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TECHNICAL REPORT

Assessing the Operation of the Global Drug Market

Report 1

Peter H. Reuter

Prepared for the European Commission

RAND EUROPE

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Preface

The European Commission contracted RAND Europe and the Trimbos Institute to analyse in detail the operation of the world market in illicit drugs and the policies aimed at curtailing it. This was in the context of the European Union's Strategy on Drugs 2005-2012 which calls for evidence-based policies and in turn responds to the EU Resolution adopted by the UN's Commission on Narcotic Drugs, calling for '… an objective, scientific, balanced and transparent assessment by Member States of the global progress achieved and of the difficulties encountered in meeting the goals and targets set by the General Assembly at its twentieth special session…'.

The resulting study provides a dispassionate overview of the true nature and extent of the problem today, and to assist policy makers at national and regional levels to deal with it. It was suggested that the drugs market be looked at as if it were licit, in order to get a clearer picture of the way that it works.

This document is the first of five reports published by RAND under this contract. These reports are accompanied by a main report which draws on the documents' findings to assess changes in global drug problems from 1998 to 2007 (Reuter and Trautmann 2009). This first report, which expands and updates Reuter (2003) looks specifically into the operation of the global drug market, and reviews what is known about the operation of these various markets. It offers a theoretical account for a number of the features.. RAND Europe and the Trimbos Institute anticipate that it will be of interest to policy-makers from the European Commission, as well as other governmental bodies which are concerned with drug markets. It is also believed to be of value to NGOs and private organisations which are involved in one way or another in tackling the drugs market and its impacts.

RAND Europe is an independent not-for-profit policy research organisation that aims to improve policy and decision making in the public interest, through research and analysis. RAND Europe's clients include European governments, institutions, NGOs and firms with a need for rigorous, independent, multidisciplinary analysis. This report has been peer-reviewed in accordance with RAND's quality assurance standards.

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Contents

Preface iii
Table of Tables vii
Summary ix
Acknowledgements xi

CHAPTER 1 **Introduction and overview 1**

CHAPTER 2 **Which nations produce and why 3**

CHAPTER 3 **Smuggling 9**

CHAPTER 4 **Immigrants and trafficking in consumer countries 13**

CHAPTER 5 **The organisation of the trade 15**
5.1 The early U.S. cocaine market 16
5.2 Colombian smuggling organisations 17
5.3 European smuggling 18
5.4 Drug smuggling and legitimate institutions 19

CHAPTER 6 **Retail markets 21**

CHAPTER 7 **Concluding comments 23**

REFERENCES 25
Reference List 27

Table of Tables

Table 1 Prices of cocaine and heroin through the distribution system ca. 2000 (per pure kilogram equivalent) 1

Table 2 Immigrant Groups involved in drug trafficking..... 13

Summary

Illicit drugs, predominantly cocaine and heroin, now generate a substantial international and domestic trade. For these two drugs, production is concentrated in poor nations and the bulk of revenues, though not of consumption, is generated by users in wealthy countries. Earnings have an odd shape; most of the money goes to a very large number of low level retailers in wealthy countries while the fortunes are made by a small number of entrepreneurs, many of whom come from the producing countries. Actual producers and refiners receive one or two percent of the total; almost all the rest is payment for distribution labour. The industry is in general competitive, though some sectors in some countries have small numbers of competing organisations.

It is not difficult to explain why cocaine heroin production occurs primarily in poor countries and only a little harder to understand why the accounting profits are downstream. Almost everything else about the trade presents a challenge, both descriptively and analytically. Why is the production of cocaine and heroin concentrated in such a small number of poor countries? How are the different sectors organized, in terms of enterprise size and internal structure? What is the relationship of drug trafficking and distribution to other transnational and organized criminal activities?

Cannabis and ATS provide a contrast in several dimensions. For cannabis a high percentage is produced in rich consuming countries and a larger share goes to the growers. ATS is produced in both rich and poor countries and traded in both directions.

These questions serve to organize the paper, which reviews what is known about the operation of these various markets. It offers a theoretical account for a number of the features.

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The authors are solely responsible for the views in this book.

CHAPTER 1 Introduction and overview

Illicit drugs, predominantly Amphetamine Type Stimulants (ATS), cannabis, cocaine and heroin, now generate a substantial international and domestic trade. There are substantial differences among the drugs in the distribution of production across countries, but more similarity in the distribution of income across different levels of the trade and in the ways in which the drugs are distributed.

For cocaine and heroin, production is concentrated in a tiny number of poor nations and the bulk of revenues, though not of consumption, is generated by users in wealthy countries. Earnings have an odd shape; most of the money goes to a very large number of low level retailers in wealthy countries while the fortunes are made by a small number of entrepreneurs, many of whom come from the producing countries. Actual producers and refiners receive one or two percent of the total; almost all the rest is payment for distribution labour. The industry is in general competitive, though some sectors in some countries have small numbers of competing organisations.

The principal costs of the cocaine and heroin industries are associated with distribution rather than production; Table 1 provides approximate figures on the cost of cocaine at different points in the distribution system to the United States and generates three observations, which are also true for heroin and for Western Europe:

Table 1 Prices of cocaine and heroin through the distribution system ca. 2000 (per pure kilogram equivalent)

Stage	Cocaine	Heroin
Farm gate	$650 (Leaf in Colombia)	$550 (Opium in Afghanistan)
Export	$1,000 (Colombia)	$2,000-4,000 (Afghanistan)
Import	$15-20,000 (Miami)	$35,000
Wholesale (Kilo)	$33,000 (Chicago)	$50,000 (London)
Wholesale (Oz)	$52,000 (Chicago)	$65,000
Retail (100 mg. pure)	$120,000 (Chicago)	$135,000 (London)

Source: Drug Enforcement Administration; EMCDDA; UNODC; Matrix, 2007.

These figures, which are indicative rather than precise, suggest three general propositions:

1. The cost of production, as opposed to distribution, is a trivial share of the final price. That statement holds true even if one adds the cost of refining.
2. The vast majority of costs are accounted for by domestic distribution in the consumer country. Smuggling, which is the principal transnational activity, accounts for a modest share but much more than production and refining.
3. Most of the domestic distribution revenues go to the lowest levels of the distribution system. If the retailer and lowest level wholesaler each raise their

purchase price by 75 percent, which until recently was a low estimate of the margin, they account for two thirds of the final price. This is consistent with the enormous increase in price from the ounce level to retail observed in Table 1. The high costs of distribution represent primarily the need to compensate low level dealers for the risks of arrest or incarceration and, in some countries, of violence by other participants. This does not require that retailers be at higher risk of detection and punishment compared to wholesalers and traffickers; it is just that the risk is distributed over a much smaller quantity of drug at the retail level, as discussed below.

For marijuana the location and distribution of earnings are very different. Production occurs in most nations that also consume and domestic producers account for most of the total. Only two developing countries, Mexico and Morocco, both in the Middle Income category, are regarded as having a major role in supplying rich countries. A larger share of the total revenues go to the producers, though there are no comprehensive data that would allow for a global estimate of the share going to producers as opposed to traffickers and sellers. The international trade component is slight.

ATS, a diverse set of substances including amphetamines, ecstasy and methamphetamine, present yet another configuration. The number of producing countries is more than the handful in the cocaine and heroin industries but much less than for cannabis. While there is a large flow from production of methamphetamine in poor countries to consumers in rich countries, there is also a flow of ecstasy the other way. As with cocaine and heroin, poor country producers receive a very small share of total revenues.

It is not difficult to explain why production of cocaine and heroin occurs primarily in poor countries and only a little harder to understand why the accounting profits[1] for those drugs are downstream or the higher share going to cannabis growers in rich countries. Almost everything else about the trade presents a challenge, both descriptively and analytically. Why is the production of cocaine and heroin concentrated in such a small number of poor countries? How are the different sectors organized, in terms of enterprise size and internal structure? What is the relationship of drug trafficking and distribution to other transnational and organized criminal activities? Why are the compensation for mid-level dealers in cannabis and ATS so high, in face of apparently low risks of either arrest or violent victimisation?

The next chapter discusses the location of production. Chapter 3 presents information about the smuggling sector, which leads to chapter 4: on immigrants and drug distribution, since smuggling and immigration have been closely linked in many countries. Chapter 5 describes the organisation of the market at higher levels. Chapter 6 provides a summary description of the large literature on retailing and chapter 7 gives concluding comments.

[1]The distinction here is between true economic profits, which take account of opportunity costs, and a more common-language concept of profits as revenues in excess of actual payments for labour, transportation, rental etc. In a very risky business, accounting profits may be high while true economic profits are low or even negative, once risk compensation is included in costs. See Boyum (1992).

CHAPTER 2 Which nations produce and why

A small number of nations account for the vast bulk of production of coca and opium. According to official estimates (e.g. U.S. Department of State, 2008; UNODC, 2008), Myanmar and Afghanistan have accounted for over 80 percent of global production of opium since the mid-1980s. Since the turn of the century, Afghanistan has increasingly dominated, so that in 2007 it was estimated to account for 93% of the total (8,200 tons out of 8,870 tons). A total of six countries account for 98% of world production.

Bolivia, Colombia and Peru account for all of coca production. The distribution of production among them has changed over time. In the 1980s, when the illegal market in the U.S. first emerged, it was produced primarily in Peru, Bolivia was second and Colombia a distant third. Since the mid-1990s this has changed markedly, with Colombia responsible for about two thirds of total production. Though other nations in the Andes, particularly Ecuador, are always rumoured to be about to enter the coca growing sector, none has so far done so.

There is no technical reason for not producing cocaine or heroin in the United States or Western Europe. Hydroponic techniques could be used for both coca and opium poppies. However the enforcement risks faced by producers in the U.S. or Western Europe are substantial and the risk compensation costs sufficiently high, that even with transportation costs and associated interdiction risks, local production of coca and opium poppies have never developed; indeed, these drugs are not even refined in the Western world.

Francisco Thoumi (2003) contrasts the distribution of coca and opium production across nations with that for legitimate agricultural products. Coffee can be grown in many countries; in fact, a large number of those countries do have coffee producing and exporting industries. Many countries are capable of producing opium or coca; very few of them do. For example, opium has at various times been grown in China, Lebanon, Macedonia and Turkey. However none of these are currently active producers for the illicit market.

It is useful to contrast this configuration with that for cannabis. One hundred and thirty four countries report to UNODC that cannabis is produced in their territory (Legget & Pieschmann, 2008). U.S. production accounts for a substantial (though unknown) share of U.S. consumption, apparently much of it grown indoors. The Netherlands estimates domestic production that approximately 18,000 “cannabis farms” produced between 130 and 300 tons of cannabis in the early part of this decade (van der Heiden, 2007), far more than might be consumed by Dutch users and the coffee shop visitors (less than 80 tons). Some of this is exported to other Western European nations. Bouchard (2008) estimates

that production in the province of Quebec in 2004 totalled 300 tons, of which less than one third was consumed in the province. Most of the rest was presumably shipped across the land border with the United States or trafficked to Ontario.

Mexico and Morocco are the only nations identified as major exporters, Mexico exclusively to the United States and Morocco to Europe. There are no estimates of what share of consumption in these markets are accounted for by imports from these producers. However it is unlikely that the total international trade component of the cannabis trade is large.

Cannabis' exceptional status in terms of disbursed production probably rests on four factors: the bulkiness per unit value;[2] which raises smuggling costs substantially; the high yields per square meter, which allow a grower to produce substantial revenues from a small area; and the existence of a boutique market of user/growers interested in developing better breeds of the plant; and the ease of entry, since the seeds are widely available and there are probably few economies of scale beyond quite a small number of plants.

ATS production is scattered around the world but not in many countries and not always in developing countries. It is useful to consider the three component drugs (amphetamine, ecstasy and methamphetamine) separately.

Amphetamine is primarily consumed in Europe and that is the locus of production as well. Manufacturing requires neither highly specialized skills nor sophisticated facilities. The United Kingdom was for some years the principal production centre but other Western and Eastern European nations (notably Belgium, the Netherlands and Poland) have become more prominent in recent years.

Methamphetamine is produced mostly in East Asia and North America. In Asia the UNODC (2008) reports substantial methamphetamine production in China, Indonesia, Myanmar and the Philippines; these countries service both large domestic markets and markets in other Asian countries such as Japan and Korea. However methamphetamine is also produced in Australia, where a substantial domestic market has developed. Mexico produces for the U.S. market; however tough enforcement at the border and perhaps effective precursor controls in Mexico itself have led to the development of a U.S. based production capacity.[3]

For ecstasy on the other hand, rich nations (such as the Netherlands and the U.K.) are major exporters to many countries, including developing countries such as Brazil (e.g., Barrionuevo, 2009). The production process requires considerable sophistication both of technicians and equipment; this may explain the location of the producers in the developed world.

Risks and the costs of bearing them provide a plausible, though still untested, explanation for all these observations (Reuter & Kleiman, 1986). Coca and opium are grown in

[2] A kilogram of cocaine might have a border price of 10,000 Euros entering Europe; a kilogram of cannabis would be only a few hundred Euros.

[3] Typical of the uncertainty about quantities related to the methamphetamine market, Brouwer *et al.*, (2006) report that Mexico based groups accounted for 70-90% of the U.S. methamphetamine market in the early part of this decade, despite the large number of labs detected inside the United States.

countries characterized by labour and land that have low prices relative to those in Europe and North America (Kennedy *et al.*, 1993). The comparative advantage of these countries is reinforced by the reluctance or inability of governments in Bolivia, Colombia and Peru (for coca) and Afghanistan and Myanmar (for opium/heroin) to act aggressively against growers or early stage refiners. Low opportunity cost for factors of production plus low enforcement risks produce very modest prices for the refined product and also ensure that production does not move upstream geographically.

It is also useful to consider why neighbouring countries, involved in transhipment, have not been major producers. Consider for example Thailand. In the early 1970s it was a major producer of opium. It also has had a substantial addict population (predominantly heroin using). It continues to suffer from high levels of corruption, both in the powerful military and in the civilian government. It would seem to be a strong candidate for a large opium production sector.

Yet Thailand now produces little and serves primarily as a consuming and transhipment country for Myanmar (Kramer, 2008). The explanation can probably be found in economic factors. Over the past thirty years Thailand has had high rates of growth, raising the opportunity cost of land and labour relative to impoverished Myanmar.[4] Thus, Thai farmers have not been able to compete in the opium growing sector, particularly since the illegality of the product has inhibited the development of more technologically advanced growing methods. Targeted alternative development programs, sponsored by the Thai king, may also have contributed to the decline of production in Thailand. The Thai government, despite the corruption of its border drug controls, has also been more willing to act aggressively against growers.

Until the mid-1990s Colombia was the other anomaly, a nation that would have been expected to dominate coca growing, given that coca grew readily there and domestic production would reduce the risk of interdiction. Though the principal source of refined exports to the United States, and an important source for Western Europe, it was a distant third in coca production until the mid-1990s. The subsequent and rather sudden expansion of coca growing in Colombia, which has accompanied a decline in Peruvian and, to a lesser extent, Bolivian production may be the result of specific political factors and developments in the other two producers. The upturn in political violence in Colombia has led to a large internal migration from more settled agricultural regions, where the paramilitary are most active, to unsettled areas in which there are few economic opportunities other than coca growing and in which the guerrillas can provide effective protection (Thoumi, 2003). The decline in Peruvian production may also be the consequence of an extended blight, the first to hit the coca crop in recent decades, and a period of intense enforcement against air traffic of coca base between Peru and Colombia. In Bolivia a broad program of developmental support in the principal producing area (the Chapare) and perhaps actions of the governments prior to the 2006 election of Evo Morales as president led to sharp decline in production.[5] If peace and stability ever return

[4] The per capita GDP for Thailand is more than ten times that of Myanmar.

[5] The governments cracked down on illegal production and then negotiated an agreement with the cocoleros in the Chapare that allowed each household to produce coca in a small area. Ostensibly this production went to the small licit market for coca leaves; in fact most of it went into the illegal market for cocaine.

to rural Colombia, the coca trade may shift back to the poorer Bolivia; the recent loss of leadership and membership in the FARC, along with the demilitarisation of the paramilitary, may allow a test of that proposition.

One might more usefully ask whether the new republics of Central Asia are likely to become major players in the international heroin business. They certainly have low cost land and labour, as well as apparently good ecological conditions for growing opium and a traditional expertise; Uzbekistan had a licit opium production industry in the Soviet era. Some governments, such as that of Tajikistan, are desperate for foreign currency, have few alternative sources and little concern about their standing in international organisations; they are unlikely to aggressively enforce prohibitions against growing opium poppies or to have the capability to do so even if they desired to. They are certain to be low cost producers, just as they are currently low cost smugglers to the Russian market.

But are they advantaged, compared to current low cost producers, notably Afghanistan and Myanmar? Though closer to Europe and with significant populations resident in Russia and perhaps even in Western Europe, the commercial connections with Western Europe are likely to be weak compared to Myanmar, through established Thai and Chinese trafficking networks, imbedded in growing legitimate traffic. The Central Asian republics will only become major players in the European opium markets if there are disruptions (including rapid economic development) in the current major supplier countries.

Both in the Andes and in Afghanistan the growers are small producers and there is no suggestion that they have any collective power in bargaining. Mansfield, in a series of studies over the last decade (e.g. Mansfield, 2007; 2008) has shown that opium is just another crop that farmers choose to grow with the amount grown depending on access to water, availability of infrastructure, prices of other agricultural commodities, availability of family labour etc. At that level, it is a typical agricultural product, produced by many independent decision makers. Even at the level of traders, the market appears to be competitive (Byrd & Jongelez, 2006). Only at the highest level of the domestic Afghanistan trade is there any indication of possible market power. While there are no similarly detailed studies of the coca producing and cocaine refining sectors in Colombia, there is little indication of any control. Observations of opium latex industry in Colombia by Sergio Uribe reported in Paoli, Greenfield and Reuter (2009, Chapter 8) show that this has also been a decentralized industry of small farmers, with perhaps monopolistic competition in the financing and processing sectors.

There is an emerging literature on cannabis production in wealthy countries. For example, Bouchard (in press) provides a fine-grained description of marijuana growing in Quebec, an important supplier to the U.S. market according to his careful estimates. Again what emerges is an industry of many small producers with minimal co-ordination, often employing teenagers as workers (Bouchard, forthcoming). Less is available on production in poor countries that serve as suppliers to the West. In Morocco, cannabis growing is a major agricultural activity in some regions, again involving small farmers who sell to numerous middle-men (Gamella & Jimenez-Rodrigo, 2008). There are no published studies of cannabis production in Mexico.

ATS production is very lightly studied. Countries emerge and depart the market from time to time. Manufacturing facilities are typically small and mobile. The relationship between

production activity and other criminal activities vary across nations and drugs. For example, in Australia methamphetamine production is associated with motorcycle gangs (Andreas, 2007), while in the United States it has shifted from such gangs to criminal groups of Mexican origin. Production in Myanmar on the other hand is controlled by a variety of different political groups (Kramer *et al.*, 2008).

CHAPTER 3 Smuggling

The modest share of retail price associated with international cocaine and heroin smuggling is easily explained.[6] First, consider cocaine, which travels in large bundles at that stage; seizures suggest that shipments of 250-500 kilograms are quite common. Though large sums may be paid to pilots for flying small planes carrying cocaine or to Honduran colonels in return for ignoring their landing, these costs are defrayed over a large quantity. A pilot who demands $500,000 for flying a plane with 250 kilograms is generating costs of only $2,000 per kilogram, about 2 percent of the retail price in the United States. Even if the plane has to be abandoned after one flight, that adds only another $2,000 to the kilogram price. For Europe, where courier smuggling may be more important, since it is remote from production areas for both cocaine and heroin, payments to the couriers again amount to only a few thousand Euros per kilo.[7] For shipments in container cargo, seizure constitutes little more than random tax collection; replacement cost of the seized drugs is substantially less than the landed price,[8] so high seizure rates have modest effect even on wholesale prices.[9]

A large share of cocaine in the 1980s was smuggled to the United States in dedicated vessels, either small boats or planes. Intense interdiction has changed both routes and patterns. Small (and sometimes not so small) planes are still used to carry a substantial fraction of cocaine to Mexico, from where it enters the U.S. in regular cargo, either by truck or cargo vessel. Patterns of seizure also suggest that in recent years even shipments direct from Colombia have tended to travel in commercial traffic, both air and sea. The drug is found concealed in an enormous variety of cargoes; frozen fruit pulp containers, wooden furniture and suspended in other liquids. European smuggling patterns are influenced by the simple distance from Colombia to Western Europe; dedicated small

[6] This analysis draws heavily on Reuter (1988).

[7] For a revealing analysis of the role of courier smuggling through the Netherlands Antilles, see UNODC and World Bank (2007), Chapter 7.

[8] The exit price of cocaine from Colombia may be no more than 2,000 Euros; the price at first sale in Europe may be ten times as high. What is replacement cost for the smuggler depends on what costs have already been incurred at the point of seizure. Near the entry point to Europe that may include payments to corrupt officials in transhipment countries and some part of the courier's fees. It is impossible to determine where the replacement cost in general falls between the export and import prices.

[9] This is not an argument for abandoning interdiction but for recognising the limits of its effectiveness in making cocaine more expensive and less available in mature markets.

planes and boats are less feasible. An increasing share is now coming through West African transit countries, such as Ghana and Guinea-Bissau (Sullivan, 2008).

Heroin smuggling appears to be less efficient, at least as measured in dollars per kilogram. Heroin that exits Myanmar at $1,000 per kilogram (in bundles of ten kilograms or more) sells on arrival in the United States for $50,000 per kilogram. There have been a few multi-hundred kilogram shipments of heroin but they are very rare compared to those for cocaine. The drug often travels in small bundles carried internally by individual couriers.[10] "Body-packing" where the couriers are low wage earners, produces per kilogram smuggling costs of less than $10,000. A body-packer can apparently carry about 3/4 of a kilogram. A payment of $5,000 for incurring a 1 in 10 risk in prison (perhaps acceptable for couriers whose legitimate wages are only about $2,000 per annum), along with $3,000 in travel expenses, produces a kilogram cost of just over $11,000[11] compared to a retail price of $1 million. The remainder of the smugglers' margin is for assuming other kinds of risk. Body packing is also a common mode of smuggling from Central Asia, particularly Tajikistan, into Russia. The payments to couriers there are much lower, perhaps as little as $200, reflecting both the greater poverty of that region compared to Mexico (a Middle Income country now by World Bank standards) and the lower risk of apprehension.

Note however that, as a share of the retail price, the ratio for heroin is actually less than for cocaine, about 5-10 percent compared to 15 percent for cocaine. This is one of many unresolved puzzles about the relationship between cocaine and heroin prices, which maintain, at least in the United States, a remarkably constant ratio of 1 to 10 (Caulkins *et al.*, 2005).

Smuggling costs depend on the ability to conceal drugs in a flow of legitimate commerce and traffic. Colombia and Mexico serve as the principal smuggling platforms to the United States because they have large immigrant populations in the United States and extensive air traffic and trade. In the case of Mexico, there is also a lengthy porous land border. Though Mexico is a high cost producer, farm-gate prices for opium in Mexico being typically $2,000 to $5,000 per kilo, compared to a few hundred dollars in Myanmar, the low smuggling costs equalize total landed price. Colombia, a source for heroin that emerged in the early 1990s, also represents high farm gate production with relatively low smuggling costs.[12] Colombia and Mexico are minor producers of opium worldwide, accounting for perhaps three percent of the total but have been source of nearly two thirds of U.S. heroin.[13]

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[10] Nigerian traffickers seem to specialize in such smuggling. Mark Kleiman has estimated that Nigerian couriers' body packing heroin into New York in the early 1990s accounted for over 500 kilograms per annum, 3 to 5 percent of estimated U.S. consumption. That requires only three body packers every two days.

[11] The risk and payment figures here are moderately informed guesses; the purpose is simply to provide a sense of the magnitudes involved.

[12] There are indications that the Colombian heroin production has declined sharply since the early part of this decade; see U.S. Department of State (2008). However seizures of heroin in Colombia have barely fallen (Paoli, Greenfield and Reuter, in press).

[13] Whether the share is as high as officially estimated is questionable; see Drug Availability Steering Group (2002) and Paoli, Greenfield and Reuter (2009). However they certainly have supplied a substantial share of U.S. consumption in recent years.

Nigeria is an interesting anomaly, a nation that seems to have little potential role in the international drug trade. It is isolated from the any of the principal producer or consumer countries and lacks a significant base of traditional domestic production or consumption. Nonetheless, Nigerian traffickers have come to play a significant role in the shipping of heroin between Southeast Asia and the U.S.[14] and also to Europe. They have even been identified as important figures in the early stages of heroin trafficking in Central Asia. More recently Nigerian traffickers have even entered the cocaine business, though the production centres are still more remote from their home country.

The explanation is probably to be found in a complex of factors. Nigerians are highly entrepreneurial, have been misruled by corrupt governments over a long time, have large overseas populations, weak civil society, very low domestic wages and moderately good commercial links to the rest of the world. Thus it is relatively easy to buy protection for transactions in Nigerian airports (corruption and a weak governmental tradition), to establish connections in both the source and consumption nations (large overseas populations) and to use existing commercial transportation;[15] smuggling labour is cheap (low domestic wages) and the entrepreneurial tradition produces many competent and enthusiastic smuggling organizers. Nigeria is not unique in most of these dimensions (except for size and connections with the rest of the world) and there is perhaps an accidental quality to its initiation into the trade, but these other factors plausibly play a major role. The country of Nigeria may have been supplanted by other West African states as a transit location in recent years, as indicated by the origin of seizures at London's Heathrow Airport, but it is less clear that Nigerians have been supplanted as smugglers.

The drug trade frequently takes indirect paths for smuggling. Seizures in Germany may turn out to have travelled through Scandinavia into Russia and then exited through Poland to their final market. Ruggiero and South (1995) describe "a joint Czech-Colombia venture to ship sugar rice and soya to Czechoslovakia…This operation was used to smuggle cocaine, destined for Western Europe. In 1991, police say that 440 lbs. of cocaine were seized in Bohemia and at Gdansk in Poland, which would have been smuggled onward to the Netherlands and Britain" (p 75). A large share of UK heroin has been transported through Jamaica (McSweeney, Turnbull and Hough, 2008).

Immigrants have advantages in exporting, with better knowledge of potential sellers and corruption opportunities. Few potential US importers speak any of the languages of the Golden Triangle (Myanmar, Laos and Thailand); English has more currency in Pakistan but not much in Afghanistan. Corrupt officials may be much more at ease in dealing with traffickers whose families they can hold in mutual hostage. Moreover, non-native traffickers are likely to be conspicuous in the growing regions. Nor are the exporters merely agents for wealthy country nations, in sharp contrast to the international trade in refined agricultural products. Khun Sa, an exotic figure associated with irredentist ethnic groups on the periphery of Myanmar was the dominant figure in opium exports from the Golden

[14] In 1991 Nigerian nationals accounted for 60 percent of the heroin seized at JFK Airport, the principal international airport for New York City (Akyeampong, 2005).

[15] Note that, as expected, the drugs travel with passengers rather than cargo, since Nigerian exports apart from oil, are modest.

Triangle for many years (Booth, 1996). The Colombian cocaine trade has spawned some spectacular figures, such as Pablo Escobar and Carlos Lehder, all of them of Colombian descent. If there are major US or European exporters in the source countries, they have managed to escape detection.

Cannabis smuggling accounts, as already noted, for a modest share of total traffic. Gamella & Rodrigo (2008) in the only detailed analysis of this smuggling, from Morocco, describe an industry which is once again characterized by many small enterprises, though they describe two major entrepreneurs who acquired prominence before being convicted and incarcerated by the government of Morocco. For ATS we were unable to find any systematic research on smuggling activities.

The smuggling sector is where great fortunes appear to be made. Most prominent have been the Colombian entrepreneurs such as Carlos Lehder and Pablo Escobar whose extravagant lifestyles provided an important part of the imagery of the failure of the state to prevent their accumulation of power and wealth. Though there are no documented estimates of their actual earnings, there is no doubt that they accumulated many hundreds of millions of Euros during their careers. Khun Sa, the dominant figure in Myanmar's heroin industry (both production and exporting) also became extraordinarily wealthy and was able to negotiate with the national government an exit from the trade that may well have involved payment of large sums. The principal figures in the Mexican drug trade, which is mostly smuggling to the U.S., are also reputed to have very large fortunes. Though Pearson & Hobbs (2001) in their study of mid-level distributors in Britain do not report income figures, they provide data that suggest some participants were making many hundreds of thousands of pounds per annum though merely middlemen.[16]

[16] For example one dealer was buying 1-2 kilograms of heroin per week at £21,000 per kilogram and selling it at £800-1,000 per ounce. Even at the lower of price figure this would yield about £7,000 per kilogram. If selling 1.5 kilograms per week that would yield roughly £500,000 per annum.

CHAPTER 4

Immigrants and trafficking in consumer countries

Dominance in the exporting sector does not imply dominance by the same nationalities in the smuggling business or in high level distribution in the consuming countries. However that seems to be the case for cocaine and heroin (Paoli & Reuter, 2008).

Immigrant communities have substantial advantages in the consuming country as well as their own. For example, their communities are likely to provide fewer co-operations with the police. Even language can be a major asset; for example, few police departments are able to conduct effective wiretaps or other electronic surveillances of various Chinese languages. They have better opportunities for exit and weaker licit market opportunities than most of the native population. Continuing immigration can serve as a source of new entrepreneurs and reduce the effectiveness of enforcement interventions, as may have been the case with organized crime and Italian immigration in the early part of the 20th century.

Many wealthy nations see foreign groups as critical to the import of drugs. Table 2 lists a few consumer countries and the immigrant groups thought to play a major role in the heroin or cocaine industry:

Table 2 Immigrant Groups involved in drug trafficking[17]

Consuming Country	Drug	Immigrant groups
Australia	Heroin	Chinese, Vietnamese
Denmark	Heroin	West African
Britain	Heroin	Turkish
France	Marijuana	Moroccan
Switzerland	Heroin	Balkan, Lebanese
United States	Cocaine	Colombian

Most of these associations are easily explicable, since the immigrant groups come from the trafficking regions. There are few Afghanis in Britain but many immigrants from the neighbouring Pakistan. Morocco a traditional producer and consumer of hashish, has sent many emigrants to France. The Balkans has long been a transhipment area for heroin entering Europe. The only one that is difficult to explain is the involvement of West Africans in the Scandinavian heroin trade but that may reflect the considerations discussed in the Smuggling section.

[17] These broad statements come from interviews with officials and researchers in these nations, as well as the literature, much of it not scholarly.

The European literature is particularly rich and consistent on the role of immigrants. For example, Killias (1997) reports the dominance of immigrants in every level of the drug trade in Zurich; "In 1992, in Zurich Canton, Swiss nationals were only 37 percent of suspected drug traffickers and 14 percent of suspected drug importers." (p 386). Interpol (n.d.) reports that seizures of heroin involving Turkish nationals accounted for 40 percent of the total 11.2 tonnes seized in 1996 in Europe. "The existence of Turkish communities, roughly totalling over 3 million in Western European countries, had given the opportunity among Turkish criminal groups to create a ready network for transport and redistribution of heroin in Western Europe." (p.18)

The variety of groups involved is impressive. Albrecht (1997; pp.64-65) reports on the shift in the nationality of drug sellers in Frankfurt. In the 1980s, there were many from Sub-Saharan Africa; intense enforcement eliminated these nationalities from the trade and they were then replaced by North Africans. Albanians are prominent in the Swiss market (Killias, 1997). Ruggiero (2000) supplements this finding through his study of the source country Albanian population, finding that drug dealing and importation are important activities for immigrants, many of whom go to Italy. Paoli & Reuter (2008) note that Albanians from Albania, Kosovo and Macedonia are all active in the trade, suggesting the importance of ethnic and kinship ties rather than nationality. Arlacchi 2004 notes that Albanian immigration to Western Europe totals almost 1.4 million, about 20 percent of the Albanian populations of the sending region.

Even in the United States, where traffickers are forced to be much more discreet than in the source country, it appears that the high levels of the cocaine trade are primarily the province of immigrant groups. That is, the principal figures in the import sector are not US nationals but come from the producer or transhipment countries; China, Colombia, Mexico for heroin; Colombia and Mexico for cocaine.

Paoli and Reuter (2008) suggest five factors that may explain why certain drug markets are dominated by particular immigrant groups associated with producing or transhipment countries: low socio-economic status and cultural marginalisation; a large Diaspora; strong family and locality ties; close proximity to the production and trafficking routes; lax enforcement in their home countries. It is also interesting that the immigrant role is specific to imported drugs (not synthetics) and to certain sales settings (mostly street markets rather than closed locations).

CHAPTER 5 The organisation of the trade

Though for a long time it was assumed that illegal drug markets were typically monopolized in fact monopoly control is rare: Desroches (2007) in a recent review noted that the available research on high level trafficking in Canada, the Netherlands, U.K. and U.S. points consistently to small organisations with limited scope of activities. Prior to 1980, it was widely believed that the Mafia had dominated the major illegal markets such as those for bookmaking and loan sharking, and even for heroin importation into New York City until the late 1960s (e.g., Cressey, 1969). Despite finding that some dealers within the U.S. have enormous incomes and traffic in large quantities, no researcher has found evidence, except on the most local basis (e.g., a few blocks), that a dealer organisation has the ability to exclude others or to set prices,[18] the hallmarks of market power (Katz & Rosen, 1994; Chapter 13).

Even at the trafficker level, market power seems elusive. Notwithstanding references to the Medellin and Cali "cartels", these groups seem to have been only loose syndicates of independent entrepreneurs, who sometimes collabourated but also had to compete with other, smaller, Colombian smuggling enterprises (Clawson and Lee, 1998: Epilogue). The small share of the retail price accounted for by all activities up to import is strong, but not conclusive, evidence of competition at this level.[19] The continuing decline of prices over an almost twenty year period at all levels of the market suggests that, if market power ever existed, it has now been dissipated. Thus there is no level at which policy makers need be worried that tough enforcement will lead to price declines because a cartel is broken, a matter raised thirty years ago by Tom Schelling in his classic paper on organized crime (Schelling, 1967). The explanation for the lack of market power may also be contained in Schelling's paper; the Mafia may have been collecting rents on behalf of corrupt police departments that had exclusive jurisdiction and little external scrutiny; those departments are less systemically corrupt and face substantial oversight from federal investigative agencies.

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[18] The best evidence is simply the ease with which new sellers enter and the speed with which they depart. There may be rents for various capacities but certainly no power to exclude.

[19] If demand is inelastic with respect to price, then a seller with market power can increase revenues and decrease costs by cutting production, until reaching a level at which the demand is elastic. Though the demand for cocaine and heroin may have elasticity of greater than one with respect to final price at current levels, it is very likely that that elasticity is less than one with respect to high level prices, though there are extreme models of price mark-up from import to trafficking which would yield a different result; see Caulkins (1990).

Some characteristics of smuggling organisations seem quite general. For example, smuggling is rarely integrated with downstream distribution activities. Organisations which import 250 kilogram shipments of cocaine do not distribute beyond the initial transaction, selling in loads of 10 kilograms or more. The explanation for this probably lies in risk management; lower level transactions are more visible and the purchasers less reliable. Integration thus increases risk of arrest. Only very small scale importers are likely to operate close to the retail level.

Markets for smuggling services contain many forms and sizes of organisation. A credible case can be made that the 1990s US cocaine market has been dominated by a few large organisations. For other eras, countries and drugs, smaller and more ephemeral organisations may account for a significant share of the total.

The remainder of this section describes different types of organisations that have functioned in the cocaine market as it has evolved in the U.S. over the last twenty-five years and currently operating in Europe.

5.1 The early U.S. cocaine market

Adler (1985) reported observations on 65 high level dealers and smugglers in Southern California, whom she and her husband met through contacts while in graduate school. Adler noted considerable range in the closeness and stability of relationships among participants. Some formed close and enduring partnerships that were quite exclusive; for example, one pilot was constantly being recruited by a smuggler neighbour but refused to work for him because of his loyalty to his regular employer (p 66). Other dealers, characterized as "less reputable", existed in a network of shifting alliances.

The organisations Adler studied were microenterprises. Those of cocaine dealers typically consisted of only two or three people. Marijuana, because it is bulkier, required more elabourate transportation organisations. She concluded that "this is not an arena dominated by a criminal syndicate but an illicit market populated by individuals and small groups of wheeler-dealers who operate competitively and entrepreneurially." (p 2).

Reuter & Haaga (1989) interviewed mid to high-level U.S. traffickers in cocaine and marijuana in the mid-1980s; the sample was recruited from low security federal prisons. They found importers that were small, opportunistic and niche-oriented. "All one needs is a good connection and a set of reliable customers." (p 39). Though many of those interviewed regarded themselves as part of an organisation, "most of the arrangements would be better described as small partnerships, in which each partner is also involved in trading on his own account, or as long-term, but not exclusive, supplier-customer relationships." (p 40).

Here is their account of one small scale importing operation:

> One couple residing in Florida would travel with another couple to South America, posing as tourists, and would then hand off their packages to the owner of a sailboat in a Caribbean port for delivery to a Florida location. The husband had a contact in Bolivia, whom he had met during a short stay in federal prison for a non-drug related offense. The sailboat owner was a friend

> of a friend, also tracing back to a contact made in prison. The two couples would part company after each trip, each taking a share of the proceeds….
>
> Thanks to prison and his former life as a small businessman, the husband … had enough contracts in different part of the country to get his large quantities of cocaine and Quaaludes distributed within a short time after arrival. In some five years of operation…about a dozen people had taken part (p 42-43).

Both Adler and Reuter and Haaga were describing the cocaine market in an early stage of its development. In 1978 cocaine consumption was estimated to be approximately 100 tons; by 1988 it had grown to approximately 300 tons (Everingham & Rydell, 1994). Prices had plunged, the consequence of the emergence of more efficient distribution systems. It seems plausible that the generally amateur, small scale smuggling operations described in the two studies, often involving well educated principals with at least modestly successful legitimate careers, had been replaced by more professional and large scale smuggling operations.

5.2 Colombian smuggling organisations

Fuentes (1998) has provided the most fine grained description of the operation of the high levels of the international drug trade since the shift to large scale smuggling; hence we provide more detail than for other studies. He relied on transcripts from court proceedings (including extensive wiretaps) on two major organisations and lengthy interviews with five senior traffickers, who have co-operated with federal agencies. These are accounts of organisations, and by participants, that were detected and punished. Thus they might be atypical. In fact both organisations had lasted for at least five years, while the informants had also been successful over even a longer period.

Each trafficking organisation accounted for a non-trivial share of the total cocaine market in the United States. On a monthly basis, a dozen or so customers bought in loads of hundreds of kilograms; a 250 kilogram purchase at $20,000 per kilo involves payment of $5 million. There were a number of multi-ton shipments from Colombia; during the period August 1991 and April 1992 five shipments totalling 20 tons were warehoused by one warehouse operation.[20] In the context of a market delivering about 300 tons to final users, these are substantial quantities.

Fuentes described organisations that were durable, bureaucratic, violent and strategic. For example, recruitment of new staff for U.S. operations was highly systematized, with interviews by senior traffickers in Colombia, and provision of collateral, in the form of identification of family members who could be held hostage. "References for prospective workers had to come from within the organisation." Non-Colombians were considered higher risk employees because it was more difficult to threaten them if they defected with money or drugs; providing familial details did help, though threats were harder to execute

[20] There is an ambiguity as to whether this total was for a single organisation or a confederation associated with Miguel Rodriguez-Orejuela, a principal figure in the Cali Cartel.

in the Dominican Republic than in Colombia. Recruitment was very selective. There was a strong preference for relatives in leadership positions and cell manager were usually well educated, with college degrees.

Exit was allowed, provided the circumstances did not arouse suspicion that the agent had defected to the police. Colombians who were recruited to work in the United States were issued visas that expired shortly after entry, so as to limit their mobility.

The system was designed to move shipments very rapidly, since inventory in the United States represented risk. Twenty four hours was the goal for getting rid of a shipment once it had reached the destination city. Stockpiles were held in Colombia, where the enforcement risk was vastly smaller. The organisations had their own domestic transportation systems, drivers who would carry shipments of 100 kilos or more for prices ranging from $300 to $1,000 per kilo, depending on the length of the trip.[21]

The scale of the organisation was impressive. One large cell was estimated to have 300 workers in it, occupying at least six identifiable roles; it was estimated to have employed a total of 1200 individuals during its lifetime. Most received modest salaries; $7,000 per month for cell manager, $2,000 for stash house sitter. Given the volume and margins for the organisation, that still generated annual incomes totalling millions of dollars for the principals.[22]

Natarajan (2000) describes a similarly large organisation. She documents one surprising phenomenon, namely that the principal U.S. operative talks to numerous individuals; twenty four are identified from wiretaps, including 15 customers. This is hardly consistent with maintaining low exposure, since any one of the fifteen can obtain relief from lengthy prison sentences through providing information about his supplier. Perhaps what we observe here is the endgame of successful operations that become increasingly confident of their own invulnerability.

5.3 European smuggling

The literature on drug smuggling in Europe is smaller than that on the U.S. market; Dorn, Levi and King (2005) provide a recent review.

There is evidence that smaller smuggling entities can still survive in the European market. Ruggiero and South (1995) describe opportunistic smugglers of less than a kilo of cocaine or hashish, concealing it in bicycles. Disposal of smaller quantities requires less organisational capacity; a single domestic customer may be sufficient. Given that the UK cocaine market has emerged much more recently, probably around 2000 as a mass market, it is perhaps useful in this respect to also consider the study by Pearson and Hobbs (2002) of the "middle market" for cocaine in the U.K. as paralleling the work of Adler and Reuter and Haaga. They also find no evidence of large and hierarchical organisations in the cocaine trade but rather evidence of networks of traders.

[21] This appeared not to be so much compensation for longer time as for the number of potential police encounters.

[22] This vague statement is all that can be gleaned from either Fuentes or Natarajan (forthcoming).

However European heroin seizures of more than 25 kilograms are regularly reported. For example, Interpol reported in 1996 8 seizures of between 65 kilograms and 373 kilograms, totalling over 1 ton, from truck traffic alone. Other large seizures were made at ports; for example in May and June of 1996 reported seizures included 217 kg (Venice), 108 kg (Madrid [sic]) and 134 kg (Ipsala, Turkey) (Interpol, p 10).

It is impossible to systematically estimate what share of total European heroin imports are accounted for by large shipments i.e. groups with the financial, organisational and personnel capacities to assemble, purchase, ship and distribute large quantities. Large shipments appear to account for the majority of all heroin seized but that could reflect the higher per kilo risk associated with larger bundles.

5.4 Drug smuggling and legitimate institutions

If drugs travel in legitimate commerce and traffic, then transportation companies, as well as financial institutions, may be active accomplices. For example, American Airlines has paid substantial fines in the past for inadequate monitoring; its planes were importing clandestine cocaine shipments. Revelations at the Miami International Airport in the late 1990s showed that employees of the airline have continued to find opportunities for large scale smuggling; these ones involved baggage handlers at the U.S. landing point.

Corruption in the consuming countries seems to be less central to the business, an assertion that arouses considerable scepticism in producer countries. Corruption, like scientific hypotheses, presents a problem of epistemological asymmetry. Scientific hypotheses can only be disproved, not proven; corruption can be found but its existence never disproved. Nonetheless, U.S. prosecutors pursue corrupt agents with considerable zeal when they find them; at the same time the overlapping authority of enforcement agencies creates a situation in which any corrupt agent, no matter how well protected in her own department, has to be concerned with possible investigation by another agency. The market for corruption will shrink in such an environment. In many Western European countries with large drug markets, such as the United Kingdom and Switzerland, there simply is a dearth of credible corruption allegations beyond the occasional individual police officer who takes drugs or money.

CHAPTER 6 Retail markets

The final sale of drugs to users is the sector accounting for most of the enforcement effort, participants and revenues. It is the easiest and best studied sector of the market, resulting in studies in many Western countries. Even ATS markets are starting to produce studies on retailing (e.g. Massari, 2005).

The large fraction of sellers operating at the retail level is simply a consequence of the incentives for concealment, which lead to a very tiered distribution system. High level dealers will seek to sell to small numbers of customers in order to reduce the number of potential informants against them. It is plausible, though empirically untested, that the number of customers a dealer is willing to transact with will rise as the drug moves down the distribution system; since the higher level dealers earn more and face higher penalties if caught, they are likely to be more cautious than those further down the distribution system. If each high level dealer will transaction with, say, only five customers (themselves dealers) and there are just three distribution levels in the market, retailers will account for almost five sixths of sellers. Thus is it hardly surprising that most of those who are incarcerated for drug selling operate at the bottom of the system.

The low level of earnings of participants in the retail markets is shown in a number of studies. Levitt and Venkatesh (2000) used the financial records of a cocaine dealing organisation in Chicago to show that most participants earned less than the minimum wage; they worked in the organisation in the hope of rising to the top, where earnings were very large indeed. Reuter, MacCoun and Murphy, collecting data ten years earlier when the crack and cocaine markets in Washington, D.C. were near their peak, found that street level dealers earned more than the minimum wage but still quite modest sums, in part because they were able to work profitably only for a few hours each week. Paoli (2000) collecting data in Frankfurt and Milan, also reported modest earnings.

The high share of the retail price accounted for by low level distributors is easily explained in the standard risk compensation model used by economists. Assume that a higher level trafficker sells 1 kilogram of cocaine and has a 1 percent probability of being imprisoned for one year as a result of the transaction; the rich trafficker values a year in prison at 100,000 Euros. Assume a retailer sells 1 gram of cocaine and has only a 1 in 1,000 chance of the same imprisonment; he values a year in prison at 25,000 Euros. The trafficker will charge 1 Euro per gram to cover the risk, while the retailer, even though he has a lower chance of being jailed and values that less highly, needs 25 Euros to cover the risk associated with one gram. The figures are intended to be illustrative only.

Retail markets are characterized by varying levels of violence. Coomber & Maher (2007) interviewing participants in the two major street markets in Sydney, Australia, found that few felt threatened or had experienced violence. Bocerus (2007) studying Frankfurt's immigrant drug sellers, from Islamic countries, reports minimal use of weapons and that violence was confined to disputes about honour rather than business. On the other hand, Reuter, MacCoun and Murphy (1990) estimated that in Washington D.C. at the end of the 1980s a dealer had a roughly one in 70 chance of being killed in the trade; the risk of serious injury was about one in 14. The higher levels of lethal violence in the United States generally, particularly gun violence, may explain the higher violence of the drug trade.

Much of the retailing of cannabis and ecstasy seems to take place not in formal markets and through arms-length transactions. Coomber & Turnbull (2007) report that most of their sample of 192 cannabis users in England obtained the drug through friends. Caulkins & Pacula (2006) report a similar phenomenon in their analysis of cannabis acquisition in the U.S. National Survey on Drug Use and Health.

CHAPTER 7 Concluding comments

Drug markets lend themselves to mythologising, because they are difficult to study and because the effects of the drugs themselves create a good deal of glamour to what is in fact a banal and grubby business. The common view that drug markets are lucrative, violent and monopolistic is, for most drugs, places and time exactly wrong. Mostly participants earn low incomes from engaging in routine activities in the context of small organisations with no capacity to control their customers. There are important exceptions at the higher levels of the markets, particularly for cocaine and heroin, in which a few individuals earn large incomes and control great violence. These constitute a specific social problem which needs to be dealt with but nothing is gained by generalising the exceptional few to the mass market in which millions of participants are engaged on a daily basis.

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