

Organisational principles of the global drug economy

*Daniel Brombacher*¹

1. Introduction: dissecting the narcotics value chains

The global drug economy can be considered one of the most studied illicit economies, if not the best studied. It is highly visible in media coverage and popular culture. While legal and ethical considerations on internationally scheduled drugs may vary widely, general attention on the issue is constantly high across countries and regions. The drug economy is arguably the largest and most harmful of all illicit economies, considering prevalence rates across the globe, estimated financial turnover, factors such as homicide and overdose-related death rates, the spread of blood-borne diseases, the relationship with armed conflict in source countries or corruption related to the drug market. More recently, the massive negative impact of drug markets on the environment is also receiving more attention (Brombacher, Garzón and Vélez 2021). Analysis shows that roughly 10 % of all UN Security Council resolutions over the past two decades have made reference to drug trafficking, only surpassed by arms trafficking, another highly problematic form of organised crime (Reitano 2020: 127). According to a recent report, almost 40 % of all organised crime groups reported in the European Union are running operations in the field of illegal drugs (Europol 2021: 18). Given the long-standing relevance of the issue, the international drug control regime, based on three UN conventions (1961, 1971, 1988), is built on a basis of almost universal ratification.

However, this regime has come under heavy pressure. The UN drug control system as such is frequently understood to be synonymous with the war on drugs and its high costs (Collins 2016: 10). As a consequence of this perception, the regime is being increasingly challenged by reformist governments, critical media and a powerful global civil society movement.

1 Head, Global Partnership on Drug Policies and Development (GPPDP) at Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Berlin, Germany. The chapter reflects exclusively the opinions of the author and not those of the Federal Ministry for Economic Cooperation and Development (BMZ) or GIZ GmbH.

Mostly, yet not exclusively, the reformist impetus focuses on decriminalisation or regulatory efforts in the field of recreational and medical cannabis, even though the latter is within the scope of the 1961 UN Single Convention on Narcotic Drugs, while the former is not.

The normative monopoly of the international drug control system and its main proponents is being tested by increasingly bold domestic legal deviations and an ever-growing spectrum of drug policy positions between the rather extreme positions of a war on drugs and regime collapse. At the UN level, drug policy decision-making is traditionally governed by consensus and unanimity rule. The heterogeneous range of positions and attitudes of member states towards drugs, spanning from death penalty and life-long sentences for minor narcotics offences to complete decriminalisation, has made decision-making more challenging. While some take record opioid overdose-induced death rates, record amphetamine seizures and rampant violence as a justification for reinforcing the drug control system, others interpret this evidence as a sign of regime failure.

Despite the 24/7 coverage of drug issues around the globe, the intense political debates and the campaigning around the matter, this chapter argues that most of the global awareness is still focusing on a rather limited section of the real nature of the global illegal drug economy. Our picture of why drug value chains partly or entirely emerge in one country and not in another, what the key organisational principles behind the supply chains are and how the market is being governed is still incomplete and based on a small set of standard indicators. A major share of the attention is focusing on cannabis as the most widely used drug, as well as other plant-based substances. There are countless reports, documentaries, press articles and studies on drug value chains that form a global economy, following a logic from plant to plate, from source countries to retail markets. However, both the popular and the scientific accounts of the global drug trade are per se predominantly positivist, as they focus on the most visible elements of the global drug economy, i.e. the cultivation of drug crops such as coca leaf and opium poppy, substance seizures, drug market-related violence and clinically relevant problematic drug use. Detected drug crop fields, seizures, captures and homicides along the supply chain work like a light switch that is turned on and off, briefly shedding light on individual transactions of an otherwise shadowy business. However, only in a few cases does such ad hoc illumination allow a thorough understanding of the functional conditions of this economy to be developed. Furthermore, these indicators tend to be misinterpreted, and partly weak conclusions are being drawn.

The common notion of the global drug trade is thus rather simplistic and is mostly a consequence of a lack of evidence, reducing the actual complexity of the drug value chains to their perceptible segments. A pabloescobarised cliché of the global drug economy is still prevalent, replicating the idea of a highly controlled and criminally regulated global narcotics business in which power, income and risk are monopolised by a few. While such popular patterns of interpretation apply to most illicit economies, they seem to be particularly harmful in the field of drugs, as policies also frequently draw on these notions.

At times, the current international debate on drugs creates the impression that the one-size-fits-all solution of the world drug problem lies either in the legal status of cannabis or in the detention of all drug kingpins from Barranquilla to Berlin. This chapter seeks to show that this impression is misleading and distorts the most pressing structural issues underlying the global drug economy and its high costs, such as the relationship between armed conflict and the drug trade, the massive effects on public health, corruption and the undermining and even capture of state institutions. There is a clear link between flourishing drug markets in countries of origin and transit and development conditions; however, these structural development factors mostly remain a “blind spot” in the global discussion around drugs (Buxton 2020), despite some recent changes in the discourse.

After a brief overview of the state of affairs of the global drug economy and drug policies, the chapter starts with an introduction to the common structural features of the global drug value chains, focusing on the three most relevant plant-based drug value chains, cannabis, coca-cocaine and opium poppy-heroin. In the following section, the key supply-side indicators prevalent in any effort to map the global narcotics trade are analysed: Seizures, price and purity data as well as drug market-related violence. The purpose is to gain a better understanding of the evidence they actually provide and what conclusions on the nature of the global drug economy can be drawn from them. Finally, the subsequent section contrasts structural and actor-based models to understand what the relevant drivers of global drug markets are. Based on this analysis, the conclusion briefly contrasts currently dominant global supply-side policies with the findings of this discussion, assessing potentially new directions of the global drug control efforts.

2. *The global drug economy and the global response: state of affairs*

The current UN drug control regime is built on the three UN drug control conventions of 1961, 1971 and 1988; however, its origins date back to the Shanghai Opium Commission in 1909 as the first multilateral effort with regime-building intent (Buxton 2010: 62). Its prohibitionist character was originally based on public health concerns. These concerns are manifest in the narrative to build a drug-free world, the overall goal of the UN General Assembly Special Session on Drugs (UNGASS) 1998 and the frequent commitment to a society free of drug abuse, as enshrined in countless resolutions of the UN Commission on Narcotic Drugs (CND). While public health concerns are still a guiding foundation of the UN drug control regime, the normative scope of the regime has constantly evolved in the past decades, linking the drug issue to a plethora of other global challenges, including violence, organised crime, armed conflict, corruption, human rights abuses as well as racial and gender inequalities linked to drug enforcement.

The implementation of the UN drug control regime and of the respective domestic legislation is costly. In 2008, the annual costs of the war on drugs were estimated to amount to up to US\$100 billion (Open Society Foundations and Transform Drug Policy Foundation 2008). Some estimates of the cost to the US alone come up with a potential cost of US\$ one trillion by summing up the different strands of counternarcotic efforts since 1971 (Pearl 2018). While most of these estimates focus on public budgets for law enforcement efforts and are limited to the US, similar though lower investments are to be expected from other countries along the major drug value chains.

Usually, the performance of the drug control regime is measured against supply- and demand- side indicators. On the supply side, this includes the seizures of illegal drugs, captures of traffickers and dealers, price and purity data, drug-related offences and violence, the area under cultivation of drug crops and the number of detected production sites for both plant-based and synthetic drugs. On the demand side, overdose rates, infection rates of blood-borne diseases, prevalence data on drug use or wastewater analysis are taken as indicators of how the global drug economy evolves.

In 2019, around 275 million people were reported by UN member states to have used drugs at least once in the past year. This number is more than 20 % higher than in 2010. In 2019, almost 50,000 died of an opioid-related overdose in the US alone, almost tenfold the figure of 2010. A total of 18 million people died of drug-related disorders in 2019 world-

wide. While coca cultivation in the Andes has recently stabilised and even slightly decreased, cocaine production is at a historical high due to improved production methods that doubled the production output from 2015 to 2019. The cultivation of opium poppy, the key ingredient for heroin production, has been mostly stable at high levels in Afghanistan. The volume of cocaine seized in the European Union is at unprecedented levels, even though prices remain low and purity is high on average. Drug market-related violence is consistently high in major producing and trafficking hubs such as Colombia, Brazil and Mexico, while European countries have also lately faced an increased level of drug market-inherent violence, for instance Belgium and the Netherlands, a tendency that has intensified during the global COVID-19 pandemic (Europol 2021: 22; UN-ODC 2021a: 22–68; EMCDDA/Europol 2019: 127; EMCDDA/Europol 2020: 8).

Against most of these indicators, global drug control seems to fare poorly in its efforts to curb the supply of and reduce the demand for illegal drugs. However, while these indicators are widely used to assess global drug control efforts, an analysis built solely on these indicators tends to be misleading. While demand-side indicators, at least in a certain share of countries that annually report them to the UN, tend to be based on actual surveys and therefore on a sound quantitative basis, supply-side data are less robust. This chapter will show that the sole use of positivist indicators, i.e. seizures, captures and narcotics-related offences in general, tends to be of little use for an analysis of the true nature and development of drug markets and their inherent value chains. The same applies to drug market-related violence, as it does not provide any evidence for the volume of a drug market but is mostly a dependent variable of the structure of organised crime groups and of the markets in which they interact. Wholesale and retail prices as well as data on purity reflect the risk associated with illegal markets well, and not merely the supply and demand.

The following section will analyse these concerns in more depth, as they lie at the core of the understanding of the organisational principles of drug economies that connect the Global South with Europe and other major consumer markets. The analysis focuses on three major drug value chains that connect Europe to source countries in Asia, Latin America and Southeastern Europe, namely those for heroin, cocaine and cannabis.

3. The organisation of the drug value chains: common features

3.1. Terminology

In this chapter, the term “global drug economy” reflects the totality of market transactions that involve internationally scheduled narcotic drugs, including those cases where the legal character of a substance may fluctuate depending on jurisdictions. Therefore, the global drug economy is understood here as being composed of a highly diverse set of individual drug markets that may be local, national, regional or global by nature.

At the same time, drug markets as constitutive elements of the global drug economy are supplied by value chains that reflect the entire range of transactions from cultivation, production and manufacturing to wholesale and retailing. The organisation of these value chains is the key focus of this chapter. While most of the attention on the global drug economy is directed towards the illegal segments of the drug markets, the global drug economy is based on a blending of both legal and illegal as well as licit and illicit transactions. In the case of the global cocaine economy, with special legal regimes for coca cultivation in Bolivia and Peru, a certain share of production is legal but widely considered illicit at the national and international level. In the case of opium poppy and cannabis cultivation, there are frequently situations where traditional cultivation is illegal *de iure* but widely perceived to be licit. In the Dutch cannabis economy, use of cannabis is legally accepted by authorities and therefore licit, while the back-door supply of coffee shops is delivered through an illegal value chain run by organised crime groups. In the case of synthetic opioids like tramadol, the product and trade are legal in general terms, trafficking and counterfeiting are illegal, but its use is considered licit in many African countries. Furthermore, while drug value chains frequently combine legal/licit and illegal/illicit elements, their structural embedding in the economy also creates a continuum of legality and illegality, most visibly in the area of the financial flows that link the illegal drug markets with legal economies. Therefore, a value chain perspective on the global drug economy and its (sub)markets allows the organisational nature of supply chains and their potential interaction with legal markets to be analysed.

3.2. Geographical non-convergence of supply and demand

There is no such thing as a singular world drug problem. There is rather a plethora of local and national challenges that are directly or indirectly linked to the production, trafficking or use of scheduled narcotic drugs. While in Colombia, in Myanmar and formerly in Afghanistan the drug issue has been a major concern within counterinsurgency strategies, in Western Europe most of the attention lies on problematic use, while in Mexico the drug issue is rather considered to be a problem of organised crime, rampant violence and corruption. However, moving away from the traditional “problem perspective” on drugs towards a drug economy analysis shows that beyond the visible symptoms there are a few common denominators of the global drug markets that to a certain degree replicate themselves across different regions and substances.

The bulk of the either most used or most problematic drugs are plant-based substances: cannabis as the most widely used drug at both the global and the EU level, cocaine, heroin and other opiates. At the EU level, cannabis has by far the highest lifetime prevalence (almost 80 million citizens in 2019). The prevalence of heroin is comparatively low, but in 2019 heroin accounted for 76% of fatal overdoses in Europe. Cocaine has the second highest lifetime prevalence in Europe, reaching 14 million persons who used cocaine at least once. At the same time, the demand for treatment for cocaine-related problems is on the rise in Europe, potentially related to the increased level of purity and general availability (EMCDDA 2021a: 5–20). While synthetic drug use on a global and European scale has been increasing in recent years, there is also a growing production and market of plant-based methamphetamine, i.e. the harvesting of endemic ephedra in Afghanistan as a key herbal ingredient for methamphetamine (Mansfield and Soderholm 2020).

In the value chains of plant-based drugs, a pattern of geographical non-convergence of production and use or supply and demand prevails. Coca cultivation and cocaine production are concentrated in Colombia, Peru and Bolivia, with some anecdotal evidence of minor plantations that were lately detected in neighbouring countries as well as in Honduras and Mexico² (Insight Crime 2020; UNODC 2021a: 51). At the same time, the use of cocaine and other derivatives of the coca plant is, compared to major cocaine markets, a limited phenomenon in the major source countries. Also, the actual volume of traditional coca leaf usage is rather negligible

2 See Janowitz (2021).

in overall terms. The user populations are comparatively small, while the massive consumption of cocaine-based substances is concentrated in North America, southern South America and Europe as well as Oceania, which has the highest prevalence of cocaine use on a global scale (UNODC 2021a: 24). Therefore, given the huge geographical distance between the hubs of supply and demand, a set of globally organised supply chains is an essential characteristic of the global cocaine market.

A similar pattern applies to heroin, with some limitations. Afghanistan is the major opium poppy growing country in the world and thus the major source of supply for opiates on a global scale. According to UNODC, the second and third largest suppliers of opium-based substances are Myanmar and Mexico.³ There is certain evidence of opium poppy cultivation in more than 50 countries (UNODC 2021a: 51). Furthermore, in contrast to coca (with the exception of certain regions in Bolivia and a minor share of cultivation in Peru and Colombia), there is legal production of opium poppy for medical industrial purposes in a handful of countries, where a partial diversion of the harvest for illicit purposes is being reported (Brombacher 2013: 279–283), another example of the mingling of legal and illegal value chains within the global drug economy. While it is quite clear that coca cultivation is more concentrated than opium poppy cultivation, the massive extent of cultivation in Afghanistan makes it unlikely that any similar level of cultivation could remain undetected anywhere else. While prevalence of opiate use is extremely high in Afghanistan and also widespread in its neighbouring countries and Myanmar (UNODC 2021b), it is to be assumed that a major share of heroin production is trafficked to main consumer markets, including Europe. Therefore, the geographical reach of the heroin value chain is as wide as in the case of cocaine, though not divided by oceans. A similar pattern seems to apply to plant-based methamphetamine originating in Afghanistan. While there is evidence of user communities within neighbouring countries and the region, there has been increasing evidence of supply chains of Afghan methamphetamine to Eastern and Southern Africa, using well-established heroin trafficking routes out of the region (Mansfield and Soderholm 2020: 23; GI-TOC 2020).

3 However, the UN data reflects the data reported to the UN by its member states. While annual crop monitoring surveys are available for the major coca and opium producing countries, there is anecdotal evidence for relevant levels of opium poppy cultivation in other countries in Asia and Latin America that is not surveyed annually.

While cannabis is reported to be grown almost all over the world (UNODC 2021a: 51), still massive cultivation for transnational trafficking purposes is concentrated in a few source countries supplying adjacent major consumer markets. In the case of Europe, adding to the domestic, mostly indoor production within the EU, a key supply hub for herbal cannabis in the EU is Albania, while Morocco is considered to be the most important source country for cannabis resin trafficked into the EU (EMCDDA and Europol 2019: 82–83; Europol 2021: 47, EMCDDA 2021b: 5). In 2019, Spain and Morocco reported the globally highest levels of intercepted Cannabis resin (UNODC 2021a: 54). Even less nuanced than in the case of cocaine and heroin, the cannabis value chains also tend to span several countries and a major geographical area, thus establishing a more limited but still transnationally organised supply chain.

3.3. State authority, deterrence and illegal drug economies

At first glance, the plant-based drug value chains may appear to be similar to those of other agrarian commodities that are linked to Europe through transcontinental value chains, e.g. coffee, cocoa or bananas. However, the only true common denominator of legal and illegal commodity chains is the geographical divergence of main producer and consumer hubs, i.e. of supply and demand. The illegal markets constitute themselves in a very different manner than their legal peers. While on legal markets the stakeholders seek to reduce costs within their value chains (e.g. for labour, land, production, packaging, warehousing, transport) and to maximise profit, within illegal markets actors prioritise risk reduction in the way the value chain is organised, i.e. the risk of detection, seizure and legal sanctions. This is especially true for the narcotics trade, where a tight legal regime is imposed on trafficking in most of the world. Therefore, risk avoidance appears to be a key driving principle of illegal drug markets. The plant-to-powder chain in the drug economy is quite complex and requires many intermediary steps, all of which need to be low-risk in order not to put the entire production and commercialisation process at risk (Thoumi 2010: 198).

While even massive trafficking activities can rather easily be concealed in global trade logistics, the cultivation of drug crops is more difficult to hide, at least when major quantities are to be produced. Hence, massive cultivation of drug crops can only be run with an either weak or non-existent level of territorial control by public authorities. Formal laws and norms appear to be partly replaced in major source countries by com-

peting informal norms that legitimise involvement in the drug economy (Thoumi 2010: 197), i.e. that define the involvement in the illegal drug economy as legitimate. The fluid limits between illegal and legal coca or opium poppy growing in some countries where traditional or industrial production is legal (e.g. Bolivia, Peru; India, Turkey) reinforce the normative diversity that allows for the interplay of licit and illicit elements within the cocaine value chain as described above. A similar pattern is currently evolving through the proliferation of medical and recreational cannabis industries around the globe, sometimes with competing legal regimes even within the same jurisdiction and highly fluctuating perceptions of licitness and illicitness.

The expectation of impunity for narcotics offenses, partly based on normative diversity, appears to be the single most important explanatory factor for the emergence and persistence of an illegal drug economy. It is of secondary relevance how impunity is attained. Impunity, i.e. weak deterrence, may be established through a lack of territorial control, corruption, intimidation, organisational features of organised crime groups or concealment strategies. In major drug economies, most of the above-mentioned factors converge in a complex interplay, creating a “criminogenic environment” (Morselli, Turcotte and Tenti 2011: 166) and serving as pull factors for organised crime activities. All major source regions for illegal outdoor cannabis, coca and opium poppy are concentrated in areas with poor government control and weak deterrence capabilities or, as in the case of drug economies in conflict zones, sometimes no government control at all. This pattern applies to most of the coca cultivation on the eastern slopes of the Andes and in the Amazon basin and to cannabis cultivation in the Rif in Morocco, the Albanian Alps, Kandahar and Helmand in Afghanistan as well as Shan State in Myanmar, just to name a few. In these settings, the distinctive legal and illegal elements of the drug value chains become blurred.

Absence of territorial control by the government and therefore a lack of enforcement capabilities – and thus reduced risk – create a permissive environment where other productive factors of drug economies, such as cheap labour, expertise, proximity to trafficking hubs, organised crime or armed groups as commercial partners may develop their potential to build massive drug economies as in the case of cocaine, heroin and cannabis. Weak deterrence and an expectation of impunity paired with instable assessments of licitness and illicitness thus form the second defining structural condition of global drug value chains.

4. How to trace the illicit drug value chains: the positivist bias

If the geographical non-convergence of supply and demand and risk avoidance are key defining characteristics of global drug economies, how can the character and scope of drug value chains be described? Three of the most commonly applied supply-side indicators in the global debate are seizures of drugs, price and purity of illegally trafficked substances as well as drug market-related violence.

4.1. Seizures

While drug crop cultivation as territorially extended agriculture is usually visible and therefore more prone to be reported even under conditions of weak territorial state authority, drug shipments are harder to detect, despite their transnational reach. Usually hidden in containers, in lorries or on planes, mingled with legitimate goods or even transported in semisubmersibles and submarines, once they leave the cultivation areas illegal drugs tend to remain invisible until they reach their final destination retail markets. Even though frequent reports of seizures may convey a different message at first glance, only a minor share of the global drug trade can be assumed to be seized. Estimates of up to 20 % of all cocaine being intercepted along the supply chain seem to be quite optimistic (GI-TOC and Insight Crime 2021: 10). The probability of identifying even a multi-tonne drug shipment on commercial vessels is low, considering the sheer volume of maritime commerce. The four major ports of the EU, i.e. Rotterdam, Antwerp, Hamburg and Dover, handled a total of roughly 13,000,000 containers in 2019, corresponding to a total of roughly 18,000,000 TEU.⁴ Contrasting this with the estimated overall annual production of cocaine and heroin in the same year – around 1800 tonnes of cocaine and 7400 tonnes of opium (as a basis for heroin) (UNODC 2021a: 18, Booklet 1) – leaves little doubt that searching for drug shipments is like looking for a needle

4 Figures on annual container volumes; port of Hamburg at: <https://www.hafen-hamburg.de/en/statistics/containerhandling> (accessed 3 May 2021); port of Rotterdam at: <https://www.portofrotterdam.com/sites/default/files/2021-06/facts-and-figures-port-of-rotterdam.pdf>. (accessed 3 May 2021); port of Antwerp at: http://web.archive.org/web/20220318140034/https://www.portofantwerp.com/sites/default/files/Statische%20Jaarboek%202020_1.pdf (accessed 20 May 2021); port of Dover at: <https://www.gov.uk/government/statistical-data-sets/port-and-domestic-waterborne-freight-statistics-port#all-port-traffic-totals-major-and-minor> (accessed 3 May 2021).

in a haystack. When the commercial volumes of outgoing cargo in the key departure ports for cocaine are analysed, the overall relations may be slightly less striking, but they are still quite clear. Only three notorious departure ports for cocaine, Santos in Brazil, Callao in Peru and Barranquilla in Colombia, together handled around 1,600,000 containers in 2019.⁵

Around 83 % of all cocaine seizures in 2019 took place in the Americas. This may partly be explained by the worse cocaine-to-container ratio, partly by the tendency in the drug trade to gradually reduce shipment sizes along the supply chain. While there was an increase in the volume of seized drug shipments during the first months of the COVID-19 pandemic, including an all-time record seizure of 12 tonnes of cocaine in the port of Hamburg, this may be understood as a transitory phenomenon and be explained by the reduced number of cargo vessels at sea (UNODC 2020: 12). All over Europe, in 2019 1.1 million individual seizures across all types of drugs were reported in 2019, mostly in small quantities on retail markets. Around two-thirds of seizures in 2019 pertained to herbal cannabis and cannabis resin, 11 % to cocaine and crack cocaine, 5 % to amphetamines and 3 % to heroin (EMCDDA 2021a: 14–15), which also reflects the above-mentioned prevalences of drug use within the EU.

The control capabilities are even more limited on land transportation routes. While the transatlantic cocaine trade is bound to maritime or aerial routes, a good share of the heroin and cannabis trafficking routes to Europe are by land. The busiest border in the world, the US-Mexican border, hosts more than 50 land border crossings along more than 3000 km. According to official data, around 56 million personal vehicles, trucks and trains crossed the US-Mexican border in 2020. Before the pandemic, in 2019, the overall number of vehicles, trucks and trains reached almost 80 million (US Bureau of Transportation Statistics n.d.).

Both the data on container handling at leading European ports and the border crossing data from the US leave little doubt about the enforcement and deterrence capabilities of authorities even in economically powerful Western nations. Considering the ratio of the overall production to the volume of containers being processed, fortuitous seizures are statistically improbable. Law enforcement and customs agencies need to rely on intel-

5 Port of Santos at: <http://www.portodesantos.com.br/informacoes-operacionais/estatisticas/mensario-estatistico/> (accessed 3 May 2021); port of Callao at: <https://www.pn.gob.pe/site/estadisticas.aspx> (03.05.2021); port of Barranquilla at: <https://www.supertransporte.gov.co/index.php/superintendencia-delegada-de-puertos/estadisticas-trafico-portuario-en-colombia/> (accessed 3 May 2021).

ligence, prediction and selection strategies to enhance their capabilities to identify shipments.

Still, despite the needle-in-a-haystack logic in the global drug control efforts along the illegal value chains, our understanding of the global drug trade beyond the identified source countries relies heavily on seizure data. There are few articles and reports on the global drug economy without a map with arrows from source countries to seizure spots to destination markets. The seizures are interpreted as nodes in the global web of trafficking routes that is mapped through the GPS points of seizure. While seizures do indeed reflect a certain trafficking pattern at a certain time (or a certain law enforcement strategy at a certain time), the sum of all seizures does not yield a correct model of the geography of the drug trade. The essentially clandestine character of drug value chains (as with other illegal markets) makes it difficult to map its spatial extension. Even in cases like Italy, where the evidence base on organised crime tends to be better developed, geographical mapping exercises are hardly robust (Calderoni 2011: 41–52).

Beyond chance, seizures and successful interception efforts require law enforcement and intelligence capabilities. The number of successful interceptions therefore first of all reflects law enforcement capabilities and actions. There is little doubt that these capabilities are not equally distributed within the drug value chains. While there may be a certain degree of control in standard departure and destination ports, e.g. Santos and Antwerp, there may be a plethora of alternative routes that simply remain undetected. Less frequent but sizable seizures in other European ports, e.g. Gioia Tauro in Italy (Europol 2019), Durrës in Albania and Istanbul in Turkey (Daily Sabah 2021), allow for transitory spotlights on the potential abundance of less prominent trafficking routes (GI-TOC 2021: 5). What is quite clear: The geographical points of seizures of illegal drugs are not necessarily also the hubs and nodes of the corresponding value chains, just a potential subset of them detected by chance or strategy.

At the same time, seizure data may also indicate production, not just trafficking, which further hampers their analytical value. Seizure data do not per se provide the information whether a shipment is outgoing or incoming, whether it is intercepted while in transshipment through a country or whether the country is its final destination (Reuter 2010: 101). Even though we know that probably all cocaine in the world has its origin in the Andes and the Amazon area, a potential seizure in Rotterdam does not indicate its final destination. Especially for synthetic drugs, Europe is both a source and a destination region (EMCDDA 2021a: 14). Seizure data should therefore be used with caution. While individual case analyses may provide additional information, overall aggregated seizure data do

not allow trafficking routes to be mapped from wholesale source to retail destination level, as is often suggested by standard narratives.

4.2. Price and purity

What other indicators may provide to gain a better understanding of the nature of the global drug market? Given the essentially secretive nature of the transnational drug trade, there is a limited number of potential alternative supply-side indicators. Price and purity data on drug markets as proxy indicators help to sustain assumptions on variations in market dynamics. Following the logic of legal markets, an increase in purity or a decrease in (wholesale or retail) price is considered to signal an increased supply of a certain good and vice versa. At the beginning of the global pandemic, at the same pace as overall legal commerce was significantly reduced, there were reports of temporary increases in the price of certain drugs on European retail markets as well as temporary decreases on wholesale markets in source countries such as Peru (UNODC 2020: 19; EMCDDA and Europol 2020 : 7–10). This example may show how scarcity of certain drugs may impact pricing, even though this effect was only temporary.

However, price formation mechanisms in illicit markets are distorted, as prices not only take into account the costs of labour, production and logistics or scarcity, but reflect first of all the risk associated with the involvement in the drug trade and seek to compensate this risk. Some estimate risk to account for more than 50 % of drug prices (Caulkins and Reuter 1998: 597), but such estimates are hard to verify on a shadow market. Price formation is therefore highly complex, as legal penalties and enforcement pressure directly impact the cost of market engagement and thus wholesale and retail prices. This logic appears to be behind the impressively high prices for illegal drugs, even though tougher enforcement and higher risk may be offset by criminal adaptation (Pollack and Reuter 2014: 1964), which reduces the impact on price. Production costs are minimal in the drug economy, and the highly diverging market prices of agrarian products like cannabis, cocaine and heroin cannot be explained by supply volumes, production costs or demand alone. In median terms, in 2018 in Belgium a gram of herbal cannabis cost €10, a gram of cocaine €50 and a gram of heroin €20 (EMCDDA 2021e). Risk perception along the supply chain may play a central role in these dynamics, but this may be difficult to prove.

With risk appearing to be the key determinant of price, the steeply increasing value of plant-based drugs along the supply chain may also be

explained. Borders tend to multiply the price of an illegal drug, as borders imply control and enforcement efforts and therefore increase risk. While a South American coca farmer gets around €50 to €100 for the amount of coca leaves required to produce a kilogram of cocaine, the same kilogram of cocaine is sold for €54,000 to €83,000 on retail markets in the EU, reflecting the current medium price range as reported by the EMCDDA (2021c). Purity is not reflected in these numbers. The bulk of the revenue is created at the end of the value chain, i.e. on retail markets, and purity has by then decreased by a considerable ratio. The refined cocaine is sold for around €1,500 to €2,000 in the source country, and for €15,000 to €20,000 in transit, depending how many individual transactions are conducted and whether an organised crime group controls several intermediary steps, as in the case of the 'Ndrangheta or formerly the cartels of Cali and Medellín.

There is little doubt that the price range along the value chain does not exclusively communicate production costs, state of supply or demand, but also risk perception that is to be compensated by those that are part of the value generating process. Distribution and trafficking drive prices up (Reuter 2010: 103), as growing drug crops is less risky due to weak territorial control while also being less penalised in most source countries. Beyond logistics, production, labour and risk there are also domestic or even local features of drug markets that apparently have an impact on price. The variation of prices with time and location is a familiar pattern on drug markets (Caulkins and Reuter 1998: 598). On average, in 2019 a gram of cannabis resin was sold for €16 in Austria, while it was worth €22 in Germany and €28 in Norway (EMCDDA 2021e). The differences for other substances across European countries tend to be even more pronounced. Factors such as local supply shortages, differing enforcement levels and penalties, local demand and purchasing power are also to be considered when seeking to dissect price formation on drug markets.

Given the complex interplay of factors and the clandestine mechanisms in price formation, price and purity data may well serve to better understand the state of overall supply and the perception of risk on a drug market but offer few insights into the dynamics and driving factors of this illegal value chain.

4.3. Violence

In order to counter deterrence and to enhance the chances of impunity, actors in illegal drug value chains resort to self-help instruments. Key instruments to attain this goal, yet not the only ones, are corruption and

intimidation, i.e. the threat or actual use of violence to deter interventions in the illegal value chain. While corruption as a crime without a direct victim is per se highly clandestine and difficult to trace, violence creates high visibility, usually triggering a public response and media coverage. Since corruption linked to organised crime and drug trafficking can only be traced on a case-by-case basis, this section focuses on drug market-related violence as an indicator that is potentially useful for understanding the evolution and nature of drug value chains.

Given that there are few visible signs of covert drug markets, the frequent violence associated with them is often taken as an indicator of the emergence of trafficking patterns. However, in public perception there is little differentiation between the nature of drug market-related violence and how it relates to actual transactions on these markets. Contrary to expectations, violence is the exception on illegal markets, as it puts criminal transactions and rent-seeking at risk. While some studies estimate that up to 60 % of organised crime groups in the EU resort to violence and as many to corruption (Europol 2021: 18), there may be a bias in such accounts due to the higher visibility of violent behaviour. In the vast majority of countries, criminal justice penalties for violence are high and, in the case of homicide, the highest. Violence provokes legal and enforcement responses that are diametrically opposed to business interests. It is important to note that violence is distributed unequally along drug value chains. While retail markets are more prone to violence due to the higher level of competition, wholesale markets tend to be more peaceful, as does production, even though the prevalence of armed conflict in some of the major source countries may distort this assumption.

Still, drug economies tend to be particularly violent (Catino 2019: 199) as compared to other illegal economies. What might explain this pattern, and what can we learn from this indicator to assess global drug value chains? We may distinguish between two very basic types of violence on drug markets. First, regulatory violence within criminal markets and second, communicative violence towards non-participants in the criminal markets, i.e. authorities or the broader public (Brombacher and Maihold: 2013).

Due to the lack of formal mechanisms of conflict settlement on illicit markets as compared to their licit peers, criminal markets frequently choose violence to regulate disagreements and conflicts of interest emerging in market transactions. On illegal markets, there are usually no written rules or universally accepted legally binding systems for dispute settlement. This applies to all the illegal elements along the drug value chain. Only federation models of organised crime groups build up “higher-level

bodies of coordination”, such as the *mandamenti* and the *crimini* in the case of the Calabrian ‘Ndrangheta, that seek to organise the value chain in a rule-based and therefore peaceful fashion. Based on a cross-comparative approach between the three major Italian mafias, Catino shows that the differences in violent behaviour “are due to different ways of organizing cooperation among [...] various criminal groups, and to the different organizational orders adopted” (Catino 2019: 203). Catino shows that those organised crime groups that follow the model of a “clan-based federation” have historically managed to avoid violence within their overarching criminal network while groups that follow “clan-based models” such as the Campanian Camorra tend to compete within the same criminal system, being more prone to engage in mafia wars and armed feuds (Catino 2019: 152–205). According to this analysis, building a coordination structure to organise value chains provides an advantage on illegal markets, as it reduces regulatory violence and thus reduces the expectation of impunity, allowing for flourishing criminal businesses.

The endemic violence on the Mexican drug market since 2006 is a well-known case of the opposite situation, i.e. a highly competitive and therefore conflict-prone illicit market in which a plethora of clans without any overarching coordinating body participate and organise often competitive value chains. The polypolistic order of the Mexican drug market has constantly produced high levels of homicides for the past 15 years, partly due to competition and partly due to the frequent disruption of the market and arrests of market participants in the course of the massive countercampaign (Behrens and Brombacher 2015: 139–142).

The wide geographical scope of drug economies due to the non-convergence of supply and demand described above increases the amount of transactions between country of origin and country/ies of destination. Value chains are therefore geographically stretched. For the US retail market, Caulkins and Reuter (1998: 598) estimated five to six separate sales transactions of cocaine between the source country and the hands of the user. Every transaction increases the probability of conflict, especially given the constantly high level of risk and the countless possibilities of what may possibly go wrong. The violent character of drug value chains may therefore be explained on the one hand by the way in which the organised crime groups involved cooperate, on the other hand by the usually long series of individual transactions between the starting and ending points of the global drug supply chains.

Still, the organisational character of the organised crime groups involved appears also to have a taming effect on the use of violence. Clan-based federation models as in the case of the ‘Ndrangheta manage to re-

duce and settle disputes even along long supply chains, as in the case of the European cocaine value chain, heavily dominated by the 'Ndrangheta, with its influence spanning the entire supply chain up to source and transit countries (GI-TOC 2021 and Insight Crime: 24–26). Similar clan-based federation models were historically also identified in Colombia and Mexico. However, with the disappearance of major drug trafficking operations like the Medellín cartel, the atomisation of competing clans has favoured the current explosion of violent behaviours. What may be seen in Mexico after 2006 and partly in Colombia after the demobilisation of the FARC guerrilla in the aftermath of the 2016 peace accords may be described as a process of camorristation, i.e. the restructuring of an oligopolistic drug market towards a polypoly with competing clans. Catino shows that since the 1980s, in Italy almost 50 % of all mafia-related homicides were concentrated on Camorra territory, i.e. an area governed by a clan structure without overarching coordination systems like in the case of Sicilian and Calabrian mafia organizations (Catino 2019: 208). Poor deterrence capabilities and the expectation of impunity, described as key characteristics of drug markets, also reduce the costs and risk of violent behaviour, which contributes to explaining the endemic violence in some drug markets, like in Mexico. According to estimates of the US Department of State (2020: 2), 94 % of all crimes in Mexico are either not reported or not investigated, which leads to a very high level of expectation of impunity.

Hence, contrary to what is frequently reported by the media and assumed by the broader public, violence within drug markets cannot be used as an indicator to draw conclusions on the transactional volume of these markets. Violence out of control on the Mexican drug market does not mean that more drugs are being handled as compared to the pacific times of the PRI governments. At the same time, the relative absence of drug market-related homicides in Albania, Bolivia or Peru is not to be interpreted as the absence of drug market transactions. The absence of regulatory violence could possibly mean that there are fewer disputes on the market, that functional overarching coordination structures for organising the value chain are in place or that efficient bribery systems have been set up. The clandestine character of these markets, especially of the less violent and therefore less visible ones, makes a thorough analysis beyond guesswork difficult.

In addition to the previously described patterns of regulatory violence directed towards market participants, functional participants within the drug value chains also tend to resort to violence that is directed towards society, the government and judicial authorities. While the concept of regulatory violence may explain the quantity of violence on competitive

drug markets, it is not helpful in analysing the quality of such violence. Especially in Latin America, drug-related violence tends to be highly visible due to its quality. Extreme brutality such as frequent beheadings and public exposure of tortured bodies like in Mexico seems to be at odds with the wish to avoid public response and interventions in the criminal markets. This kind of violence has an instrumental character and therefore appears irrational only at first glance (Brombacher and Maihold 2013: 88). This communicative violence seeks to deter authorities, competitors or even the broader public from intervening in the illicit markets, sowing intimidation and fear as a strategy to enhance the expectation of impunity. This pattern is quite well known from the concept of terrorism, where not the actual victim is the target but a broader audience. The killed and tortured body is bound to convey a message to third parties. The result of this pattern of communicative violence is to build a reputation, a key success factor in illicit markets to enhance obedience and predictability of interpersonal behaviour (Reuter 2009: 280). However, the parallel emergence of both regulatory and communicative violence as in Mexico appears to be rather exceptional. While other organised crime groups like the Sicilian Cosa Nostra or more recently Belgian and Dutch organised crime groups have sometimes resorted to highly visible targeted killings, such violence does not appear to be functional in the long term, given the usually heavy sanctioning response of enforcement agencies and judicial systems. While for Mexico some estimates relate one-third to half of all homicides to organised crime (Bergmann 2018: 140), such a pattern is less common for other source or transit countries of illegal drugs, where periods of intense violence seem to be of a short-term and transitory character.

As in the case of regulatory violence, the existence of communicative violence does potentially allow for some insights into the structure of drug markets and the strategies of their participants but does not provide any information about the true scope and organisation of a global value chain. All three supply-side indicators discussed here are positivist, are therefore reduced to the visible elements of the global drug economy and are highly dependent on sufficient enforcement capabilities. These indicators help to trace certain elements and patterns of the global drug value chains following the key determinants of geographical non-convergence of supply and demand as well as high levels of expectation of impunity. They provide certain information about trafficking patterns, about the risk perceptions underlying pricing and about the nature of the organised crime networks involved and how they interact with each other. The global narrative of drug economies heavily relies on these three indicators, yet they only serve

to indicate *what* is happening in the global drug economy, not *why* it is happening.

There are two sets of potential explanations of how the geography of the global drug markets evolves and why, namely structural and actor-oriented approaches.

5. *What drives illicit drug economies?*

5.1. The structural dimension: demand and enabling structural conditions

As for any market, the interplay of supply and demand creates drug markets. The emergence of markets requires the establishment of value chains, defined by geographical conditions, deterrence and expectation of impunity and by the nature of the organised crime groups involved. Demand drives supply, while the reverse relationship is less clear. Demand is a prerequisite for drug markets. Drug use patterns and prevalence rates are highly divergent between countries. Even in Europe, despite similar societal conditions, there are partly massive differences in prevalence rates. While in France the adult lifetime prevalence for cannabis is 45 %, in Malta it is reported to be only 4 % (EMCDDA 2021a: 12). The adult last-year prevalence of cocaine is 2.7 % in the United Kingdom and 1.1 % in Germany (EMCDDA 2021d). As in the case of the highly divergent retail prices on the European drug market, in the case of prevalences there is also a broad range of potential explanations for these differences. However, as they are not conclusive, they are of little help in explaining global trafficking patterns. In the following, an existing range of demand is taken as a fixed variable for global drug economies.

The geographical divergence of supply and demand was discussed above as a key factor that explains the emergence and persistence of transnational drug value chains. The physical distance of supply hubs and main user markets is the simplest but most relevant factor for emerging transnational supply chains. But if demand drives supply, why do drug crop cultivation and production not move closer to consumer markets? This would reduce costs, risk and time. Partly this pattern is to be seen in the field of cannabis. Indoor production of cannabis within the EU has been on the rise in recent years (Europol 2021: 47; 99). Synthetic drug production is also massive in some European countries. As stated above, main supply hubs for outdoor cannabis can be found in close vicinity to the EU, e.g. in the Western Balkans and North Africa. However, these examples seem to be rather the exception. Even though theoretically coca cultivation and in

fact also opium poppy production is technically possible within European countries with a certain technical investment (Reuter 2010: 103), the global value chains seem to stick to supply originating in the Global South.

The limited yet quite stable group of countries that dominate most of the global production of plant-based drugs appear to share features that make them more prone to evolve as central nodes of the global drug economy under a given level of continuous demand. Geography certainly helps to explain why drug crop cultivation may remain undetected. Most of the known global drug crop growing hotspots lie either in dense tropical forests or in remote mountainous areas, frequently in regions that had previously been favoured by substantial infrastructure and colonisation efforts but were then marginalised and abandoned (Gootenberg 2021; Davalos et al. 2021). Geographical marginalisation thus helps to enhance the expectation of impunity and to avoid state intervention by inaccessibility. Geography certainly also helps to understand why some countries become trafficking hubs and transshipment routes, as a spill-over effect is quite common in many cases. Seizure data show that countries neighbouring key source countries like Ecuador, Venezuela, Iran and Pakistan frequently become natural transshipment nodes for the drug value chains (UNODC 2021c).

Geography does *not*, however, explain the location of main production hubs. While moving closer to destination markets, as in the case of indoor cannabis, may be a risk-reduction strategy, this does not seem to apply to the major consumer markets for heroin and cocaine. Afghanistan and Colombia are neither well connected to the EU, nor is there a particularly large volume of legitimate commerce between the regions where boundaries between legal and illegal value chains easily blur. The supply chains span many different jurisdictions, borders and coastal waters. Mexico with its long border with the US might be expected to develop its own cocaine industry, yet coca fields have hardly ever been detected. The domination of the US market for fentanyl and its precursors by Chinese supply (Felbab-Brown 2020) cannot be explained by geographical proximity. The region in the world with the highest current prevalence of cocaine use, Oceania, is also the most remote from its South American centres of supply, even though historically coca bush was grown in Indonesia and Taiwan (Reuter 2010: 103).

As geography thus offers a limited ability to predict where massive drug economies emerge, a closer look at structural conditions in source countries is needed. A low level of risk and a high level of expectation of impunity have been identified as a second common denominator for global drug supply chains. While this variable is certainly ubiquitous in all

major source *countries*, it is also ubiquitous all over the source *regions*. A similar pattern is to be found in the case of major transshipment hubs, i.e. transit countries. Weak statehood, a certain responsiveness to bribery, absence of border control, existing smuggling networks or related organised crime and armed groups seem to create an attractive enabling environment in both source and transit countries. West Africa, the Balkans and the Sahel routes all share a suitable mix of these factors to make them become part of drug value chains and participate in their attractive rewards. Again, seizures are not a conclusive indicator to assess the real volume of drug shipments across these regions, as the very root causes of their involvement in the drug business decrease the probability of seizures, i.e. the weakness or absence of deterrence and state control.

Hence, suitable geography and weak deterrence do not lead to a drug economy by themselves. The set of “competitive advantages” (Thoumi 2010: 197–199) or “pull factors” (Morselli, Turcotte and Tenti 2011: 171) for drug economies and the organised crime groups involved goes beyond these two broadly defined common denominators of drug economies. Since the drug economies at issue here are all plant-based, appropriate climate and soil conditions need to be in place with sufficient agricultural land being available and economically accessible (Reuter 2010: 106). However, this factor appears less relevant than previously assumed. In Afghanistan and Colombia, the main source countries for opium poppy and coca, respectively, less than 0.5 % of all agricultural land is dedicated to drug crop growing, though in cultivation hotspots like Helmand in Afghanistan this share rises above 20 % (UNODC 2021a: 51–52). Often, though, drug crop farmers do not legally own the plots used for cultivation but use public land either beyond the agriculture frontier or in protected areas (Grimmelmann et al. 2017). Beyond climate and land, cheap labour for the labour-intensive growing, harvesting and processing of drug crops is essential, again a ubiquitous prerequisite across the key countries with low income and high inequality where the major share of supply is originating. While (extreme) poverty appears to be a main structural feature of drug crop growing areas, the deficits in development go beyond narrow income-related indicators. For Afghanistan, UNODC has identified a “development gap” in poppy-growing villages as compared to other villages. The comparison shows that access to health, schooling, security and government presence is markedly lower in poppy-growing villages, though with some variation across the country (UNODC 2019: 46–47). The marginalised character of drug crop growing communities frequently precludes access to legal markets for licit products, often making drug

crops the only real alternative for small-scale farmers (Gutiérrez-Sanín 2021).

The combination of suitable geographical and climatic factors with cheap labour and land, absence of state services, low deterrence and a high expectation of impunity appears to be the complex mix of enabling factors that allows drug value chains to emerge and persist: “Low opportunity costs for factors of production in conjunction with low enforcement risks result in very modest prices for the refined product, and they also ensure that production does not move upstream” (Reuter 2010: 106).

Again, while this set of structural conditions appears to apply to all major source countries of illegal drugs, this mix can also be found in many other countries around the globe, even ones closer to the main consumer markets. Thoumi (2010: 195) estimates that climatic and soil conditions would allow coca bush to be grown in at least 30 countries and opium poppy in at least 90, yet the number of main producer countries has varied little. Reuter (2010: 107) suggests that path dependencies may explain the relative stability of drug crop cultivating countries, i.e. the otherwise high costs for setting up new global trafficking networks and the decreasing transactional costs and risks for corruption when transactions are iterated. Another key path dependency may lie in the historically evolved availability of expertise to run plant-to-powder production processes, where technical capabilities cannot be easily acquired on the labour market. At the same time, “illegal skills” to organise illegal business transactions, enforce criminal contracts, dissuade competitors and law enforcement agencies and make bribery arrangements are essential capabilities for running drug value chains (Thoumi 2010: 198). This sort of expertise tends to be available in countries with a long-standing history of armed conflict or similar forms of intrasocietal violence. The frequent albeit not universal convergence of countries with temporary or protracted internal armed conflict and massive drug economies (e.g. Afghanistan, Colombia, Myanmar) may well be explained by a set of competitive advantages that encompass the above-mentioned structural conditions and also sufficient availability of the relevant expertise and skills to initiate and run drug supply chains. It is estimated that 28 % of all revenues of non-state armed groups at a global scale stem from the drug economy (GI-TOC, INTERPOL and RHIPTO 2018: 111), which sustains the argument.

As case studies show, there is a pattern that illegal drug economies tend to grow and proliferate once established (Thoumi 2010: 198–200). The “criminogenic environments” that enable massive drug economies tend to be stable over time, while the organised crime groups seizing the opportunities of these structural conditions tend to vary considerably

(Morselli, Turcotte and Tenti 2011: 166). Therefore, even in countries that may have overcome plant-based drug production, such as Pakistan or Thailand, ongoing high levels of seizures of both synthetic and organic drugs indicate persistence of illegal drug value chains, even though the cultivation element no longer forms part of the chain. State fragility as a central enabling factor is further aggravated by the presence of drug economies, as indicated by examples like Guinea-Bissau and Mali (Reitano 2020: 131). In general terms, accumulated global seizure data indicate a relative stability of global drug markets, potentially reflecting rather the demographic growth of consumer markets than massive overall changes within the global drug markets (UNODC 2021a: 53).⁶

The summary of potential structural variables to explain the emergence and persistence of drug markets makes clear that this set of variables can be found in varying degrees in all major source countries and potentially also in most major transit countries, at least at a local scale. While it is quite clear that these variables positively influence the persistence and expansion of drug economies over time, their emergence rather appears to be rooted in specific national path dependencies or individual historical incidents such as the Soviet invasion of Afghanistan, Colombian drug trafficking organisations switching to pay Mexican intermediaries with cocaine instead of cash, the emergence of the Cali-Galicia cocaine pipeline due to joint jail time of the respective criminal leaders in Madrid or the existence of century-old traditional growth and use of coca in the Andes paired with state-led colonisation efforts (GI-TOC 2021 and Insight Crime: 8–13; Gootenberg 2021; Thoumi 2010: 241). However, the evidence base remains too weak to find a one-size-fits-all answer to the highly relevant question of why a major share of the global drug economy still heavily relies on a limited number of source countries.

5.2. The actor dimension: organised crime within the drug market

The structural factors discussed in the previous section may be complemented by actor-based explanatory factors, contributing to a more coherent understanding of the nature and scope of global drug value chains.

The predominant positivist paradigm in contouring the global drug economy as outlined above is frequently entangled with a simplistic un-

⁶ A notable exception is the global seizure rate of amphetamine-type stimulants (ATS), which has grown dramatically since 2008 (UNODC 2021a: 53).

derstanding of how organised crime actors run value chains. The focus on seizures appears to be accompanied by a fixation on the capture of leading figures in the global drug economy, fed by kingpin strategies and popular culture. A “pabloescobarised” cliché of the global drug economy is still prevalent in the public, replicating the idea of a highly controlled and criminally regulated global drug value chain in which control, power, income and risk are monopolised by a few, as connoted by the misleading term “cartel”. According to this narrative, the emergence and persistence of drug markets are a direct consequence of deliberate and strategic decisions by organised crime groups seeking to move into regions with attractive structural conditions or “criminogenic environments” to maximise profits and minimise risks, similar to global enterprises that invest in products and markets according to meticulous business plans.

Drug value chains are composed of a highly complex set of different actors, spanning drug crop farmers in source countries, wage labourers, production staff, chemists, intermediaries, packers, sellers, traffickers, couriers, bribed officials, brokers, insurgents, drivers, sailors, pilots, hitmen, money launderers, decision-makers, retailers and users, just to name a few. All of these take individual decisions, make choices and act based on their own rationales. It would go beyond the scope of this chapter to categorize the interplay of all these actors, but the key actors in this long illegal global value chain appear to be organised crime groups and networks that cover the entire range of the supply chain between production and consumption hubs.

The illegal (and in some cases partly legal and licit) supply chain take the form of large chain-style networks (Kenney 2007) connected mostly horizontally through their nodes, the independent criminal actors. Organised crime groups arrange all the relevant transactions that connect these nodes, sometimes with the involvement of legitimate actors within legal trade or of government or military actors. Most case studies show that the global drug value chains are predominantly organised in a decentralised and often ad hoc fashion, with a high level of intermediary transactions and the involvement of a broad array of criminal organisations. These cooperate through networks, frequently outsourcing and subcontracting individual service providers, with the drug sometimes sold on several occasions along the supply chain. This latter aspect may partly explain the sometimes unexpected geographical turns of the drug supply chains. As a recent analysis put it for the cocaine supply chain: “Different criminal nodes will align for a particular shipment, then drift apart, searching for new opportunities and trafficking constellations” (GI-TOC 2021 and Insight Crime: 5). The decentralised pattern of rather disorganised supply

chains with manifold individual transactions is also prevalent within the EU (Europol 2021: 22–24). There are many examples for drug shipments criss-crossing all over continental Europe before reaching their final destination. The highly flexible organisation of these value chains creates a high level of vulnerability to interruptions of supply and interception for all parties involved.

Thus, the character of the organisation and evolution of the value chain may indeed be enabled by the structural conditions in source and transit countries, but it is defined by the nature and choices of the organised crime groups involved, working within the structural conditions discussed above and adapting to them through iterative learning. The still widespread notion of a monopolised value chain from crop to retailer, from plant to powder, is rooted in historical situations where the global drug economy was perceived to be dominated by a few criminal masterminds. Notorious drug traffickers like Pablo Escobar, the Rodríguez Orejuela brothers, Joaquín Guzmán and Khun Sa did indeed exercise control over several elements of drug value chains, but never over the full set of individual transactions. Even at the height of their power, the Medellín and Cali cartels always coexisted with countless other criminal operations in the field of drugs across Colombia, interacting through informal networks that allowed for patterns of flexible transactional adaptations. Even the alleged Colombia-based global drug enterprises were in fact rather small to medium-sized business operations with never more than a few dozen members or affiliated actors (Kenney 2007: 247–258).

In the aftermath of the decapitation of these organisations, the drug supply chains have never been permanently interrupted. While on an individual case basis tackling drug trafficking networks by targeting key nodes within them appears to be the most efficient disruptive strategy (Bright et al. 2017: 433–437), from an overall market perspective the drug economy shows a high level of resilience (Morselli and Petit 2007: 111).

While the flexible organisation of value chains also increases vulnerability, at the same time it contributes to their potential to reorganise quickly and to recover functionality. As the cases of Colombia and more recently Mexico show, taking out kingpins rather favours the development of more decentralised value chains with an increased level of regulatory violence without actually disrupting the overall market. It may seem obvious at first glance that “small is beautiful” in drug trafficking operations, but evidence from single-case studies shows that small-scale drug trafficking operations are not necessarily less prone to government disruption (Bouchard and Oullet 2011: 83). This result may also prove to apply to the case of the ‘Ndrangheta, which provides a high level of organisation and coordination

structures for its members. Another example from the Mexican drug market shows that hierarchically structured organised criminal operations – such as the Sinaloa Cartel – apply more risk-averse strategies in money laundering practices than flatter wheel networks with a higher level of exposure and therefore a higher risk of enforcement interventions (Farfán-Méndez 2019: 300–305).

Setting up centralised criminal operations across several countries and continents is highly risky and faces countless logistical and communicative constraints (Morselli, Turcotte and Tenti 2011: 168–169). Thus, only organised crime groups structured on a clan-based federation model may be capable of doing so. In the global cocaine economy the ‘Ndrangheta seems to be a notable exception, as this organisation has apparently managed to control several intermediate transactional nodes up to the source countries with a presence in situ across Latin America and permanent structures in place, controlling a major share of the transatlantic cocaine value chain (GI-TOC 2021 and Insight Crime: 22–25). The ‘Ndrangheta model of organising supply and transit hub presence is reported to be replicated by Mexican and Western Balkan organised crime groups, though not permanently but through brokers and the organisation of ad hoc crowdfunding of shipments to bridge intermediary transactions (GI-TOC 2021 and Insight Crime: 33).

Despite these accounts of changing business patterns along drug value chains, the interpretation of these developments should avoid *post hoc ergo propter hoc* pitfalls. Evidence shows that the global drug value chains are organised in a decentralised and multi-transactional manner, not strategically planned by powerful and farsighted global criminal enterprises. Within the existing range of pull factors such as the essential geographical, socio-economic and legal conditions discussed above, chance and opportunity appear to be the main causal factors to explain how the global drug value chains are organised and evolve. The frequent overrating of criminal brains underrates the lack of information and predictability on clandestine markets as well as the costs of mobility. Organised crime groups do not float freely seeking to maximise profit but organise transactions within the value chains according to the enabling conditions described above. As summarised by Morselli, Turcotte and Tenti:

In many ways, the criminal groups and organisations that are identified in local and transnational networks are not the product of intentional organising by offenders. Instead, offenders are as reactive as law-enforcement agents. The forms and sizes of criminal groups are the product of offenders’ adaptation to the constraints surrounding

them. They are self-organising and emergent in settings where there are ample vulnerable opportunities to seize and interact across a variety of cross-border, cross-market and cross-industry settings. (Morselli, Turcotte and Tenti 2011: 167)

Hence, structural factors appear to prevail in the shaping of global drug supply chains, including the interplay of legal and illegal segments of those chains. While structures appear to be stable over time, organised crime groups handling the drug value chains fluctuate strongly. There is an astonishing level of stability of overall production and trafficking patterns. The rise and fall of the most notorious drug trafficking kingpins and their respective organisations, e.g. in Mexico, Colombia, Albania and Myanmar, did not permanently change the geographical patterns of the supply chain of cocaine, heroin and cannabis in the respective countries. Yet the manner in which the value chain is organised and the roles taken by criminal and legitimate actors in it did. The infamous Balkan route for heroin, the transadriatic trafficking patterns for cannabis and the transatlantic routes for cocaine have shown a high level of resilience and stability over the past decades (Europol 2021: 50). But the resilience only applies to geographical patterns of the market, not to functional elements within the supply chain. However, overall stability does not imply inflexibility, and new trafficking patterns may emerge, as the case of West Africa and the rather recent methamphetamine routes from Afghanistan to East Africa show. Still, the mobility of organised crime groups and supply chains appears to be far more limited and less strategic than usually assumed.

6. Towards a more sustainable supply control policy: prioritising structural approaches

The previous discussion gives grounds to assume that not actors but structural conditions are the key driving principle for the emergence and persistence of global drug value chains. Yet, the major efforts to control the global drug supply chain heavily rely on actor- or substance-oriented efforts, i.e. seizure-and-capture strategies, and are not directed towards structural variables. Given the disastrous effects of the global drug economy in terms of health, security, the environment, armed conflict, corruption and violence, it may be necessary to reassess this actor-focused approach. As overall legal regulation of scheduled drugs and a complete regime collapse are unlikely, a potential reorientation of global drug policies and their

metrics within the current drug control regime may help to mitigate some of the most pressing harms related to the global drug economy.

While demand and geography as well as some of the historical path dependencies discussed above seem to be fixed variables in this equation, the structural enabling factors for global drug value chains are in principle responsive to actions by governments and the international community. The highly decentralised architecture of drug value chains appears to follow a rather spontaneous order instead of criminal masterplans as frequently assumed.

Organised crime groups come and go; the enabling structures remain. Criminogenic environments and the underlying root causes may be addressed by tackling the development deficits entangled within them, by increasing the costs of criminal endeavours and reducing the expectation of impunity across the key nodes of production and trafficking. While law enforcement capabilities and territorial and border control do play a key role in such a strategy, the role of the state goes beyond the repression of illicit flows, as shown by the development gaps identified in Afghanistan by UNODC and by the relevance of competing norms creating legitimacy for illicit economies as analysed by Thoumi.

There have been recent shifts within the global drug control regime that may allow for more structure-oriented strategies. A new approach to drugs and development has emerged over the past years that puts development interventions to address the root causes of illicit drug economies at the forefront (Diskul, Collins and Brombacher 2021: 86), gradually widening the scope for a more structural and development-oriented approach in international drug policy (Brombacher and David 2020: 70–72). However, the interplay of addressing development deficits that drive illicit drug economies, tackling crime and illicit markets and, in some cases, settling armed conflicts is not necessarily mutually reinforcing. A “drugs-development-peacebuilding trilemma” (Goodhand et al. 2021) may make it difficult to pursue these goals all at once, given the trade-offs between the diverse objectives intertwined within this trilemma.

A good share of the global debate on how to address the root causes of drug economies focuses on the approach of alternative development, which consists in addressing the developmental factors underlying drug economies and creating licit sources of income for drug crop farmers. Beyond the cultivation element in the drug value chains, there is a lack of technical approaches to addressing the structural factors that enable trafficking hubs and routes to flourish. When it comes to the issue of armed conflict and drug economies or state failure in a broader sense, few policy options are available so far (Reitano 2020: 131). The lack of other in-

struments has often led to exaggerated expectations towards the alternative development approach, which is sometimes “trying to be all things to all people” (Mansfield 2020). While the UN General Assembly Special Session on Drugs (UNGASS) 2016 widened the scope of alternative development beyond drug crop growing to drug trafficking settings, there are only a few practical experiences in this area so far (Diskul, Collins and Brombacher 2021). Moving away from the traditional actor- and substance-oriented supply-side indicators of global drug policy towards the realm of structural enabling factors is a difficult task, since short-term statistical achievements are politically more attractive than progress on long-term developmental indicators such as the measurement of development gaps as suggested by UNODC, poverty reduction or state-building efforts. Frequently, data on structural conditions favouring drug economies are available but are not used for orienting drug policy efforts (Bewley-Taylor 2016: 4–8).

Nonetheless, if harm is integrated into the equation as an indicator, a reorientation of policies beyond seizures and captures may appear possible. The concept of harm reduction is widely acknowledged in the field of demand-side drug policies. Needle and syringe exchange programmes, supervised drug consumption facilities and opioid substitution treatment are common practices to reduce the individual and societal harm associated with drug use. However, the supply-side-related harms of drugs and drug policies, e.g. violence, corruption, environmental degradation or protracted armed conflict, have not been widely considered to be addressed by harm reduction strategies. Shaw (2019) suggests applying such a strategy to drug policies, replacing the current supply control paradigm by one that seeks to reduce violence and impunity and protects political processes at risk of being undermined and corrupted by drug economies.

The global drug economy is first of all perceived through the harms it inflicts on individuals and societies. Nonetheless, how drug markets are measured and subsequently how counterstrategies are defined is not driven by the issue of harm, but by positivist actor-driven rationales. Structural approaches appear to explain the emergence, quality and persistence of drug value chains better than actor-oriented methods, yet structural indicators do not play a relevant role in global drug policy debates yet. There are no commonly acknowledged structural indicators that would allow the vulnerabilities of countries or regions to organised crime to be measured and predicted. Both structural and harm-related indicators could allow for a better measurement of the whereabouts of global drug value chains and the associated policies than the dominant standard indicators. Reorienting global drug policies towards a structural approach would imply rethinking

their metrics. This may prove to be a challenging endeavour, yet worthwhile.

References

- Behrens, Timo/Brombacher, Daniel (2015): „Transnationale Organisierte Kriminalität“. In: Jäger, Thomas (ed.): *Handbuch Sicherheitsgefahren*. Wiesbaden: Springer, pp. 135–145.
- Bergmann, Marcelo (2018): *Illegal drugs, drug trafficking and violence in Latin America*. Berlin/Heidelberg: Springer.
- Bewley-Taylor, Dave (2016): “Towards metrics that measure outcomes that matter”. At: <https://www.swansea.ac.uk/media/Towards-Metrics-that-Measure-Outcomes-that-Matter.pdf> (accessed 2 July 2021).
- Bouchard, Martin/Ouellet, Frédéric (2011): “Is small beautiful? The link between risks and size in illegal drug markets”. In: *Global Crime*, 12, 1, pp. 70–86.
- Bright, David/Greenhill, Catherine/Britz, Thomas/Ritter, Alison/Morselli, Carlo (2017): “Criminal network vulnerabilities and adaptations”. In: *Global Crime*, 18, 4, pp. 424–441.
- Brombacher, Daniel/Garzón, Juan Carlos/Vélez, Maria Alejandra (2021): “Introduction Special Issue: Environmental impacts of illicit economies”. In: *Journal of Illicit Economies and Development*, 3, 1, pp. 1–9.
- Brombacher, Daniel/David, Sarah (2020): „From alternative development to development-oriented drug policies“. In: *International Development Policy*, 12, pp. 64–79.
- Brombacher, Daniel/Maihold, Günther (2013): „Das Gewaltparadox im mexikanischen Drogenkampf: Erklärungsversuche und ihre Folgen“. In: Brombacher, Daniel/Maihold, Günther (eds.): *Gewalt, Organisierte Kriminalität und Staat in Lateinamerika*. Opladen/Berlin/Toronto: Barbara Budrich, pp. 85–97.
- Brombacher, Daniel (2013): „Illegal drug cultivation and legal regulatory options in the UN drug control framework. Comparing coca and opium poppy“. In: Matthieu, Hans/Nino, Catalina (eds.): *From repression to regulation. Proposals for drug policy reform*. Bogotá: FESCOL, pp. 253–289.
- Buxton, Julia (2010): “The historical foundation of the narcotic drug control regime”. In: Keefer, Philipp/Loayza, Norman (eds.): *Innocent bystanders. Developing countries and the war on drugs*. Washington D.C.: The World Bank, pp. 61–95.
- Buxton, Julia (2020): “Drug control and development. A blind spot”. In: *International Development Policy*, 12, pp. 13–42.
- Calderoni, Francesco (2011): “Where is the mafia in Italy? Measuring the presence of the mafia across Italian provinces”. In: *Global Crime*, 12, 1, pp. 41–69.
- Catino, Maurizio (2019): *Mafia organizations. The visible hand of criminal enterprise*. Cambridge: Cambridge University Press.

- Caulkins, Jonathan/Reuter, Peter (1998): "What price data tells us about drug markets". In: *Journal of Drug Issues*, 28, 3, pp. 593–612.
- Collins, John (2016): "Development first. Multilateralism in the post-'war on drugs' era". In: *After the drug wars. Report of the LSE expert group on the economics of drug policy*. London: LSE Press, pp. 9–18.
- Daily Sabah (2021): "Turkey seizes more than 1 ton of cocaine in 'biggest bust'". At: <https://www.dailysabah.com/turkey/investigations/turkey-seizes-more-than-1-ton-of-Cocaine-in-biggest-bust> (accessed 04 July 2021).
- Davalos, Liliana/Davalos, Eleonora/Holmes, Jennifer/Tucker, Clara/Armenteras, Dolores (2021): "Forests, coca, and conflict. Grass frontier dynamics and deforestation in the Amazon-Andes". In: *Journal of Illicit Economies and Development*, 3, 1, pp.74 – 96
- Diskul, Dispanadda/Collins, John/Brombacher, Daniel (2021): "Drugs and development in the urban setting – expanding development-oriented interventions beyond illicit drug crop cultivation." In: *Journal of Illicit Economies and Development*, 2, 2, pp. 80–90.
- EMCDDA, European Monitoring Centre for Drugs and Drug Addiction (2021a): *European Drug Report*. Lisbon: EMCDDA.
- EMCDDA, European Monitoring Centre for Drugs and Drugs Addiction (2021b): *Illicit drug markets and supply in the Western Balkans. Impact of COVID-19. EMCDDA Trendspotter Briefing*. Lisbon: EMCDDA.
- EMCDDA, European Monitoring Centre for Drugs and Drugs Addiction (2021c): "Statistical Bulletin. Cocaine price and purity in the European Union". At: https://www.emcdda.europa.eu/media-library/Cocaine-price-and-purity-european-union-updated-june-2021_en (accessed 3 July 2021).
- EMCDDA, European Monitoring Centre for Drugs and Drugs Addiction (2021d) *Statistical Bulletin 2021. Prevalence of drug use*. At: https://www.emcdda.europa.eu/data/stats2021/gps_en (04 July 2021).
- EMCDDA European Monitoring Centre for Drugs and Drugs Addiction (2021e): "Statistical Bulletin 2021. Price, purity and potency". At: https://www.emcdda.europa.eu/data/stats2021/ppp_en (accessed 12 July 2021)
- EMCDDA, European Monitoring Centre for Drugs and Drug Addiction/Europol (2019): *EU Drug Markets Report*. Lisbon/The Hague: EMCDDA, Europol.
- EMCDDA, European Monitoring Centre for Drugs and Drug Addiction/Europol (2020): *EU Drug Markets. Impact of Covid-19*. Lisbon/The Hague: EMCDDA, Europol.
- Europol (2019): "News: 1 176 kg of cocaine hidden in bananas seized in Italy". At: <https://www.europol.europa.eu/newsroom/news/1-176-kg-of-Cocaine-hidden-in-bananas-seized-in-italy> (accessed 4 July 2021).
- Europol (2021): *Serious and organized crime situation assessment (SOCTA)*. The Hague: Europol.
- Farfán-Méndez, Cecilia (2019): "The structure of drug trafficking organizations and money laundering practices. A risk appetite hypothesis." In: *Journal of Illicit Economies and Development*, 1, 3, pp. 294–311.

- Felbab-Brown, Vanda (2020): *Fentanyl and geopolitics. Controlling opioid supply from China*. Washington D.C.: Brookings.
- GI-TOC, Global Initiative against Transnational Organized Crime (2020): *Civil Society Observatory of Illicit Economies in Eastern and Southern Africa*, Risk Bulletin, 12.
- GI-TOC, Global Initiative against Transnational Organized Crime (2021): *Observatory of illicit economies in Southeastern Europe*, Risk Bulletin, 7.
- GI-TOC, Global Initiative against Transnational Organized Crime/Insight Crime (2021): *The Cocaine Pipeline to Europe*, Research Report. Vienna/Bogotá: 2021.
- GI-TOC, Global Initiative against Transnational Organized Crime/INTERPOL/RHIPTO, Norwegian Center for Global Analysis (2018): *World Atlas of Illicit Flows*. Vienna/Oslo/Lyon.
- Goodhand, Jonathan/Meehan, Patrick/Bhatia, Jasmine/Ghiabi, Maziyar/Gutiérrez Sanín, Francisco (2021): "Critical policy frontiers. The drugs-development-peacebuilding trilemma". In: *International Journal of Drug Policy*, 89, 103115.
- Gootenberg, Paul (2021): "Chicken or eggs? Rethinking illicit drugs and 'Development'". In: *International Journal of Drug Policy*, 89, 102985.
- Grimmelmann, Klaas/Arning, Nike/Arnold, Jana/Espinoza, Jorge (2017): "The land-drugs nexus. How illicit drug crop cultivation is related to access to land". In: *Bulletin of Narcotics*, 61, LXI, pp. 75–105.
- Gutiérrez-Sanín, Francisco (2021): "Tough Tradeoffs. Coca crops and agrarian alternatives in Colombia". In: *International Journal of Drug Policy*, 89, 103156.
- Insight Crime (2020): „Honduras proves fertile ground for coca“. At: <https://insightcrime.org/news/brief/coca-crops-flourish-honduras/> (accessed 30 June 2021).
- Kenney, Michael (2007): "The architecture of drug trafficking. Network forms of organisation in the Colombian Cocaine trade". In: *Global Crime*, 8, 3, pp. 233–259.
- Mansfield, David (2020): "Trying to be all things to all people. Alternative development in Afghanistan". In: *International Development Policy*, 12, pp. 79–105.
- Mansfield, David/Soderholm, Alexander (2020): *Emerging evidence of Afghanistan's role as a producer and supplier of ephedrine and methamphetamine*. Lisbon: EMCDDA.
- Morselli, Carlo/Turcotte, Mathilde/Tenti, Valentina (2011): "The mobility of criminal groups". In: *Global Crime*, 12, 3, pp. 165–188.
- Morselli, Carlo/Petit, Katja (2007): "Law-enforcement disruption of a drug importation network". In: *Global Crime*, 8, 2, pp. 109–130.
- Open Society Foundations/Transform Drug Policy Foundation (2008): *The alternative world drug report. Counting the costs of the war on drugs*. New York/London: Open Society Foundations.
- Pearl, Betsy (2019): *Ending the war on drugs. By the numbers*. Washington D.C.: Center of American Progress.
- Pollack, Harold/Reuter, Peter (2014): "Does tougher enforcement make drugs more expensive?". In: *Addiction*, 109, pp. 1959–1966.

- Reitano, Tuesday (2020): "Making war. Conflict zones and their implications for drug policy". In: *International Development Policy*, 12, pp. 127–141.
- Reuter, Peter (2009): "Systemic violence in drug markets". In: *Crime, Law and Social Change*, 52, pp. 275–284.
- Reuter, Peter (2010): "Can production and trafficking of illicit drugs be reduced or only shifted?". In: Keefer, Philipp/Loayza, Norman (eds.): *Innocent bystanders. Developing countries and the war on drugs*. Washington D.C.: The World Bank, pp. 95–135.
- Shaw, Mark (2019): "What could an asymmetrical strategy against organised crime look like? A lesson from the drug policy debate". In: *Journal of Illicit Economies and Development*, 1, 1 pp. 99–106.
- Thoumi, Francisco (2010): "Competitive advantages in the production and trafficking of Coca-Cocaine and Opium-Heroin in Afghanistan and the Andean Countries". In: Keefer, Philip/Loayza, Norman (eds.): *Innocent bystanders. Developing countries and the war on drugs*. Washington D.C.: The World Bank, pp. 195–253.
- UNODC, United Nations Office on Drugs and Crime (2019): *Afghanistan opium survey 2019. Socio-economic survey report. Drivers, causes and consequences of opium poppy cultivation*. Vienna/Kabul: UNODC.
- UNODC, United Nations Office on Drugs and Crime (2020): *Research Brief. COVID-19 and the drug supply chain: from production and trafficking to use*. Vienna: UNODC.
- UNODC, United Nations Office on Drugs and Crime (2021a): *World Drug Report 2021, Booklet II*. Vienna: UNODC.
- UNODC, United Nations Office on Drugs and Crime (2021b): "UNODC World Drug Report 2021. Statistical Annex: Prevalence of drug use in the general population including NPS". At: https://www.unodc.org/unodc/en/data-and-analysis/wdr2021_annex.html (accessed 11 July 2021).
- UNODC, United Nations Office on Drugs and Crime (2021c): *UNODC World Drug Report. Statistical Annex: Global seizures of Cocaine and Heroin*. At: <https://dataunodc.un.org/data/drugs/Global%20Seizures> (11 July 2021).
- US Bureau of Transportation Statistics (n.d.): "Border Crossing Data". At: <https://explore.dot.gov/views/BorderCrossingData/Annual?isGuestRedirectFromVizportal=y&:embed=y> (accessed 4 July 2021)
- US Department of State (2020): "Mexico Human Rights Report". At: <https://www.state.gov/wp-content/uploads/2021/03/MEXICO-2020-HUMAN-RIGHTS-REPORT.pdf> (accessed 2 July 2021).
- Janowitz, Nathaniel (2021): "Are Mexican cartels trying to make their own cocaine?". At: <https://www.vice.com/en/article/epdwd7/are-mexican-cartels-trying-to-make-their-own-cocaine/> (accessed 30 June 2021).