

Part 4:

# The illicit drug industry: production, trafficking and distribution



## INTRODUCTION

As Part 2 showed, there are many explanations for why people *consume* drugs, but a single word embodies the reason for which they are *sold*: profits. Strangely, despite this pre-eminence, economic analysis has only recently been rigorously applied to the study of illicit drugs. The delay is primarily due to the difficulty of gauging an 'underground' economy. How can one obtain reliable information on transactions which are invariably conducted in secrecy?

Part 4 examines illicit drug production and trafficking from an economic perspective, and in doing so, introduces the concept of an illicit drug industry. In economic terms, an industry is defined by a set of suppliers who cater to a given market, and by the technological and strategic structure which makes their decisions interdependent. The justification for calling illicit drugs an industry is firstly; that there is a great demand for the product in question, therefore a market for illicit drugs exists, and secondly; meeting this demand involves an extensive and complex process of production, manufacture, distribution and investment. If broken down and analyzed in economic terms, the illicit drugs industry yields interesting points of comparison with the structures and operation of legitimate business practice.

This chapter aims to describe the main industrial sectors associated with the illicit drugs market, the interaction between the various stages and activities that comprise the industry and how these relate to the final market product. The later sections of the chapter describe some of the macro-economic impacts of the drug industry on the legitimate economy.

### 4.1. THE ORGANIZATIONAL STRUCTURE AND SIZE OF THE ILLICIT DRUG INDUSTRY

In some respects, the illicit drug industry resembles that of other agricultural products. Crops are cultivated on large and small land holdings. The

harvested product is sold wholesale in a market place or bought directly from the farmer. The product moves through the various stages of processing and manufacturing, either of which may take place on, or near the site of primary cultivation. The product value increases at each phase of supply/production. The production, manufacture and trade of psychoactive drugs also depends on a variety of other goods – equipment and precursor chemicals – which may be provided by those who are either marginally or unknowingly involved in the industry.

The most prominent trafficking organizations appear to be characterized by highly centralized management control at the upper echelons, with compartmentalization of functions and task specialization at the lower levels. A seemingly endless stream of willing recruits for the most menial tasks provides the industry with a key input for its near constant growth – inexpensive labour. In addition, the industry requires a wide range of specialized personnel including chemists, chemical engineers, pilots, communication specialists, money launderers, accountants, lawyers, security guards and 'hit men'.

Another common feature – especially of the cocaine industry – is vertical integration, that is, some, or all of the stages along which the drug passes from source to consumer are controlled by the same network. Most small and medium-sized suppliers prefer to work through established marketing networks rather than experiment with unknown entities.

The profits to be made in the illicit drugs industry are such that they are barely dented by large scale seizures of the product on its way to market. In the course of the 1990s, it is thought that about one third of all the cocaine trafficked has been intercepted,<sup>1</sup> yet the industry has continued to expand. Traffickers have ample incentive to bear the risks and costs of interception, since profits on a mere fraction of the drugs successfully trafficked can cover the costs of the lost cargo. A UNDCP report conservatively estimates that at least 75 percent of international drug shipments would need to be intercepted in order to substantially reduce the profitability of drug trafficking.<sup>2</sup>

Many estimates have been made of the total revenue accruing to the illicit drug industry – most

range from US\$300bn<sup>a</sup> to US\$500bn. However a growing body of evidence suggests that the true figure lies somewhere around the US\$400bn level.<sup>3</sup> As demonstrated in Fig. 4.1, a US\$400bn turnover would be equivalent to approximately eight percent of total international trade. In 1994 this figure would have been larger than the international trade

*Economic analysis of an underground economy is necessarily problematic.*

in iron and steel, and motor vehicles, and about the same size as the total international trade in textiles (7.5 percent of total international trade).<sup>4</sup> As opposed to estimates of turnover, estimates of profitability would require a more detailed understanding of demand and supply variables such as the size of the consumer market, the costs of production, volume, and wholesale and retail prices. Few of these variables are known at present. Nevertheless, in recent years, a number of studies have come up with relatively useful estimates. One of these, based on average wholesale and retail prices, estimates gross profit margins at retail level of methamphetamine, crack cocaine and heroin at 240%, 300% and 100% of wholesale prices, respectively.<sup>5</sup>

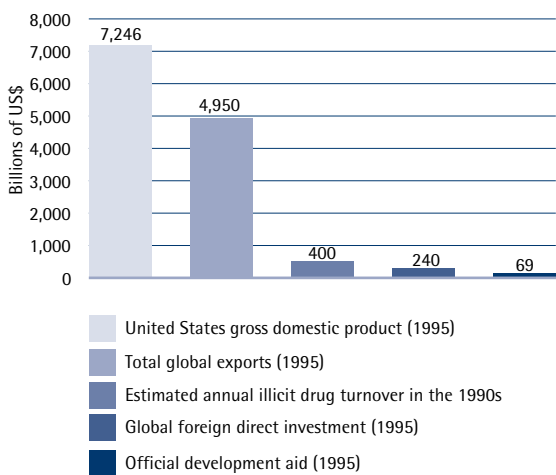
Knowing the extent of consumption is fundamental to any accurate assessment not only of profitability, but of industry volume. Yet the extent of illicit drug consumption is the least known element of an industry that resists efforts to understand it. Even the most reliable tool of policy makers, the survey, has fundamental weaknesses and is so costly to conduct that very few countries can afford to do so at national level. For this reason estimates of industry size are necessarily accompanied by large margins of error, and are strongly influenced by supply-side rather than demand-side indicators.

**Determinants of the illicit drug industry: preferences, technology, factor endowments, and institutions**

One of the primary benefits of studying illicit drugs from an industry perspective is the existence of an

analytical framework that defines an industry in terms of supply and demand. The components of the analytical framework can be explained in terms of *preferences, technology, factor endowments* and *institutions*. *Preferences* is the term used by economists to describe the objectives of consumers. It may be understood as the nature of consumption or demand, taking into account the idiosyncratic aspects of illicit drug use which drive demand, and which broadly determine the prices that individuals are willing to pay for the industry's products. (See section on the elasticity of demand). In the illicit drug industry, *technology* determines where and how the product can be produced; *factor endowments* determine which economic actors will engage in the production/manufacture of the product; and *institutions*, by determining the legal status of drugs, thereby establish the degree of risk which is run by those participating in industry-related activities. In as much as they affect risk and price, these factors are of particular relevance in efforts to understand the economic impact of the illicit drug industry.

**Fig. 4.1: World International Drug Trade (Comparative International Aggregates).**



Sources: UNDCP, IMF, Organization for Economic Cooperation and Development

a) bn = billion, i.e. 10<sup>9</sup>, throughout this report.

## Price elasticity of demand for illicit narcotic drugs

Generally speaking, the price elasticity of demand is the percentage by which demand responds to a change in price: i.e. if heroin had a price elasticity of  $-1$ , then a 1% increase in price would cause a 1% decrease in demand. If the elasticity were, for example,  $-0.1$ , then it would require a 10% increase in price to produce a 1% decrease in demand. Elasticities for different goods and conditions normally range between inelastic (little influence upon demand) to elastic (significant influence of prices upon demand); perfect inelasticity (price has no effect on demand at any level) and perfect elasticity, exist almost only theoretically. The extent to which goods are necessary for a consumer, and the extent to which substitute goods are available, are the primary influences on price elasticity.

Evidence for the price elasticities of cocaine and heroin are mainly theoretical or drawn from studies of other goods. Perfect price inelasticity cannot exist for drugs. Research on commodities with some of the same qualities, such as alcohol and tobacco has yielded a similar conclusion. It was originally thought that due to their addictive properties, demand was fairly inelastic. Therefore, heroin was thought to have the lowest elasticity and cannabis was thought to have the highest: the addictive nature of the drugs (implying price is a secondary consideration in the decision to purchase) being the main argument in support of relative inelasticity. A second, and weaker argument has been that certain 'types' of people take the drugs regardless.

It is now argued, however, that addiction is not nearly as compelling as often thought. Drug users can, and do stop use – and users have been known to vary consumption according to the money available to them. Furthermore, the addiction-driven-purchase argument would not apply to experimental users who are not yet addicted, leaving out an important percentage of the total consumer market. A number of theoretical studies examining price elasticities for heroin, cocaine and cannabis, took the relative costs of each drug into account. Based on the theoretical considerations set forth in the studies, the price elasticity of cannabis was concluded to be low at current price levels, while that of heroin was considered high.

One reason for these findings may be that the average expenditure on cannabis represents a smaller proportion of disposable income compared to other drugs. Thus, only a massive increase in price would have a significant impact on demand. Cocaine on the other hand, is thought to have a lower, short-term price elasticity, but a moderate long-term elasticity. The explanation offered was the following: for average income-earners, heavy cocaine use requires a larger share of disposable income. In the short-term, current users who are dependent, will only minimally change their consumption patterns, but in the longer term, higher prices may discourage heavy use, or any significant increase in use, as compared to current use.

Other models explore the differences in price elasticity of demand over price ranges and some of these conclude that the elasticity varies over price ranges. Consumption by occasional users may be more price-elastic than that of addicts when prices rise. At high prices, addicts may not be able to fund their use, and may be more likely to resort to treatment programs. This would mean that at higher prices drugs are more price elastic. These theoretical findings have been confirmed by a recent empirical study carried out by the National Bureau of Economic Research. The study found high price elasticities for heroin (the most expensive of the drugs considered), medium elasticities for cocaine and low elasticities for cannabis (the least expensive). The calculated price elasticities for annual prevalence – i.e. change in number of annual abusers as a result of price changes – amounted to  $-0.90$  for heroin,  $-0.55$  for cocaine and  $-0.06$  for cannabis. The calculated price elasticities for monthly prevalence were  $-0.80$  for heroin,  $-0.36$  for cocaine, and  $-0.04$  for cannabis.

Still more research and knowledge into the behaviour of consumers is probably needed. Their price responsiveness is generally recognized to be more complex than previously thought. For example, it is known that when prices fall, initiates may begin drug use which they cannot stop when prices rise. However if prices increase, substitution of one drug for another might increase the price elasticity of demand for a drug, though it may not decrease the overall extent of drug use.

## REFERENCES

Chaloupka, F., Saffer, H., 'The Demand for Illicit Drugs,' National Bureau of Economic Research, Working Paper No. 5238, Cambridge, MA, August 1995; Farrell, G., Mansur, K., Tullis, M., 'Cocaine and Heroin in Europe 1983 – 93, A Cross-national Comparison of Trafficking and Prices,' *The British Journal of Criminology*, Vol.36, No. 2, Spring 1996; Moore, M. 'Supply Reduction and Drug Law Enforcement,' in M. Tonry and J.Q. Wilson, eds., *Crime and Justice: A Review of Research*. University of Chicago Press, Chicago, 1990; Reuter, P., and Kleiman, M. A. R., 'Risks and Prices: An Economic Analysis of Drug Enforcement,' M. Tonry and N. Morris eds., *The Oxford Handbook of Criminology*. Clarendon Press, Oxford, 1994; Wagstaff, A., and Maynard, A., *Economic Aspects of the Illicit Drug Market and Drug Enforcement Policies in the United Kingdom*. Home Office Research Study No. 95. Home Office, London.

### Risk as a determinant of price

Price theory is made up of two major components, demand and supply. The relationship of price to demand is discussed in Part 5, Drugs and Public Policy, in particular in 'The Regulation-Legalization Debate'; this section looks primarily at the supply side determinants of price in the illicit drug industry.

For conventional agricultural commodities, the availability of factors such as land, labour and capital are important determinants of a given country's pattern of international trade. In contrast, prices and profits in the illicit drug industry do not appear to be proportional to factor costs, but seem instead to be proportionately related to the risks and the degree of concentration at each stage of production and marketing.<sup>6</sup> Thus a price increase in the early stages of the chain (due to crop eradication, for instance) would only marginally increase final retail values as long as

*Demand is influenced by the addictive properties of the drug industry's products.*

perceived risk remained constant, and would not lead to the cumulative price hikes that might be expected if fixed percentage mark-ups were the standard practice. The price of the commodity soars the closer it gets to its final destination, with the majority of the value being added subsequent to export at the wholesale stage (See Table 1); this is in line with the growing risks involved.



Destroying seized cocaine.  
Photo: UNDCP

**Table 1. Prices from farmgate to retail market.**

#### Heroin

*Opium is reduced to an impure morphine base in laboratories near production sites in the Golden Triangle, the Golden Crescent, Colombia and Mexico. It may also be then transferred to more sophisticated laboratories where it is refined to morphine and/or heroin, and sent to markets in the USA and Europe. Prices increase dramatically in the wholesale export and retail stages. The prices quoted below are for opium originating in Pakistan.<sup>7</sup>*

Opium (farmgate Pakistan)	\$	90/kg**
Heroin (Domestic wholesale)	\$	2,870/kg
Wholesale in the U.S.	\$	80,000/kg
Street/final retail price US; purity 40%*	\$	290,000/kg

Source: UNDCP. "The Illicit Opiate Industry of Pakistan," Draft Study, 1994.

\*According to a DEA document, the nationwide average purity for retail level heroin for 1994 was 40%. \*\*UNDCP.

#### Cocaine

*Grown mostly in Peru, Bolivia and Colombia, coca leaves are refined into coca paste at primitive facilities nearby. The paste is flown to secret laboratories where it is processed first into cocaine base, then into cocaine hydrochloride (the pure white powder that is smuggled abroad). Wholesalers dilute it with an inert substance before passing it on to street dealers, who cut it again. Price structures resemble an inverse pyramid, with greatest profits to be made at the wholesale and retail levels. As is the case with heroin, prices increase dramatically in the wholesale export and retail stages. The prices which follow are for cocaine originating in Bolivia.<sup>8</sup>*

Coca Leaves	\$	610/kg
Cocaine Base	\$	860/kg
Cocaine hydrochloride	\$	1,500/kg
Wholesale in the U.S. purity 83%	\$	25,250/kg
Street/final retail price in the USA Crack	\$	50,000/kg
Cocaine Powder purity 65%	\$	110,000/kg

Source: Antezana, O., "Bolivia's Coca-cocaine Sub-Economy in 1995: A Computer Model", USAID Bolivia, May 1996. "The Supply of Illicit Drugs into the United States", August 1995,