimates. Afghan addicts are presumably much poorer than addicts elsewhere, but the heroin is also much less expensive there (DiManno, Rosie. (2009). "Afghanistan's hidden heroin addicts." *The Star*, August 29. thestar.com/printArticle/688204). It is not clear which factor dominates and, hence, whether the average grams consumed per addict year is higher or lower in Afghanistan than in the world generally.

[81]One story reported, "In the worst-affected province, Balkh, in northern Afghanistan, there is just one treatment center with 20 beds" (Bannister, Matthew. (2009) "Global addiction, personal affliction." bbc.co.uk/worldservice/programmes/2009/11/091123_outlook_heroin_addiction.shtml). It seems likely that funding a substantial proportionate expansion of the Afghan treatment system is within the realm of what is possible given the magnitude of other forms of spending in Afghanistan, but that treating any substantial fraction of 1 million opiate abusers is beyond reach.

[82]Faggiano, Fabrizio, et al. (2005) "School-based prevention for illicit drugs' use." *The Cochrane Database of Systematic Reviews*. 2:385–396. Also, Gates, Simon, Jim McCambridge, Lesley A. Smith, and David R. Foxcroft. (2006) "Interventions for prevention of drug use by young people delivered in non-school settings." *The Cochrane Database of Systematic Reviews*. Issue 1.

[83]Caulkins, Jonathan P., Rosalie Pacula, Susan Paddock, and James Chiesa. (2002) "School-based drug prevention: What kind of drug use does it prevent?" Santa Monica: RAND.

[84]In the United States prevention is typically run with 12–14 year olds. The median age of initiation for most hard drugs is around 20, escalation to dependence usually takes several years, and the median year of dependent use will be 30 or older. (E.g., if a career of dependence lasts from age 25 to age 45, the midpoint would be age 35.) Delays might be different in Afghanistan depending on the age structure of drug use and on the age at which the messages were delivered.

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