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United Nations Office on Drugs and Crime

ESTIMATING ILLICIT FINANCIAL FLOWS RESULTING FROM DRUG TRAFFICKING AND OTHER TRANSNATIONAL ORGANIZED CRIMES

Research report

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Acknowledgements

This study was undertaken by the UNODC Studies and Threat Analysis Section (STAS), Division for Policy Analysis and Public Affairs (DPA).

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Disclaimers

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Preface

"Always follow the money" has been sound advice in law enforcement and political circles for decades. Nevertheless, tracking the flows of illicit funds generated by drug trafficking and organized crime and analysing the magnitude and the extent to which these are laundered through the world's financial systems remain daunting tasks.

UNODC's research report, Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes, attempts to shed light on the total amounts likely to be laundered across the globe, as well as the potential attractiveness of various locations to those who launder money. As with all such reports, however, the final monetary estimates are to be treated with caution. Further research and more systematic collection of data on this topic are clearly required.

Prior to this report, perhaps the most widely quoted figure for the extent of money-laundering was the IMF's 'consensus range' of between 2-5 per cent of global GDP, made public in 1998. A study-of-studies, or meta-analysis, conducted for this report, suggests that all criminal proceeds are likely to have amounted to some 3.6 per cent of GDP (2.3 - 5.5 per cent) or around US$2.1 trillion in 2009.

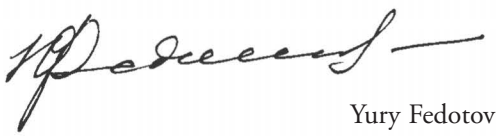
The resulting best estimate of the amounts available for money-laundering would be within the IMF's original 'consensus range', equivalent to some 2.7 per cent of global GDP (2.1 – 4 per cent) or US$1.6 trillion in 2009. From this figure, money flows related to transnational organized crime activities represent the equivalent of some 1.5 per cent of global GDP, 70 per cent of which would have been available for laundering through the financial system. The largest income for transnational organized crime seems to come from illicit drugs, accounting for a fifth of all crime proceeds.

Research in the area of illicit financial flows generated by one key transnational organized crime sector, the global market for cocaine, was also conducted for this report. The gross profits out of cocaine sales (totaling US$85 billion) were estimated at US$84 billion for the year 2009, compared with about US$1 billion earned by the farmers in the Andean region. Most of the gross profits (retail and wholesale) were generated in North America (US$35 billion) and in West and Central Europe (US$26 billion).

The report also reminds us that, contrary to the common misperception that money is neither good nor bad, investments of 'dirty money' into licit economies can create problems ranging from distortions of resource allocation to the "crowding out" of licit sectors. In some cases, the influx of tainted money undermines the reputations of local institutions. Significantly, these investments can hamper investment and economic growth.

While the situation is less clear for financial centers receiving illicit funds, the long-term consequences may be negative if they fail to actively fight money-laundering. Research also indicates that the socio-economic costs related to drug abuse are twice as high as the illicit income generated by drug trafficking. Indeed, in some countries (for example, the United States and the United Kingdom) the ratio is 3:1. This report argues that the severest consequence of criminal funding is that they perpetuate and promote criminal activities, creating a cycle of organized criminal activity and drug trafficking that leeches off societies.

Less than 1 per cent of global illicit financial flows are currently seized and frozen. UNODC's challenge is to work within the UN system and with Member States to help build the capacity to track and prevent money-laundering, strengthen the rule of law and prevent these funds from creating further suffering.



Yury Fedotov

UNODC Executive Director

Key findings

- The purpose of this study was to examine the magnitude of illicit funds generated by drug trafficking and organized crime, and the extent to which they are laundered. Research in this area is still limited and results difficult to compare, but likely orders of magnitude may be estimated, though they should be treated with caution.
- The most widely quoted figure for the extent of money laundered has been the IMF 'consensus range' of 2% to 5% of global GDP, made public by the IMF in 1998. A meta-analysis of the results from various studies suggests that all criminal proceeds are likely to amount to some 3.6% of global GDP (2.3%-5.5%), equivalent to about US$2.1 trillion (2009).
- The best estimate for the amount available for laundering through the financial system, emerging from a meta-analysis of existing estimates, would be equivalent to 2.7% of global GDP (2.1%-4%) or US$1.6 trillion in 2009. Still within the IMF 'consensus range', this figure is located towards its lower end.
- If only flows related to drug trafficking and other transnational organized crime activities were considered, related proceeds would have been equivalent to around US$650 billion per year in the first decade of the new millennium, equivalent to 1.5% of global GDP or US$870 billion in 2009 assuming that the proportions remained unchanged. The funds available for laundering through the financial system would have been equivalent to some 1% of global GDP or US$580 billion in 2009.
- The largest income for transnational organized crime comes from illicit drugs, which account for some 20% (17%-25%) of all crime proceeds, about half of transnational organized crime proceeds and 0.6% to 0.9% of global GDP. In turn, drug-related proceeds available for money-laundering through the financial system would be equivalent to between 0.4% and 0.6% of global GDP.
- Expressed as a proportion of national GDP, all crime proceeds appear to be generally higher in developing countries and tend to be laundered abroad more frequently.
- The results also suggest that the 'interception rate' for anti-money-laundering efforts at the global level remains low. Globally, it appears that much less than 1% (probably around 0.2%) of the proceeds of crime laundered via the financial system are seized and frozen.
- More in-depth research was undertaken, in the context of the present study, on illicit financial flows generated by the transnational organized crime market for cocaine and the distribution of these flows across regions. Overcoming the complexities of the problem and the lack of readily available data required innovative approaches.
- The gross profits out of cocaine sales (totalling US$85 bn) were estimated at US$84 billion for the year 2009. (About US$1 billion were production costs, mainly going to farmers in the Andean region). Most of the profits (retail and wholesale) were generated in North America (US$35 bn) and in West and Central Europe (US$26 bn).
- While the local cocaine market in South America (including Caribbean and Central America) are still rather small in dollar terms (U$S3.5 bn), the gross profits of organized crime groups operating in South America, selling the drugs to the local markets as well as to overseas markets rise to some US$18 billion.
- The calculations, derived from estimates of the size of the market, the number of traffickers and the market structure (derived from individual drug seizures), suggested that, at the wholesale level, some 92% of global cocaine gross profits were available for laundering in 2009. The proportion fell to 46% at the retail level.
- A new 'gravity model' was developed to show the likely laundering flows, based on indicators of the potential attractiveness of locations to money launderers. Out of more than US$84 billion in gross profits and some US$53 billion available for laundering, the base version of the gravity model predicts that some US$26 billion leave the jurisdictions where the profits were generated.
- The largest outflows, according to the model, would take place from countries in North America (US$10 bn), South America (US$7 bn) and Europe (US$7 bn). These regions would together account for 95% of all cocaine profit-related outflows worldwide.
- In terms of net outflows (outflows less inflows) the model suggests that the main destination outside the regions where the profits were generated would be the

Caribbean, with net inflows of around US$6 billon, reflecting significant outflows from North America and South America. Such outflows do not appear to be compensated by inflows from other regions. The outflows from countries in Europe, in contrast, would be offset by inflows from other countries in Europe, North America and South America.

- The presented outcome still relies on a large number of assumptions (number of traffickers, market structure, factors influencing the decisions of money-launderers) whose validity needs to be tested, opening a whole set of new research questions for the future.
- Analysis of the socio-economic impact suggests that the most severe consequence of criminal funds is the further perpetuation and promotion of criminal activities. In the drug area, research indicates that the socio-economic costs related to drug abuse are twice as high as the income generated by organized crime; in some countries (USA, UK) one can even find a 3:1 ratio.
- Criminal funds, even if invested in the legal economy, may create a number of problems, from distortions of the resource allocation, to 'crowding out' licit sectors and undermining the reputation of local institutions, which, in turn, can hamper investment and economic growth. The situation is less clear-cut for financial centres receiving illicit funds, but the long-term consequences may be negative if they do not actively fight money-laundering.

The issue of illicit capital flows has emerged as one that is central to the mandate of UNODC: garnered through the proceeds of illicit trafficking and other forms of organized profit-motivated crime, dirty money promotes bribery and corruption, finances insurgency and, in some cases, terrorist activities. It also destabilizes and deters legitimate enterprise, foreign investment and development.

This study was undertaken by the Studies and Threat Analysis Section, Policy Analysis and Research Branch in order to complement previous work done to estimate the proceeds of various transnational criminal activities and fill some of the knowledge gaps on the extent to which these proceeds flow through the international financial system.

The starting point for the study was to estimate the global proceeds of crime. To do so, various methodologies proposed in the scientific literature are summarized and reviewed. Subsequently, a broad range of previous study results are presented and analysed. The studies range in coverage from the global to the national levels, and they consider somewhat different types and/or aspects of crime. Moreover, the studies were undertaken by a diverse set of stakeholders, including academics, private-sector companies, international institutions and non-governmental organizations.

In spite of the internal divergence of the various estimates, aggregating them for comparison shows a convergence in the results. The overall best estimates of criminal proceeds are close to US$2.1 trillion in 2009 or 3.6% of global GDP (95% confidence interval: 2.7%-4.4%). If only typical transnational organized crime proceeds were considered (resulting from trafficking drugs, counterfeiting, human trafficking, trafficking in oil, wildlife, timber, fish, art and cultural property, gold, human organs and small and light weapons), the estimates would be around 1.5% of GDP. About half of these proceeds were linked to trafficking in drugs. Crime proceeds linked primarily to the national sector such as fraud, burglaries, theft, robberies, loan sharking or protection racketeering were not included in these estimates.

The best estimates of the amounts of money that are laundered are close to US$1.6 trillion or 2.7% of GDP in 2009 (confidence interval: 2.1%-4.0%). The best estimates of the amounts of money laundered globally each year fall within the so-called 'consensus range' of 2%-5% of GDP, originally proposed by the head of the International Monetary Fund in 1998 and often cited in the literature more than a decade later. The data suggest that the best estimates are situated at the lower end of the range. But this is to some extent a question of methodology. If tax- and customs-related money-laundering activities were included in the calculation, results would move towards – and perhaps exceed – the upper end of the 'consensus range'. On the other hand, if only transnational crime-related proceeds were considered, the available estimates for laundering would fall to levels around 1% of GDP, and thus below the 'consensus range'.

Although a number of proposals exist, there is no method that can be regarded as the 'gold standard' for estimating the extent of money-laundering. All methodologies and studies are weakened by various biases or key information gaps. This study tested a new method which is more directly linked to criminal activities and the resulting financial flows. The method consists of the following sub-components:

1. Calculating the financial gains arising from transnational crime activities at the various subregional levels;
2. Estimating the amounts - arising from transnational crime activities in the various subregions - that enter the financial system;
3. Estimating the amounts that cross borders for money-laundering purposes, reflecting the actual 'transnational illicit financial flows' from the proceeds of transnational crime.

The current study does not attempt to map the financial dimensions of all transnational organized crime activities. Instead, it focuses on one prominent example of a transnational organized crime sector. The actual calculations require quite detailed information, which is – for the time being – not readily available for most transnational crime activities. Against this background it was decided to test the 'model(s)' on just one key transnational crime sector where information is available, at least to the extent that missing data can be estimated with reasonable degrees of confidence, so that not all results are the outcome of mere assumptions. Drug traf-

ficking clearly constitutes the largest income for transnationally operating crime groups worldwide and within that area cocaine trafficking plays a key role. The heroin market is clearly smaller and the same applies to the markets in the various amphetamine-type stimulants. The cannabis market – though possibly larger in total - is to a large extent dominated by local cultivation and consumption. Thus – compared to cocaine – it is less characterized by the involvement of transnationally operating crime groups.

In order to develop estimates of the extent to which proceeds from crime enter the financial system, a literature review was undertaken to obtain some baseline data. Moreover, a number of techniques were developed to generate such estimates, including an analysis of individual drug seizure cases reported by Member States, used as a proxy for the underlying market structure.

The final challenge was to identify the proportion of illegal funds that enter the financial system to be subsequently laundered by leaving the respective jurisdiction. To overcome this, another literature review was undertaken and a 'gravity model' was developed, a kind of threat assessment tool, showing the vulnerabilities of subregions for laundering activities.

The UNODC analysis revealed that out of global cocaine retail sales of some US$85 billion (range: US$75-US$100 bn) gross profits of some US$84 billion from cocaine trafficking are generated of which almost three quarters (some US$62 bn, retail and wholesale) in the industrialized countries, mostly in the countries of North America (US$35 bn) and the countries of West and Central Europe (US$26 bn).

The models used per capita GDP less savings as a threshold level for money-laundering (assuming that only income for traffickers above such levels would be available for laundering) and the distribution of individual cocaine seizures as a proxy for the market structure. The calculations suggested that on average 46% of gross retail profits and 92% of gross cocaine wholesale profits were available for laundering at the global level. This resulted in an overall money-laundering proportion of 62% for gross cocaine profits – in line with results in the literature suggesting that between 60% and 80% of drug profits are laundered. The results have been also close to the initial FATF assumptions that between two thirds and 70% of drug related funds are laundered.

Applying the gravity model in its base version to the likely amounts available for laundering, suggested that about half of the profits may be laundered within the same country where the profits were generated (either by entering the banking sector or by entering real estate and other kinds of investment). The other half would go to jurisdictions abroad.

The model predicts that significant laundering of cocaine-related profits, leaving the jurisdictions where the profits were generated, would take place in North America (US$10 bn) and in West and Central Europe (US$7 bn). The Caribbean, in contrast, appears to be affected by laundering attempts by traffickers in North America (US$3.3 bn), South America (US$2.5 bn) and, to a lesser extent, by traffickers from West and Central Europe (US$0.2 bn). Countries in the Caribbean would thus be the most important destination for the laundering of cocaine-related trafficking income with annual net inflows of around US$6 billion, equivalent to some 2.3% of GDP.

While profits generated from cocaine trafficking to local markets in South America (including Caribbean and Central America) are still rather small in monetary terms (US$3.5 bn), the overall gross profits of organized crime groups operating out of South America, Central America and the Caribbean are important as they also send cocaine to overseas markets.

The overall gross profits thus rise to some US$18 bn (including US$16 bn for just South America). Significant amounts appear to be laundered in the countries where the profits were generated though in addition, important amounts leave the countries in South America (> US$7 bn). The single largest destination of such outflows appear to be the Caribbean (US$2.5 bn).

After having focussed on the monetary flows linked to one major transnational crime activity (trafficking in cocaine) the scope of the analysis was broadened again to discuss the overall socio-economic consequences of the dirty money generated by organized crime. The estimated US$2.1 trillion of crime proceeds believed to be generated in 2009 of which US$1.6 trillion available for laundering, including crime proceeds of US$0.9 trillion from transnational organized crime of which US$0.6 trillion available for laundering, help existing crime to flourish and expand, with a large number of negative socio-economic consequences, depending on the specific predicate crimes.

For drug-related crime, there tends to be a significant 're-investment' of illicit funds into drug trafficking operations which have major negative implications for society at large. The 'losses' of drug users go far beyond their expenditure on drugs. For example, productivity loss has been found to be a major drug-related economic cost in the USA. Other problems – at the global level - include health problems, trafficking-related violence and corruption.

The implications of investment of criminal financial flows in the legal economy are mainly related to distortions of investments, prices, consumption, exports and economic statistics, unfair competition and the under-

mining of legal institutions. For example, an investor of illicit funds is likely to make investment decisions based on the risk of detection rather than maximum return on investment. Criminal funds thus have a negative effect on economic growth by diverting resources to less productive activities.

Research undertaken in industrialized countries has found that increases in money-laundering activities were associated with reductions in overall annual economic growth rates. One study, for instance, found that each US$1 billion laundered reduced overall economic growth by 0.04-0.06 percentage points in the 17 researched OECD countries. While the picture is somewhat more mixed once money-laundering affects foreign jurisdictions, financial centres have developed a self-interest of not being associated with 'tainted money' and have signed relevant international instruments to avoid the inflow of such criminal finance.

To enable authorities to follow the money-trail in order to detect underlying criminal activities and to dismantle the groups involved, anti-money-laundering legislation is key. The operations of criminal organizations are potentially vulnerable to detection via the money trail, and there are good reasons for the authorities to exploit these vulnerabilities. Based on all available estimates, however, less than 1% of the total amounts that are being laundered are seized. Thus, there is a clear need for universal and stronger participation in international money-laundering efforts at the global level.

Garnered from the proceeds of illicit trafficking and other forms of organized profit-motivated crime, 'dirty money' can hinder governance, stability and economic development. Money-laundering is particularly problematic when it is directly related to organized crime activities that cause severe harm and generate considerable illicit profits, such as trafficking in illicit drugs, theft of natural resources, trafficking in human beings and illegal trade in arms, to mention some. While work has been done, including by UNODC, to estimate the proceeds of various transnational criminal activities, there remain considerable knowledge gaps, including on the extent to which these proceeds flow through the international financial system.

Member States have been also concerned about the dimensions and the impact of illicit financial flows related to transnational organized crime and called for further work on this topic. This is reflected in the resolution by the United Nations Commission on Crime Prevention and Criminal Justice on "Strengthening international cooperation in combating the harmful effects of illicit financial flows resulting from criminal activities "(April 2011, E/2011/30*; E/CN.15/2011/21*) which stated in its introductory paragraphs that it was "*aware that the availability of information on illicit financial flows resulting from transnational organized crime, including... drug trafficking … is very limited, and of the need to improve the quality scope and completeness of such information"* and in §14 "*Requests the United Nations Office on Drugs and Crime to continue, in consultation with Member States, its research on transnational organized crime, including illicit financial flows*".

This study was undertaken by the UNODC Studies and Threat Analysis Section, Policy Analysis and Research Branch. It is intended as a contribution towards filling some of the knowledge gaps related to illicit financial flows.

The methodology applied for this study, notably the new approaches developed for Chapter 2 ('Detailed Analysis of a Transnational Organized Crime Sector') were endorsed by an external Reference Group. This informal group consisted of renowned experts from the academic field as well as from Financial Intelligence Units and various international organizations, drawn from countries in Europe, North America, Latin America, Africa and Oceania. Drafts of this research report were circulated to Member States for comments twice, in February and September 2011.

Scope of the study

The study concentrates on the illicit financial flows emerging from drug trafficking and other transnational organized crime and their socio-economic implications.

One key aim of this study is to determine the likely magnitude of crime proceeds and to investigate the likely extent of global money-laundering. The report thus starts with an overview of the methodologies proposed in the scientific literature to measure illicit financial flows, followed by an analysis and discussion of previous results in this area. While highly diverse in nature, it will be shown that by pooling results of research undertaken at the national and global levels and by expressing estimated crime proceeds and estimated amounts of money laundered as a proportion of GDP, some likely orders of magnitude of the problem can be established. This also helps to aggregate results referring to different years. One key question in this area will be whether currently available research supports the widely quoted IMF 'consensus range' of the amounts laundered being equivalent to between 2% and 5% of GDP, put forward by the IMF back in 1998.

This is followed by a chapter presenting the methodology that was used to analyse financial flows emerging from a selected transnational organized crime activity - trafficking in cocaine. The chapter analyses the flows related to cocaine trafficking profits into the financial system and the destinations of these flows. As this is new territory, this is a particularly challenging task. Original research has been undertaken for this chapter.

A subsequent chapter focuses on the socio-economic impact of illicit financial flows emerging from drug trafficking and other transnational organized crimes. It analyses the consequences of such flows for the underlying predicate crimes, and their impact if invested in the legal sectors of the economy. Finally, it analyses the impact of illicit financial flows once laundered in foreign jurisdictions, and discusses the consequences for the countries of origin as well as recipient countries, both short and long-term.

The discussion on the socio-economic impact will be followed by a chapter presenting the legal instruments

that have evolved over the last two decades to fight such illicit money flows at the international level. While these efforts concentrated first on drug-related money-laundering, it will be shown how these instruments gradually broadened their scope to encompass money-laundering of all serious crime related proceeds.

The report ends with a summary and conclusions. The point that – based on all existing estimates – the 'success rate' for anti-money-laundering efforts is still limited is made, and the ensuing need for better results noted. There is a clear need for stronger international cooperation, and a need for a better implementation of existing international instruments by all jurisdictions.

a) Methodological approaches proposed in the literature

In order to measure illicit financial flows, and thus the extent of money-laundering, a number of methods have been proposed in the literature.[1] The issues at stake are very complex. As will be shown below, there is currently no single method that would give clear, unambiguous and indisputable results. In contrast to several other forms of crime, where victims report their case to the authorities, money-laundering is a largely hidden phenomenon and only a small proportion of cases tends to eventually surface (in reported suspicious transactions, court cases, et cetera). Moreover, the definitions of money-laundering predicate offences differ between jurisdictions, and it is thus not clear to which extent national studies are comparable, given that they may not be comparing "like with like".

Traditional approaches used to discuss money-laundering have been based on *field and case studies.* In the Netherlands, for instance, Meloen et al.[2] analysed 52 criminal cases wherein property had been confiscated. They found related money-laundering activities of more than one million Dutch guilders (about US$500,000) per case. The basic problem with such an approach is that it is unclear how representative the studied cases are, and to what extent they represent total money-laundering activities in a given country. The case studies are helpful to better understand the behavior of launderers; what they purchase, where and how they launder and so on. In order to go beyond describing and summarizing the specific cases, however, a number of additional assumptions must be made about the underlying population of money-launderers, which may not reflect reality.

Another way of estimating the amount of money laundered is to carry out *surveys and interviews* with business people and experts from the police and government departments and ministries. For instance, John Walker (AUSTRAC, RMIT University) was commissioned by the Australian Financial Intelligence Unit in 1992 to undertake such a survey, based on expert opinion, to determine the percentages laundered from the proceeds of each type of crime.[3] As with all surveys, this approach has a number of potential biases. The sample might not be representative and the people interviewed may have their own perception biases, notably as objective and verifiable data is generally not available to answer such questions. In addition, there can be biases linked to interpretation, non-response and sample.

A further method of estimating money-laundering is to analyse *suspicious or unusual transactions* reported to *financial intelligence units* (FIUs), which have been established in most countries to monitor and control money-laundering. There are, however, variations between countries regarding reporting requirements, particularly related to thresholds that may trigger a report, or the extent to which non-monetary payment instructions (such as bearer instruments) should be included. Moreover, information overload can lead to delays in follow-up investigations. There is also a potential problem of strategic dilution of information by respondents[4] as they may fear negative consequences and start reporting a larger number of transactions in order to avoid a later accusation of not having informed the authorities. This can lead to a strong bias of this indicator in some countries and make country comparisons difficult.[5]

In addition, a number of top-down approaches have been proposed in the literature. Several of these methods are based on the analysis of statistical discrepancies in official data.

One method in this category is to analyse the 'errors and omissions' in the balance of payments ('*hot money*

1 The following discussions draws heavily on Brigitte Unger, "Money Laundering – A Newly Emerging Topic on the International Agenda," *Review of Law and Economics*, 2009 and Brigitte Unger, *The Scale and Impacts of Money Laundering,* Edward Elgar Publishing, May 2007.

2 J. Meloen, R. Landman, H. de Miranda, J.van Eekelen and S. van Soest, "Buit en Besteding, Een empirisch onderzoek naar de omvang, de kenmerken en de besteding van misdaadgeld," Reed Business Information, Den Haag, Netherlands, 2003.

3 J. Walker, *Estimates of the Extent of Money Laundering in and through Australia*, paper prepared for the Australian Transaction Reports and Analysis Centre, John Walker Consulting Services, Queanbeyan, Australia, September 1995.

4 E. Takáts, "A Theory of 'Crying Wolf ': The Economics of Money Laundering Enforcement," IMF Working Paper No. 07/81, April 2007; L. Dalla Pellegrina and D. Masciandaro, "The Risk-Based Approach in the New European Anti-Money Laundering Legislation: A Law and Economics View," *Review of Law and Economics*, 2009, 5 (2), Article 6.

5 B. Unger and F. van Waarden, "How to Dodge Drowning in Data? Rule- and Risk-Based Anti Money Laundering Policies Compared," *Review of Law and Economics*, 5(2), 2009, Article 7.

method'). These are supposed to reflect differences between registered capital inflows and -outflows. The assumptions are that errors and omissions may arise because of a failure to measure certain movements of private short-term capital, and that it is appropriate to add these to the recorded flows of short-term capital in order to get an estimate of total 'hot money' flows.[6] The basic logic is that the better the recording of capital flows, the higher the overall transparency of financial transactions, the lower the 'errors and omissions' and the less likely it becomes that countries become victims of money-laundering activities.

The '*residual approach*' attempts to measure capital flight by taking the difference between inflows (sources) of funds and outflows (uses) of funds, which are unrecorded.[7] The question here is how well the residual reflects capital flight. Moreover, the approach does not include other discrepancies such as time lags and different calculation conventions. Another question that arises from using this method is to what extent capital flight, which may consist of both laundered money and tax evasion, actually measures money-laundering.

Kar and Smith,[8] on behalf of Global Financial Integrity (GFI), refined these concepts, in order to estimate the illicit financial flows out of developing countries (previously referred to as 'flight capital'). Starting with an analysis of the merits and limitations of the Hot Money Method, the Dooley Method, the World Bank Residual Methods, the Direction of Trade Statistics-based Trade Mispricing Model and the International Price Profiling-based Trade Mispricing Method, they adopted the *World Bank Residual Method*, applying the '*change in external debt' (CED)* version, in combination with the *Trade Mispricing Model* in its *'gross excluding reversals'* (GER) version as the best model. This was slightly modified with a two-stage filtration process on 'non-normalized' estimates. The results emerging from these models, however, do not include the proceeds of criminal commercial smuggling such as drugs, minerals and contraband goods, and any trade mispricing will not be picked up in the model if there was collusion between importers and exporters to fake invoices.

The '*currency demand approach*' tries to measure the discrepancy between the regular and excess demands for a currency ('cash'). This approach was applied by Tanzi[9] to demonstrate both the 'shadow economy' and the extent of money-laundering. It is assumed here that cash is frequently used in hidden transactions to avoid observable traces for the authorities. The extent of cash in an economy is used as an indicator of the size of the shadow economy or the extent of money-laundering. An increase in the shadow economy or money-laundering would necessitate more cash, and hence increase the demand for a currency. By comparing the amount of money printed and the amount of money actually circulating, Tanzi (1997) concluded that some US$5 billion in cash per year (1984) may have been used for the illegal drug trade in the USA. (Subsequent estimates of the overall size of the US drug trade – using different methods - yielded substantially higher figures).[10] One problem of the currency demand approach is that it cannot distinguish between the shadow economy and money-laundering. Furthermore, cash holdings can be the result of dollar or euro hoarding due to fears of devaluation of other currencies. Moreover, it cannot be applied to countries within a currency zone, such as the euro or the West African franc, since the cash supply distribution across countries is not known.

Another method was proposed by Quirk,[11] who attempted to estimate the correlation between money-laundering and the demand for money. This method suggested that money-laundering, through its effects on demand, would affect interest rates and exchange rates. An increase in money demand resulting from the need for cash to buy drugs would make money more expensive. This means that the price for money – the interest rate – would go up. Higher interest rates would then attract foreign investors, leading to more capital inflows and exchange rate appreciation. This approach may work for some countries, although higher interest rates and currency appreciations can be the consequence of many other causes. The method would not work to identify the extent of money-laundering for individual countries within a currency zone.

More recent attempts to measure the extent of money-laundering are the so-called *Latent Variable Approaches*. Best known here is the '*dynamic multiple-indicators multiple-causes*' (*DYMIMIC*) model, which uses two sets of observable variables and links them as a proxy to the unobservable variable (the extent of money-laundering).

6 F. Schneider and U. Windischbauer, "Money Laundering: Some Facts," *European Journal of Law and Economics*, 26(3), 2008, pp. 387-404.

7 M. De Boyrie, S. Pak and J. Zdanowicz, "The Impact of Switzerland's Money Laundering Law on Capital Flows Through Abnormal Pricing in International Trade," *Applied Financial Economics*, vol. 15, 2006, pp. 217-230.

8 D. Kar and D. Cartwright-Smith, *Illicit Financial Flows from Developing Countries: 2002-2006*, Global Financial Integrity, Washington D.C., 2008.

9 V. Tanzi, *Money Laundering and the International Financial System*, IMF Working Paper, International Monetary Fund, No. 96/55, 1996; V. Tanzi, 'Macroeconomic Implications of Money Laundering,' in E.U. Savona, *Responding to Money Laundering, International Perspectives*, Harwood Academic Publishers, 1997, Amsterdam, pp. 91–104.

10 ONDCP, *What America's Users Spend on Illegal Drugs*, December 2001.

11 P. J. Quirk, 'Money Laundering: Muddying the Macroeconomy', *Finance & Development*, 34 (1), (1997), pp. 7–9.

One set of variables reflects the causes for the shadow economy such as regulations, taxation and prosecutions. The other set is called indicators, and measures the effects of the shadow economy on money-laundering. These observable variables parallel money-laundering and include the growing demand for money, less official growth, and/or increases in crime rates. Schneider[12] used this approach to estimate the shadow economy for 145 countries. Schneider and Windischbauer[13] also applied the method to measure the extent of money-laundering. One problem with this approach is that the choice of cause and indicator variables appears to be rather arbitrary and is not necessarily reinforced theoretically. Instead, the DYMIMIC model uses factor analysis to determine how well the different 'cause variables' explain the unobservable variable and those that can be grouped together. The same is then done for the indicator variables. In other words, statistics decide which indicators are used to form the relevant bundle for potential causes and indicators of a shadow economy (or money-laundering). Tedds and Giles (2000) and Schneider (2006) described this model. A MIMIC model is formulated as follows: ML is the scalar (unobservable) 'latent' variable (the size of money-laundering); y' = (y1, y2, ..., yp) is a vector of 'effects' or 'indicators' of ML; x' = (x1, x2, ..., xq) is a vector of causes of ML. DYMIMIC refers to changes in these variables. Under the assumption that all the elements are normally distributed and uncorrelated, one can estimate money-laundering by regressing the observable causes (or change in causes) on the observable effects (or change in effects). The advantage of this model is that it can be applied to all countries and jurisdictions in the world. Its weakness is that one cannot test the extent to which the model specifications are correct and have anything to do with money-laundering.

Another approach has been chosen by John Walker, who – based on an *input-output model* in combination with a *gravity model* and various *triangulation techniques* – attempted to arrive at a global estimate of money-laundering by measuring illicit flows of money in and out of 220 countries in 1994.[14] In 2006, Unger et al.[15] applied a modified 'Walker model'[16] to estimate money-laundering in the Netherlands. The input-output models have their origins in some of the models originally used to analyse socialist economies – but have also proven useful for estimating the size of illegal drug markets at the regional and subregional level, using triangulation techniques based on expert consistency checks. Newton's gravity model is another theoretical foundation for these estimates. In fact, a number of newer models in international trade theory have shed light on the role of distance and borders, and about the attractiveness of countries for trade, which can also be applied for improving estimates of money-laundering. Once the scale of money-laundering is known, its macroeconomic effects, as well as the impact of crime prevention, regulation and law enforcement effects on money-laundering and transnational crime, can be estimated. An IMF Working Group has been trying in recent years to improve the attractiveness indicators of these models and to establish a threat analysis to show which countries are more attractive for launderers due to their specific features (such as financial expertise). The weaknesses of the 'Walker model' are that it depends on a number of assumptions and requires detailed calibration – and thus experts in the respective field to judge whether or not the results are reasonable. As with any model, the accuracy of its results are difficult to verify.

Further models to estimate the extent of money-laundering are based on observing abnormal prices. Using trade to transfer illicit funds is an old technique. Launderers can create fake high-value invoices and ship merchandise of low value or reverse this procedure as a way of concealing ill-gotten gains. These techniques are known as *trade-based money-laundering*. In June 2008, FATF published a report on Best Practices of Trade-Based Money Laundering,[17] dealing with questions of how trade-based money-laundering can be detected. Economic analysis of trade data can help to develop risk indicators for identifying suspicious trading countries and merchandise, and for determining the scale of trade-based money-laundering. John Zdanowicz[18] analysed monthly data contained in the United States Merchandise Trade Data Base and identified suspicious merchandise flows, the share of trade subject to money-laundering for each country, and the amount of money-laundering between the USA and countries on the Al-Qaida watch list. He provided both country risk and merchandise risk indices that helped identify the countries and products most vulnerable to money-laundering. His method is

12 F. Schneider, *Shadow Economies and Corruption All Over the World: New Estimates for 145 Countries*, The Open Access, Open Assessment E-Journal, 2007.

13 F. Schneider and U. Windischbauer, "Money Laundering: Some Facts," *European Journal of Law and Economics*, 26(3), 2008, pp. 387-404.

14 J. Walker, *Estimates of the Extent of Money Laundering in and through Australia*, paper prepared for the Australian Transaction Reports and Analysis Centre (AUSTRAC), John Walker Consulting Services, Queanbeyan, Australia, September 1995.

15 B. Unger, J. Ferwerda, W. de Kruijf, G. Rawlings, M. Siegel and K. Wokke, *The Amounts and the Effects of Money Laundering*, report for the Dutch Ministry of Finance, February 2006.

16 J. Walker and B. Unger, "Measuring Global Money Laundering: The Walker Gravity Model," *Review of Law and Economics*, 5:2, 2009, pp. 821-853.

17 Financial Action Task Force (FATF), *Best Practices paper on Trade Based Money Laundering*, Paris, June 2008.

18 J. Zdanowicz, *Trade-Based Terrorist Financing Analysis: Suspicious Trade with Al Qaeda Countries*," International Trade Alert Working Paper, 2005.

valid under the assumption that product prices are normally distributed and that unusual prices have a criminal intention and are not, for example, just booking errors by customs officials. In this model all transactions with a price below the 5% margin or above the 95% margin around the 'usual' prices are classified as trade-based money-laundering attempts. He uses not only country prices, but also world prices and variance measures to determine unusual transactions. An unresolved weakness of this model is that no matter how great the price fluctuations are, the model classifies 10% of all transactions as always suspicious (the upper and lower 5%).

Another evolving approach to measure money-laundering is to use economic theory in combination with simulation techniques. This can help to determine how much rationally acting launderers would launder. In this context, Bagella, Busato and Argentiero[19] developed a theoretical model for estimating money-laundering in Italy by expanding a dynamic two-sector equilibrium model and simulating it for the USA and the EU-15 countries. In this model, agents have the option to work partly in the legal and partly in the illegal economy. They face transaction costs in the legal sector and costs of being detected in the illegal sector. Two types of firms produce a legal good and an illegal good with two different technologies. The government sets fines, can influence the probability of detection, and can influence the liquidity (money supply) of the economy, although there is a liquidity constraint. If households want more liquid funds, they must engage in the illegal sector. The 'optimal' money laundered depends on the labour allocated to the legal and illegal sector and on the prices and quantities of both goods. The model forecasts the development of the legal and illegal sectors, and the attractiveness of the model lies in the possibility to compare the model's forecasts of the licit economy with its actual development. One can thus see how well the model predicts the observable part of the economy. Assuming that the same good fit holds for the unobservable part of the illegal sector, one can use the theoretical finding for the illegal sector as a measure of money-laundering.

b) Analysis of previous estimates

A number of results will be discussed in this sub-chapter to help get a better understanding of the likely magnitudes involved. One caveat should be made, however. As Peter Reuter once remarked, after having studied the phenomenon and the various proposed methods for years: "*The review of the … methods comes to a simple conclusion: neither yields estimates of the volume of laundered money that can be considered as anything more than an indicative order of magnitude.*" But he went on to state that "*Such figures are useful to confirm that the phenomenon of money laundering is of sufficient scale to warrant public policy attention…*" and that "*Such a negative assessment … does not imply an endorsement of policymaking by anecdotes… To the contrary, a recurring theme… is that better use could and should be made of available data …, and greater thought should be given to collecting and assembling relevant statistics that aid policymakers.*"[20]

i. FATF estimates

One of the first estimates on the extent of illicit financial flows and related money-laundering came from the Financial Action Task Force (FATF). It was founded in 1989 by the G-7 to help tackle the threats posed by money-laundering for the international banking system,[21] and now has 36 members. It has issued 40 recognized Recommendations against money-laundering and nine Special Recommendations against terrorist financing.

The starting point for the FATF estimate was drug sales in the USA and Europe. The FATF estimated drug sales in the late 1980s at some US$124 billion (bn), of which they estimated that some US$85 bn (equivalent to 0.8% of the gross domestic product (GDP) in the USA and Europe, or 0.5% of global GDP) would have been available for money-laundering. Assuming that drug sales may have accounted for a quarter of global illegal proceeds, FATF estimated the total amounts laundered at some 2% of global GDP.[22] Based on 2009 GDP data,[23] this would have been equivalent to some US$1.2 trillion.

19 M. Bagella, F. Busato and A. Argentiero, "Money Laundering in a Microfounded Dynamic Model: Simulations for the U.S. and the EU-15 Economies," *Review of Law and Economics,* 5(2), 2009, Article 4.

20 P. Reuter and E. M. Truman, *Chasing Dirty Money – The Fight against Money Laundering*, Washington D.C., 2004, p. 12.

21 FATF, History of the FATF, http://www.fatf-gafi.org/pages/0,3417,en_32250379_32236836_1_1_1_1_1,00.html

22 "Another approach to estimating the magnitude of financial abuse uses information about expenditures and prices involved in criminal activity that has been collected in the course of law enforcement (micro-data). The most publicized of such estimates have been for global money-laundering by the FATF. On the basis of information about final sales of some illegal drugs (about US$120 billion a year in the United States and Europe in the late 1980s) and extrapolating worldwide and generalizing to include all drugs, and subsequently assuming that 50-70 percent of that amount would be laundered, the FATF estimated that money-laundering could reach about 2 percent of global GDP." (International Monetary Fund, Financial System Abuse, *Financial Crime and Money Laundering- Background Paper*, February 12, 2001.)

23 According to the World Bank, the current global gross domestic product amounted to US$58.14 trillion in 2009 (World Bank, *The World at a Glance – Key development indicators from the World Bank*, March 2011).

Table 1: FATF estimate of money-laundering (1988)

Amounts estimated to have been laundered (1988)	As a percentage of global GDP
US$0.34 trillion	2.0%

Source: International Monetary Fund, Financial System Abuse, *Financial Crime and Money Laundering- Background Paper*, February 12, 2001.

Table 2: IMF estimates of money laundered (1998)

	Minimum	Maximum	Mid-point
IMF estimates of money laundered as a percentage of global GDP	2%	5%	3.5%
Estimate for 1996 in trillion US$	0.6	1.5	1.1
Estimate for 2005 in trillion US$	0.9	2.3	1.5
Estimate for 2009 in trillion US$	**1.2**	**2.9**	**2.0**

Source: OECD Observer, "Ten years of combating money laundering", *OECD Observer* No 217-218, Summer 1999 and World Bank, *World Development Indicators* (WDI), 2010.

Over the 1996-2000 period, the FATF tried to develop a more scientific basis for this estimate and invited all major actors in this field to a number of expert group meetings and workshops.

Peter Reuter, one of the authors involved in the final study to produce a more scientific estimate of the amounts globally laundered, had to admit, however, that the attempt failed in 2000.[24] This was mainly due to the unavailability of appropriate data and information, despite the participation of the main national, regional and global institutions and experts in this exercise. This underlined the extreme difficulties to estimate – with any level of accuracy and scientific rigour – how much 'dirty money' is being generated and laundered.

The FATF issued a general recommendation that countries should estimate the funds generated from crime and the extent to which these funds are being laundered on a national basis. Only a few countries, however, have subsequently undertaken such an exercise.

ii. IMF estimates

The most frequently quoted estimate on the extent of money-laundering at the global level is an estimate provided by the head of the International Monetary Fund in the mid-1990s. This suggested that the extent of money-laundering (that is, of income derived from illicit sources) was equivalent to between 2% and 5% of global GDP. This would have been between US$0.6 – US$1.5 trillion in 2006[25] and – assuming the proportions remained unchanged – between US$0.9 and US$2.3 trillion in 2005 (with a 'best estimate' of around US$1.5 trillion)[26] and between US$1.2 and US$2.9 trillion in 2009, with a mid-point estimate of around US$2 trillion (based on a global GDP of US$58.2 trillion in 2009).

The 2% to 5% of global GDP estimate was apparently first cited by then-managing director of the IMF Michel Camdessus in 1998, as a 'consensus range' of the likely scale of money-laundering transactions at the global level.[27] The 'consensus range' has been, inter alia, also cited in the World Bank's *Reference Guide to Anti-Money Laundering and Combating Financing of Terrorism*.[28] A problem with this widely quoted figure has been the lack of supporting material and methodology documenting how it was established,[29] though – according to the World Bank – it dates back to research undertaken by Vito Tanzi and published in an IMF working paper in 1996.[30]

24 Peter Reuter and Edwin M. Truman, *Chasing Dirty Money – The Fight against Money Laundering*, Washington D.C., 2004, p. 9.

25 OECD Observer, "Ten years of combating money laundering", *OECD Observer* No 217-218, Summer 1999.

26 B. Unger, *The Scale and Impacts of Money Laundering*, Edward Elgar Publishing Limited, Cheltenham, UK, 2007, p. 80.

27 Mr. Michel Camdessus said in a speech ("*Money Laundering: the Importance of International countermeasures*") at the Plenary Meeting of the Financial Action Task Force on Money Laundering on February 10, 1998: "*I hardly need say that the IMF regards the anti-money laundering actions advocated by the FATF as crucial for the smooth functioning of the financial markets. While we cannot guarantee the accuracy of our figures —and you have certainly a better evaluation than us—the estimates of the present scale of money laundering transactions are almost beyond imagination—2 to 5 percent of global GDP would probably be a consensus range….*" International Monetary Fund, "Money Laundering: the Importance of International Countermeasures", Paris February 10, 1998 http://www.imf.org/external/np/speeches/1998/021098.htm

28 World Bank, *Reference Guide to Anti-Money Laundering and Combating Financing of Terrorism,* Washington (2nd edition), 2006, p. 1-6.

29 F. Schneider, Money *Laundering: some Preliminary Findings*, Oct. 2007, http://www.awi.uni-heidelberg.de/with2/seminar/WS%200708/Schneider_Money%20Laundering_102007.doc.

30 V. Tanzi, "Money Laundering and the International Finance System", *IMF Working Paper* No. 96/55, May 1996.

iii. National estimates

Only a few estimates on the extent of crime-related proceeds at the national level exist so far. These estimates tend to be heterogeneous in terms of items included and the way the results are generated, which limits direct comparability. Nonetheless, they still provide some valuable ideas of the likely magnitudes involved.

- United States

One set of estimates for the USA has been presented by Peter Reuter. These estimates on the generation of illegal income, including tax evasion, suggest that earnings from criminal activities increased in nominal terms over the last few decades to some US$780 bn, though – after an initial rise between 1965 and 1985 - they remained stable over the 1985-2000 period if expressed as a proportion of GDP. Excluding tax evasion, criminal income increased from 2.5% of GDP in 1965 to 4% in 1985 (in line with the massive increase in drug consumption and trafficking over that period) but then gradually declined to 2.3% of GDP by 2000 (which also appears to be linked to the subsequent fall in drug use, notably the use of cocaine and related falls in acquisitive crime and trafficking over the 1985-2000 period). The proportion of overall criminal income (some US$220 bn in 2000) to total illicit income (including tax evasion of some US$780 bn) fell from almost half in 1985 to less than a third two decades later and to less than 30% in 2010.

Assuming that the proportion for crime-related income (2.3% of GDP) remained largely stable over the subsequent decade – which can be assumed as no increase in crime was reported – the criminal income in 2010 (excluding tax evasion) may have amounted to some US$350 bn in the world's largest national economy. This would probably be the upper limit estimate. A lower limit estimate – assuming that the nominal increases found over the 1990-2000 period continued unchanged over the 2000-2010 period, would result in an estimate of around US$235 bn for the year 2010 or 1.6% of GDP. A mid-point estimate would show criminal income of some US$300 bn (rounded) or 2% of GDP for 2010.

A detailed breakdown for the various criminal proceeds in the USA, provided by Reuter for the year 1990, showed that tax evasion accounted for more than half of the total illegal proceeds. Drug trafficking accounted for around one fifth of global illegal proceeds, followed by fraud (around one eighth). The other crimes were far less important. Excluding tax evasion, drug trafficking would have been responsible for almost half (47%) and fraud for more than a quarter (28%) of the total. While tax evasion, drugs and fraud are likely to continue to play important roles for overall criminal proceeds, one can assume that other crimes have gained in importance over the last two decades and would now appear higher on the list.

Table 3: Estimated earnings from criminal activity* in the United States, billions of current US$ (1965-2010)

	Tax evasion included		Criminal income (tax evasion excluded)		
	Estimated criminal income	in % of GDP	Estimated criminal income	in % of GDP	Ratio of criminal income in total illicit income
1965	49	6.8%	18	2.5%	37%
1970	74	7.1%	26	2.5%	35%
1975	118	7.2%	45	2.7%	38%
1980	196	7.0%	78	2.8%	40%
1985	342	8.1%	166	4.0%	49%
1990	471	8.1%	209	3.6%	44%
1995	595	8.0%	206	2.8%	35%
2000	779	8.0%	224	2.3%	29%
2010**			300 (235 –350)	2.0% (1.6%-2.3%)	

* Criminal activities included: trafficking in illicit drugs, human trafficking, burglary, larceny-theft, motor vehicle theft, robbery, fraud, arson, non-arson fraud, counterfeiting, illegal gambling, loan sharking and prostitution. Tax evasion crimes included federal income, federal profits and excise tax evasion.
** Tentative UNODC estimate based on previous estimates and trends derived from new drug and crime data.

Source: Peter Reuter, "*Chasing Dirty Money – the Fight against Money Laundering*," Washington 2004; based on Office of National Drug Policy (2000 and 2001); Simon and Witte (1982); GAO (1980); Federal Bureau of Investigations' annual *Uniform Crime Reports*; Internal Revenue Service; International Organization on Migration; Abt. Smith, and Christiansen (1985); Kaplan and Matteis (1967), Carlson et al. (1984), Key (1979) and World Bank, World Development Indicators (WDI), 2011.

Table 4: Estimated unlawful earnings, including criminal proceeds, in the United States (1990)

	Proceeds in billion of current US$	in % of total	in % of total
Tax evasion	262.2		55.7%
Drug trafficking			
Cocaine trafficking	61.3	13.0%	
Heroin trafficking	17.6	3.7%	
Marijuana trafficking	13.5	2.9%	
Other drug trafficking	4.8	1.0%	
Subtotal drug trafficking			20.6%
Fraud	59.3		12.6%
Prostitution	14.7		3.1%
Loan sharking	14.0		3.0%
Motor vehicle theft	8.0		1.7%
Illegal gambling	7.6		1.6%
Larceny/theft	3.8		0.8%
Burglary	3.5		0.7%
Robbery	0.5		0.2%
Human trafficking	0.2		0.04%
Counterfeiting	0.1		0.02%
Fraud arson	0.04		0.008%
Total	**471.1**		**100.0%**
As a percentage of GDP	8.1%		

Source: Peter Reuter, "*Chasing Dirty Money – the Fight against Money Laundering*", Washington 2004; based on Office of National Drug Policy (2000 and 2001); Simon and Witte (1982); GAO (1980); Federal Bureau of Investigations' annual *Uniform Crime Reports*; Internal Revenue Service; International Organization on Migration; Abt. Smith, and Christiansen (1985); Kaplan and Matteis (1967), Carlson et al. (1984).

In fact, estimates of the size of the US drug market for the year 2000 showed a total figure of US$64 bn, down from US$115 bn, expressed in constant 2000 dollars.[31] Expressed as a percentage of GDP, the size of the US drug market declined from 1.7% in 1990 to 0.6% in 2000. This decline was due to overall lower quantities of drugs consumed in the USA (as many heavy users either received treatment or were imprisoned for drug dealing) as well as a decline in drug prices in the 1990s as a consequence of more competition in the drug markets, following the dismantling of the big Colombian drug cartels.

The proceeds from other crime, expressed as a percentage of GDP, also declined. This was linked to lower consumption of drugs (notably of cocaine and crack-cocaine) and lower levels of all forms of acquisitive crime (including burglaries, larceny-theft and motor vehicle theft) and violent crime, including robberies and homicides. Crime rates continued to decline further in the first decade of the new millennium, but these declines were less pronounced than in the 1990s.[32]

The overall illicit drug market – in nominal terms – appears to have remained stable in the first decade of the new millennium, as prices and prevalence rates did not change significantly. Reported drug use prevalence rates increased from 2000-2002, due to improvements in survey methodology, then fell until 2008 and rose again in 2009. Over the 2002-2009 period, drug use was basically stable,[33] and the same probably applies to the

31 ONDCP, *What America's Users Spend on Illegal Drugs*, Washington D.C, December 2001, p. 3.

32 FBI Uniform Crime Reports, quoted in UNODC, *2010 World Drug Report*, Vienna 2010, p. 82

33 The reported annual prevalence rate of drug use in the USA in the population aged 12 and above rose from 11.0% in 2000 to 14.9% in 2002 – mainly due to changes in methodology. The prevalence rate then fell over the subsequent years to 14.2% by 2008 before increasing again to 15.1% in 2009, mainly due to an increase in cannabis consumption in parallel with the referendum on cannabis legalisation in California in 2010. Excluding cannabis, the annual prevalence of drug use fell from 8.7% in 2002 to 8.0% in 2008 before rising again to 8.3% in 2009. The latter increase was, however, statistically not significant. (SAMHSA, *Household Survey on Drug Use and Health,* 2009 and previous years).

Table 5: Estimates of the US drug market, billions of constant 2000 US$ (1990-2000)

	1990	1995	2000
Cocaine	69.9	40.0	35.3
Marijuana	15.0	10.2	10.5
Heroin	22.5	13.2	10.0
Methamphetamine	5.7	9.2	5.4
Other drugs	2.2	2.7	2.4
Total (rounded)	**115**	**75**	**64**
In % of GDP	1.6%-1.7%	0.9%	0.7%

Source: ONDCP, *What America's Users Spend on Illegal Drugs*, Washington D.C, December 2001, p. 3.

Table 6: Estimates of criminal proceeds in current US$ (1990-2010)

	1990	1995	2000	2010*
Drugs	97	69	64	64
in % of GDP	1.7%	0.9%	0.7%	0.4%
Other crime (excl. tax evasion)	112	137	160	236
In % of GDP	1.9%	1.9%	1.6%	1.6%
Total (excl. tax evasion)	**209**	**206**	**224**	**300 (235-350)**
In % of GDP	3.6%	2.8%	2.3%	2.0% (1.6%-2.3%)

* Tentative UNODC estimates based on previous estimates and trends derived from drug and crime data.

Sources: Peter Reuter, "*Chasing Dirty Money – the Fight against Money Laundering*", Washington 2004, p. 20, ONDCP, *What America's Users Spend on Illegal Drugs*, Washington D.C, December 2001, p. 3 and World Bank, *World Development Indicators* (WDI), 2011.

2000-2009 period once result changes due to methodological improvements are accounted for.[34] Significant changes over the last decade were only reported for cocaine. In this case, significant declines in the quantities of cocaine reaching the US market over the 2006-2010 period were largely offset by higher cocaine prices, resulting in a rather stable cocaine market in financial terms. Assuming that the size of the US drug market remained in nominal terms unchanged, it would have decreased from 0.7% of GDP in 2000 to 0.4%-0.5% of GDP by 2009/2010.

- United Kingdom

The Office of National Statistics estimated the 'value-added' of criminal activities in the late 1990s. This study – looking at drugs, prostitution, selling of stolen goods and illicit gambling - resulted in estimates of the 'value added' of some US$10 bn - US$17 bn in 1996, equivalent to 0.9% - 1.5% of GDP. The bulk was drug-related. The 'value-added' of illicit drug sales alone was equivalent to between 0.5% and 1.1% of GDP.[35] In comparison, data for the USA for 1990 showed drug sales as equivalent to some 1.7% of GDP. The size of the prostitution market or illicit gambling, in contrast, was very similar to that found in the USA, expressed as a proportion of GDP.

Subsequent studies on the size of the UK illicit drug market confirmed the initial range. The total size of the UK market in 2003/2004 was estimated at £5.3 billion (range: £4.0–£6.6 bn).[36] Expressed as a proportion of GDP, the drug market estimate declined, however, to 0.5% (range: 0.4%-0.6% of GDP). The size of the drug market was thus – in relative terms – slightly smaller than that of the USA.

34 Due to a number of changes, the response rate could be raised (for example, by paying participants a fee of US$30 which increased the readiness of many drug users to participate in the survey). The data were then no longer directly comparable with previous results. A number of other data reported by SAMHSA suggested that overall drug use rates remained largely unchanged over the 2000-2002 period (SAMHSA, *Results from the 2002 National Survey on Drug Use and Health: National Findings*, Rockville MD, Sept. 2003).

35 Chris Groom and Tom Davies, "Developing a Methodology for Measuring Illegal Activity for the UK National Accounts," *Economic Trends, no. 536, July* 1998, pp. 33-71.

36 Stephen Pudney et al, Institute for Social and Economic Research, University of Essex,,"Estimating the size of the UK illicit drug market", in Home Office, *Measuring different aspects of problem drug use: methodological developments*, Home Office Online Report 16/06, pp. 46–120.

Table 7: Estimates of value added of selected consumers' expenditure for illegal activities in the UK (1996)

	'Value added' (in billion £)	in % of 1996 GDP
Drugs	3.9 – 8.5	0.5% – 1.1%
Prostitution	1.2	0.2%
Selling of stolen goods	0.7	0.1%
Illegal gambling	0.8	0.1%
Total in billion £	6.5 – 11.1	0.9% - 1.5%
Total in billion US$	10.2 – 17.3	

Source: Chris Groom and Tom Davies, "Developing a Methodology for Measuring Illegal Activity for the UK National Accounts," *Economic Trends, no. 536*, July 1998, pp. 33-71.

Table 8: Estimates of the UK drug market (2003/2004)

	England and Wales			UK		
	Aggregate street quantity (tons)	Aggregate pure quantity (tons)	Aggregate expenditure (£million)	Aggregate street quantity (tons)	Aggregate pure quantity (tons)	Aggregate expenditure (£million)
Cannabis	360.33 ±135.81	360.33 ±135.81	900.8 ±372.4	412.41 ±155.44	412.41 ±155.44	1031.0 ±432.5
Amphetamines	32.68 ±17.33	3.60 ±2.31	277.8 ±72.9	36.70 ±19.46	4.04 ±2.60	312.0 ±81.9
Ecstasy (millions of tabs)	52.79 ±23.84	13.72 ±8.14	237.5 ±76.2	59.52 ±26.88	15.47 ±9.18	267.8 ±85.9
Powder cocaine	15.7 ±12.17	7.85 ±6.16	863.4 ±237.1	17.70 ±13.72	8.85 ±6.94	973.3 ±267.3
Crack	13.79 ±11.76	8.96 ±7.71	1,309.8 ±348.9	15.58 ±13.29	10.13 ±8.71	1,480.4 ±394.29
Heroin	17.60 ±13.14	7.04 ±5.32	1,055.9 ±199.2	20.11 ±15.02	8.04 ±6.13	1,206.7 ±227.65
Total market value (£billion)			4.645 ±1.154			5.271 ±1.310

Source: Stephen Pudney et al, Institute for Social and Economic Research, University of Essex, "*Estimating the size of the UK illicit drug market*", in Home Office, "*Measuring different aspects of problem drug use: methodological developments*", Home Office Online Report 16/06, p. 76.

- Australia

Estimates of criminal proceeds generated in Australia have been calculated by John Walker (originally for the Australian Institute of Criminology in 1992, updated in 1998). He arrived at figures ranging from US$7 bn - US$13 bn, equivalent to between 1.9% and 3.6% of GDP in 1998. These figures were based on estimates of the total number of crimes committed in a year and an analysis on the average cost of such crime per case. Tax evasion was not considered. The overall rather high figures (the midpoint estimates for criminal income as a percentage of GDP of 2.8% were higher than the estimates for the USA) were mainly due to high estimates for the criminal income from fraud. According to these estimates, fraud accounted for between 60% and 66% of total criminal proceeds in Australia in 1998.

A subsequent update based on new data in 2003, applying the same methodological approach, arrived at total estimates of some US$7 bn-US$8 bn, equivalent to some 1.5% of GDP (range: 1.4-1.6% of GDP), that is, lower than the US estimates. The difference between the 1998 and 2003 estimates was mainly due to far lower estimates for the criminal income from fraud. Estimates for most of the other crime categories increased. Nonetheless, fraud appears to have generated the highest proportion of total criminal proceeds in Australia (27% of the total), followed by income from illicit drug traf-

Table 9: Estimated criminal proceeds in Australia, million $A (1998 and 2003)

	1998		2003 (revised estimates)		Mid-point estimates in % of GDP	
	min	max	min	max	1998	2003 (rev.)
Fraud	6,710	13,770	3,000	3,500	1.8%	0.4%
Drugs	1,200		2,000		0.2%	0.3%
Theft	1,232	2,712			0.3%	
Shoplifting			1,020	2,460		0.2%
Car theft			654			0.1%
Stealing from persons			545			0.1%
Other theft			659			0.1%
Burglaries (breaking and entering)	893		1,193		0.2%	0.2%
Assaults	331		979		0.1%	0.1%
Homicide	275		323		0.0%	0.0%
Property damage	525	1,645	510	0.2%	0.1%	
Robbery and extortion	93		37		0.0%	0.0%
Total in million $A	11,259	20,919	10,920	12,860	2.8%	1.5%
Total in billion US$	7.1	13.1	7.1	8.3		
in % of GDP	1.9%	3.6%	1.4%	1.6%		

Sources: Data based on John Walker (AUSTRAC, RMIT University), 1998 and 2003 (updates from an original paper undertaken by the same author for the Australian Institute of Criminology in 1992), quoted in Brigitte Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 62; John Walker (AUSTRAC, RMIT University), *The Extent of Money Laundering in and through Australia in 2004*, Australian Institute of Criminology, 2007.

Table 10: Estimated unlawful earnings in the Netherlands, million € (2003)

	Proceeds of crime, million €	Mid-point estimates in % of total
Financial, social security and tax fraud*	7,735 – 15,450	73.3%
Drugs	1,960	12.4%
Illegal workers	490	3.1%
Prostitution	460	2.9%
Theft	345	2.2%
Burglary	340	2.1%
Fencing	190	1.2%
Illegal gambling	130	0.8%
Illegal copying	90	0.6%
Computer-crime	26	0.2%
Violent offences	6	0.0%
Other offences	187	1.2%
Total in million €	11,959-19,674	
Total in billion US$	13.5-22.3	
As a percentage of GDP	2.6%-4.3%	

* Based on the assumption that between 5% and 10% of the total amounts were discovered and reported.

Source: B. Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 66, based on studies by Smekens and Verbruggen (2004), Business criminality: Criminaliteit en rechtshandhaving (2001), WODC (2003, p. 60) and NIPO (2002).

ficking (15-18% of the total).[37] Drug-related income was equivalent to some 0.3% of GDP, and thus lower than in the United States and the UK.

- Netherlands

Estimates of unlawful earnings in the Netherlands for the year 2003, based on a number of studies collected by Unger, amounted to between US$13.5 bn and US$22.3 bn, equivalent to some 3.5% of GDP (range: 2.6%-4.3%); much smaller than the overall estimates for the

37 B. Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, pp. 61-62.

Table 11: Estimated unlawful earnings, including criminal proceeds, Germany (2007/2008)

	Recorded crimes	Estimated loss or profit (b) (€ billion)	Other proceeds or profit estimates (c) (€ billion)	Baseline estimate (€ billion)	Unreported crime adjusted estimate (d) (€ billion)	Baseline estimate (US$ billion)	Unreported crime adjusted estimate (US$ billion)	in % of total unlawful earnings
Robberies and thefts	2,614,640	3.601		3.601	9.003	5.012	12.529	15.8%
Fraud	912,899	2.372	4.00(e)	4.000	10.000	5.567	13.917	17.5%
Drugs	248,355		8.794(f)	8.794	8.794	12.239	12.239	15.4%
Human trafficking			0.037	0.037	0.093	0.052	0.1299	0.2%
Arms trafficking			0.005	0.005	0.012	0.006	0.016	0.0%
Sexual crimes			0.032	0.032	0.081	0.045	0.113	0.1%
Counterfeiting and piracy of products			0.029	0.029	0.071	0.040	0.099	0.1%
Environmental crime	16,528		0.002	0.002	0.005	0.003	0.007	0.0%
Insolvency offences	5,484							0.0%
Tax and excise evasion			25.00(g)	25.000	25.000	34.793	34.793	43.8%
Offences against commercial legislation	7,802	1.609		1.609	4.023	2.239	5.598	7.0%
Other crimes			0.021	0.021	0.053	0.030	0.074	0.1%
Total unlawful earnings	6,284,661	7.583	37.920	43.130	57.135	60.025	79.514	100.0%
Percentage of GDP		0.3%	1.6%	1.8%	2.3%			
Crime excl. tax evasion			12.920	18.130	32.135	22.232	44.721	
Percentage of GDP			0.5%	0.7%	1.3%			
Memorandum items: - Money-laundering offences	3,923							
- Economic crimes	87,934		4.200	4.200	10.500			
- Organized crime			0.663	0.663	1.658			

Notes:
(a) Sources: National crime statistics 2007, Situation Report on Economic Crime in the Federal Republic of Germany, 2007. Narcotic Drugs Annual Report 2007. Organized Crime Situation Report 2008. All published by the BKA.
(b) Takes estimate from BKA crime statistics and apportions it upwards for incomplete investigations.
(c) Unless otherwise noted, these figures are calculated by apportioning estimated profits from organized crime to the crime categories that organized crime was identified as being involved in.
(d) Assumes actual crime is at least 2–3 times reported crime. An analysis of Germany data contained in the UN's 2004–2005 International Crime Victim's Survey and the 2005 European Survey on Crime and Safety provides the following justification for this assumption. The number of victims of profit generating crimes with common titles in the Germany criminal statistics ranged from 2.6 times the recorded level of crime for theft of motor vehicles to 11 times the number of reported crimes for consumer fraud with an average of 7.7. While some of this discrepancy can be explained by some recorded crimes having multiple victims, it lends weight to scaling up the amount of recorded crime by a factor of 2 or 3 to obtain a more realistic picture of actual crime.
(e) Industry estimate of insurance fraud only, conveyed to assessors during on-site mission.
(f) Derived from United Nations Office on Drugs and Crime, *2005 World Drug Report,* estimates of the value of retail drug markets.
(g) Based on Finance Minister estimate Bach/Dwenger, "*Unternehmensbesteuerung: Trotz hoher Steuersätze nur mäßiges Aufkommen*", DIW-Wochenbericht Nr. 5/2007, S. 63 ff.), that total tax avoidance and evasion amounts to € 100m per annum. Table assumes 25% is illegal tax and excise evasion.

Sources: FATF, *Germany – Mutual Evaluation Report*, February 2010 and International Monetary Fund, March 2010, and International Monetary Fund, "Germany: Detailed Assessment Report on Anti-Money Laundering and Combating the Financing of Terrorism", IMF Country Report No. 10/78, Washington D.C., February 2010, p. 24. and Statistisches Bundesamt, Wiesbaden.

USA. By far the largest components were related to financial fraud, tax evasion and social security fraud. Together, these categories accounted for some 73% of the total unlawful earnings, that is, an even higher proportion than was reported for these items in the USA. The next largest sources of criminal income were related to drugs: 10% - 16% of total unlawful earnings.[38] Total drug-related income would have been equivalent to 0.4% of GDP, that is, more than in Australia but less than in the USA or the UK.

- Germany

A detailed study on criminal proceeds was also undertaken for Germany and reported by the IMF in its 2010 Assessment Report on Germany. The study suggested that total unlawful proceeds amounted to some US$80 bn in 2007/2008, equivalent to 2.3% of GDP, that is,

38 B. Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, pp. 65-66.

Table 12: Estimates of the income and profits of organized crime in Italy (2009)

Income	In billion €		Expenditure	In billion €	
Trafficking drugs	60.00		bosses/management	0.60	
Trafficking in human beings	0.87		affiliated members	0.45	
Arms trafficking	5.80		arrested persons	0.09	
Smuggling	1.20		fugitives	0.03	
Subtotal trafficking		67.87	Subtotal 'salaries'		1.17
Protection racket	9.00		hiding places	0.10	
Loan sharking (usury)	15.00		networks	0.10	
Subtotal 'predatory activities'		24.00	weapons	0.25	
Theft and robbery	1.00	1.00	Subtotal 'logistics'		0.45
Procurement	6.50		corruption	0.95	
Agro-crime	7.50		consultants and specialists	0.05	
Games and gambling	2.50		supporters	1.75	
Counterfeiting	6.50		Subtotal 'corruption'		2.75
Illegal construction	2.00		legal fees	0.80	0.80
Subtotal - illegal economic activities		25.00	investment	26.00	26.00
Ecomafia / agromafia	16.00	16.00	money-laundering	19.50	19.50
Prostitution	0.60	0.60	provisions (reserve)	6.50	6.50
Financial gains	0.75	0.75			
Total income in bn €	**135.22**	**135.22**	**Total expenditure in bn €**	**57.17**	**57.17**
			Profits in bn €	**78.05**	**78.05**
Total income in bn US$		**188.58**	**Profits in bn US$**		**108.85**
Total income in bn US$		**8.9%**	**Profits in % of GDP**		**3.8%**

Source: SOS Impresa, *XII Rapporto – Le mani della criminalità sulle imprese*, Rome, 27 January 2010.

clearly less than in the USA and slightly less than in the Netherlands. The largest source of unlawful income in Germany was tax and excise evasion (44% of the total), followed by fraud (18%), robberies and thefts (16%) and drugs (15%). Excluding the tax and excise evasions, criminal proceeds amounted to some US$45 bn in 2007/2008, equivalent to 1.3% of GDP, that is, slightly less than the estimates reported for Australia. The largest components of criminal proceeds in Germany came from financial fraud (31% of the total), robberies and thefts (28%) and drug trafficking-related income (27%). Drug-related income amounted to between 0.3% and 0.4% of GDP, that is, less than in the USA or the UK, and marginally less than in the Netherlands.

- Italy

A number of estimates related to the income of organized crime have been published for Italy in recent years. One of the most prominent institutions is SOS Impresa. This association, created in 1991 in Palermo (Sicily) by a number of businesspeople to defend themselves against mafia protection rackets, generated an estimate of the gross income of organized crime in Italy of €135 bn or US$189 bn for the year 2009, equivalent to 8.9% of GDP. This would be far more than the estimates for any other developed country, about four times the overall crime related proportion of GDP calculated for the United States (for the year 2000). Deducting various expenditure items, the overall profits of organized crime were estimated at some €78 bn or US$109 bn, equivalent to 3.8% of GDP.[39]

Italy has a significant organized crime sector, likely among the largest in Europe. Nonetheless, how realistic are estimates suggesting that organized crime proceeds are as high as 9% of GDP in Italy?

The bulk of the organized crime income (44%) was estimated to stem from drug trafficking activities. SOS Impresa estimated that €60 bn, or 3.9% of GDP, was drug-related. Studies in other developed countries as well as other studies in Italy suggest that the estimates of drug-related income are – most probably - gross overestimates. Other estimates of the Italian drug market

39 SOS Impresa, *XII Rapporto – Le mani della criminalità sulle imprese* (Sintesi per la Stampa), Rome, 27 January 2010.

Table 13: Estimates of the size of the Italian drug market

	Baldassarini, Corea (2005)	Canzonetti (2008)*	Canzonetti (2008)**	SOS Impresa, (2009)
in billion €	6.3	9.6	11.4	60.0
in billion US$	7.8	14.1	16.8	83.7
in % of GDP	0.4%	0.6%	0.7%	3.9%

* without taking polydrug use into account
** taking poly-drug use into account

Sources: Consicglio Italiano per le Scienze Sociali, *Il mercato illecito della droga e le sue possibile regolamentazioni*, Rome, 2010 and SOS Impresa, *XII Rapporto – Le mani della criminalità sulle imprese*, Rome, January 2010.

Table 14: Valuation of the Italian drug market in million €* (2008)

	Drug users			Valuation in million €		
	problem	**regular**	**occasional**	**problem**	**regular**	**occasional**
Heroin	246,872	143,383	14,291	1,571	365	44
Cocaine	270,496	573,459	573,594	2,776	2,354	283
Cannabis	181,435	2,899,087	2,962,217	780	2,493	306
Others	9,880	166,006	453,754	44	297	96
Total	708,683	3,781,935	4,132,856	5,171	5,509	729
TOTAL					**11,409**	

* taking poly-drug consumption into account

Source: A. Canzonetti, quoted in Consicglio Italiano per le Scienze Sociali, *Il mercato illecito della droga e le sue possibile regolamentazioni*, Rome, 2010.

Table 15: Estimates of organized crime proceeds and profits in Italy (2009)

	Drugs (in bn €) (Canzonetti)	Other organized crime income (SOS impresa) (in bn €)	Total in bn €	Total in US$	As a percentage of GDP
Crime proceeds	**11.4**	**75.2**	**86.6**	**120.8**	**5.7%**
Less expenditure			57.2	78.1	
Profits			**29.4**	**42.7**	**1.9%**

Sources: Consicglio Italiano per le Scienze Sociali, *Il mercato illecito della droga e le sue possibile regolamentazioni*, Rome, 2010 and SOS Impresa, *XII Rapporto – Le mani della criminalità sulle imprese*, Rome, January 2010.

were far lower, ranging from €6.3 bn (0.4% of GDP in 2005) to €11.4 bn (0.7% of GDP in 2008).[40] Such estimates would be more in line with drug market estimates from other developed countries, ranging from 0.3% of GDP (Australia in 2003) to 0.7% of GDP (USA in 2000). In fact, there are no indications that the Italian drug market would be substantially larger than the drug markets in the USA or the UK. Moreover, the primary market for Italian organized crime is still Italy. There are no indications that Italian organized crime groups dominate the drug business in other European countries, despite some involvement.

Assuming that SOS Impresa has over the years acquired expertise on the involvement of organized crime in business-related areas while drug researchers have a better understanding of illegal drug markets, the total proceeds of the organized crime sector could have amounted to some US$120 bn, equivalent to 5.7% of GDP.[41] Deducting the expenditures identified above, the remaining profits for organized crime in Italy would still be substantial, some US$43 bn or 1.9% of GDP.

Excluding its involvement in trafficking of drugs, arms and human beings, the proceeds generated by organized crime in Italy – based on SOS Impresa estimates – appear

40 Consicglio Italiano per le Scienze Sociali, *Il mercato illecito della droga e le sue possibile regolamentazioni*, Rome 2010.

41 The calculations shown in the table may be interpreted to suggest that total drug sales go to organized crime in Italy. This is not true. At first sight, the calculations would appear to lead to an over-estimation of the total income of organized crime. However, one must also take into account that Italian organized crime participates to some extent in the drug business in other European countries as well. These values are missing here. In other words, the calculations assume that the amounts of drugs sold by Italian organized crime abroad are similar in magnitude to the drugs sold by individuals, not participating in organized crime, in Italy.

Table 16: Estimates of criminal proceeds, excluding trafficking, in Italy, billion € (2006-2009)

	Organized crime			Total crime	Proportion of organized crime in total crime
	2007 report	2008 report	2010 report	2010 report	
Loan sharking	30.0	12.6	15.0	40.0	38%
Protection racketeering	10.0	9.0	9.0	9.0	100%
Theft and robbery	7.0	1.0	1.2	8.0	15%
Fraud	4.6	4.6	4.6	4.6	100%
Smuggling	2.0	1.5	1.2	1.5	80%
Counterfeiting	7.4	6.3	6.5	8.0	81%
Illegal construction	13.0	2.0	2.0	10.0	20%
Eco- / agro-mafia	7.5	7.5	7.5	7.5	100%
Public procurement	6.5	1.2	1.2	1.2	100%
Private contracts and supplies (buildings)		5.3	5.3	5.3	100%
Games and gambling	2.5	2.4	2.5	3.0	83%
Total	**90.5**	**53.4**	**56.1**	**98.1**	**57%**
Assumed reference year	2006	2007	2009	2009	
As a percentage of GDP	**6.1%**	**3.5%**	**3.7%**	**6.5%**	

Sources: SOS Impresa, *XII Rapporto – Le mani della criminalità sulle imprese*, Rome, January 2010; SOS Impresa, *XI Rapporto – Le mani della criminalità sulle imprese*, Rome, November 2008; SOS Impresa, *X Rapporto – Le mani della criminalità sulle imprese*, Rome, October 2007.

Table 17: Estimates of overall crime proceeds in Italy, billion € (2009)

	Trafficking in drugs (in bn €) (Canzonetti)	Trafficking in human beings and in arms (SOS Impresa)	Other crime income (SOS Impresa) (in bn €)	Total in billion €	Total in billion US$	as a percentage of GDP
Crime proceeds	11.4	6.7	98.1	**116.2**	**162**	**7.7%**

Sources: Consicglio Italiano per le Scienze Sociali, *Il mercato illecito*; SOS Impresa, *XII Rapporto – Le mani della criminalità sulle imprese*, Rome, January 2010.

to have decreased in recent years, from a total of €91 bn in 2006 to €56 bn in 2009, that is, from figures equivalent to 6.1% of GDP to 3.7% of GDP. This decline was mainly due to new, lower estimates of organized crime proceeds from loan sharking, illegal construction as well as for theft and robberies. Income from other criminal sources appears to have remained largely stable. Between 2007 and 2009 (the year of the financial crisis) the estimates show, however, a small increase, suggesting that Italian organized crime benefited from the crisis.

SOS Impresa also tried to gauge the involvement of organized crime in the various criminal sectors. While some crime sectors are thought to be controlled by organized crime, such as protection racketeering or public procurement, organized crime is believed to play less of role in other sectors such as theft and robberies (15%). The overall estimates by SOS Impresa suggest that the bulk - some 57% - of the total crime proceeds (excluding trafficking) go to organized crime in Italy.

Total crime, excluding trafficking, is thought to generate close to €100 bn in proceeds, equivalent to 6.5% of GDP. If estimated trafficking proceeds were added to this figure, the total would rise to €116 bn (US$162 bn in 2009), or some 7.7% of GDP.

- Summary of national estimates

The presentation of the national results and the discussion so far have demonstrated that the methodologies applied for generating the various national estimates, and the kind of crime categories included in the estimates, differ significantly between countries. They sometimes even differ for studies conducted in the same country. This limits direct comparability of results over time and across countries. Existing results must thus be

interpreted with caution. There is a clear need for standardization and harmonization of calculations of national crime proceeds estimates in order to get more reliable and comparable figures.

Nonetheless, the existing national estimates – irrespective of their shortcomings - provide an indication of the likely magnitudes involved. The calculations of the likely crime proceeds suggest that one cannot speak of crime being negligible in economic terms, accounting for just some fractions of a percentage point of GDP, just as one cannot speak of crime dominating the world economy with proportions exceeding half of GDP.[42] Instead, crime proceeds, depending on the country, are equivalent to a few percentage points of GDP (1% - 8% of GDP in the sample of available country estimates).

Combining these estimates gives an overall average of criminal proceeds (excluding tax evasion) of some 2.5% of GDP; around a quarter of this total (0.6% of GDP) comprises proceeds derived from drug trafficking. Applying this proportion to the global level – based on the worlds' total 2009 GDP – would yield an estimate of total crime related proceeds of some US$1.5 trillion, including some US$350 billion (range: US$270 bn – US$430 bn) derived from the sale of illicit drugs. Such results with regard to illicit drugs would have been largely in line with UNODC global illicit drug market estimates of around US$320 bn[43] in 2003.

Given the small number of country estimates, the 95% confidence interval would be rather large, ranging from 0.5% to 4.5% of GDP, equivalent to US$0.3 trillion – US$2.6 trillion in 2009. The lower end of the range, however, is unlikely to reflect reality. The range for drug sales alone is from US$270 bn - US$430 bn, and there is still much income from other crime. Using the first quartile instead, as a lower range, would give a possible range from 1.4% of GDP to 4.5% of GDP, equivalent to US$0.8-US$2.6 trillion at the global level. As will be discussed later, there are indications that the relative importance of criminal proceeds is larger in developing countries and countries in transition. Thus, the best estimate of crime proceeds of around 2.5% of GDP or US$1.5 trillion, derived from estimates of a few developed countries, is most likely an under-estimate.

If proceeds from tax evasion were included, the total crime-related proceeds would rise further. Once again, given the very limited availability and comparability of national data, these estimates must be interpreted with caution and considered only as possible orders of magnitude.

42 This was so far only true in a very limited number of countries, such as Afghanistan, where over a few years (2004-2007), the illicit opium economy exceeded half of the country's licit GDP.

43 UNODC, *2005 World Drug Report*, Volume 1, Vienna 2005, p. 127.

Assuming - in line with the original FATF estimates - that some 70%[44] of the overall criminal proceeds are laundered (2.5% of GDP; range: 1.4% - 4.5%), the resulting crime-related estimates of funds laundered would range from 1% to 3.2% of GDP. Extrapolated to the global level, this would be between US$0.6 and US$1.8 trillion in 2009, with a best estimate of around US$1.1 trillion or 1.8% of GDP. Thus, the best estimate from this sample for crime related proceeds would be below the lower range of the original IMF 'consensus estimate.'

Does this mean that the consensus estimate should be lowered? Probably not. There are indications that the economic importance of crime in the developed world as compared to the size of the economy is significantly less than in developing countries and countries in transition (see work of Baker (2005), Schneider (2007) and Walker (2009)). An extrapolation of crime figures to the global level based on estimates from a sample of industrialized countries is thus likely to result in an underestimate. In fact, based on Baker's implicit 'correction factor' (1.4),[45] the global estimate of money laundered

44 Organisation for Economic Co-operation and Development, *Financial Action Task Force on Money Laundering,* Paris, 1990, p. 6, quoted in UNDCP, *Economic and Social Consequences of Drug Abuse and Illicit Trafficking,* UNDCP Technical Series No. 6, Vienna, 1998, p. 26.

45 Baker's estimates of cross-border flows of dirty money (2000-2005) suggested that the illicit financial flows out of developing and transition countries accounted for around half of the world total. Expressed as a percentage of GDP such illicit financial flows out of developing countries and countries in transition were equivalent to some 7.3% of GDP (2000-2005), and thus around 3 times the estimates of the illicit outflows of the industrialized countries (2.5% of GDP). The proportion of money laundered at the global level, expressed as a percentage of GDP (3.6%) was thus – according to Baker's estimates - some 40% higher than his implicit estimates for money laundered in foreign jurisdictions among industrialized countries (2.5% of GDP). This results in a 'correction factor' for industrialized countries estimates of around 1.4. (3.6% / 2.5%) which would have to be used for extrapolating industrialized countries data to the global level. (Source: Raymond W. Baker, *Capitalism's Achilles Heel, Dirty Money and How to Renew the Free-Market System*, New Jersey, 2005, p. 172).

A number of other authors also came to similar conclusions. Schneider's estimates, based on his DYMIMIC estimation methodology, seem to confirm Baker's findings. They reveal a 'correction factor' of a similar magnitude, if not higher. Schneider's global estimates of crime proceeds of US$1.7 trillion in 2006 were equivalent to 3.4% of global GDP and his estimates of crime proceeds in 20 OECD countries were again substantially lower, amounting to US$0.6 trillion or 1.8% of GDP of these 20 countries in 2006. In order for his statistics to match, Schneider's implicit estimate of the crime proceeds for developing and transition countries must have been around US$1.1 trillion, equivalent to some 6.8% of developing and transition countries' GDP in 2006, i.e. more than 3 ½ times the importance of criminal proceeds among OECD countries average (2.5% of GDP). (Sources: Friedrich Schneider, *Turnover of Organized Crime and Money Laundering: Some Preliminary Findings*, in Public Choice, Vol. 144, 2010, pp. 473-486 and Friedrich Schneider, "Money Laundering: some preliminary empirical findings", Linz, Nov. 2007, Paper presented at the Conference 'Tackling Money Laundering', University of Utrecht, Utrecht, the Netherlands, November 2–3, 2007).

Table 18: Summary of proceeds of crime in selected industrialized countries

		as a percentage of GDP		
	Year of estimate	Drugs	Total crime, excluding tax evasion	Total crime including tax evasion
USA	2000	0.7%	2.3 %	8.0%
UK	1996/2003/04	0.5%	1.2%*	n.a.
Australia	2003	0.3%	1.5 %	n.a.
Netherlands	2003	0.4%	1.7%**	3.5%
Germany	2007	0.4%	1.3 %	2.3%
Italy	2009	0.7%	7.7 %	n.a.
Unweighted average		**0.5%** (0.4%-0.6%)	**2.6 %** (0.6%-4.6%)	**4.6%** (2.2%-7.0%)
Weighted average* **		**0.6%** (0.5%-0.7%)	**2.5 %** (0.5%-4.5%)	**5.3%** (2.9%-7.7%)
Extrapolated to the global level (2009) in trillion US$		**0.35** (0.27-0.43)	**1.5** (0.3-2.6)	**3.1** (1.7-4.5)

* partial estimate of a limited number of selected crimes.
** a combined category of fraud and tax evasion was reported for the Netherlands; in order to provide an estimate of total crime, excluding tax evasion, it was assumed that the same breakdown existed in the Netherlands as in Germany.
*** country results weighted by their GDP in 2009.

Sources: Peter Reuter, "*Chasing Dirty Money – the Fight against Money Laundering*", Washington 2004, p. 20 and ONDCP, *What America's Users Spend on Illegal Drugs*, Washington D.C, December 2001, p. 3.
Chris Groom and Tom Davies, "Developing a Methodology for Measuring Illegal Activity for the UK National Accounts". *Economic Trends*, *no. 536*, *July 1998*, pp. 33-71.
Stephen Pudney, Celia Badillo, Mark Bryan, Jon Burton, Gabriella Conti, Maria Iacovou (Institute for Social and Economic Research, University of Essex)," Estimating the size of the UK illicit drug market", in Home Office, "Measuring different aspects of problem drug use: methodological developments", *Home Office Online Report* 16/06, pp. 46–120.
Data based on John Walker, 2003 (updates from an original paper undertaken by John Walker for the Australian Institute of Criminology in 1992), quoted in Brigitte Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 62.
Brigitte Unger, The Scale and Impacts of Money Laundering, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 66, based on studies by Smekens and Verbruggen (2004), Business criminality: Criminaliteit en rechtshandhaving (2001), WODC (2003, p. 60) and NIPO (2002).
FATF, Germany – Mutual Evaluation Report, February 2010 and International Monetary Fund, March 2010, and International Monetary Fund , "Germany: Detailed Assessment Report on Anti-Money Laundering and Combating the Financing of Terrorism", *IMF Country Report* No. 10/78, Washington D.C., February 2010, p. 24. and Statistisches Bundesamt, Wiesbaden.
Consicglio Italiano per le Scienze Sociali, *Il mercato illecito and* SOS Impresa, *XII Rapporto – Le mani della criminalità sulle imprese*, Rome, 27 January 2010, SOS.

would rise to 2.5% of GDP (1.8% * 1.4), equivalent to US$1.5 trillion in 2009. Such results would then be still within the IMF's 'consensus range.'

iv. Global estimates linked to drug trafficking

According to Schneider, the FATF mentioned in a paper[46] (apparently referring to the year 1997) a global turnover figure for the sales of illegal drugs of around US$300 billion (which would be in line with UNODC estimates of the total value of drug sales), resulting in US$120 billion in profits out of which US$85 billion could have been relevant for money-laundering.

Such figures (US$120 bn) were already used almost a decade earlier, but were then referred to as 'final sales figures' of drugs in key markets (USA and Europe).[47] In fact, the FATF estimated the retail drug turnover for the late 1980s at US$108 billion for the United States and US$16.3 billion for Europe; a total value of drug sales of US$124.3 billion. The largest amount was estimated for cannabis (US$74.7 billion), followed by cocaine

46 F. Schneider, "Money Laundering: some Preliminary Empirical Findings," presentation, October 2007.

47 In an IMF paper from 2001, reference is made to estimates of 'final sales' figures of (some) illegal drugs in the late 1980s in the United States and Europe amounting some US$120 billion of which some 70% could be laundered, with the upper limit approaching the above quoted figure of US$85 billion: "Another approach to estimating the magnitude of financial abuse uses information about expenditures and prices involved in criminal activity that has been collected in the course of law enforcement (micro-data). The most publicized of such estimates have been for global money-laundering by the FATF. On the basis of information about final sales of some illegal drugs (about US$120 billion a year in the United States and Europe in the late 1980s) and extrapolating worldwide and generalizing to include all drugs, and subsequently assuming that 50-70 percent of that amount would be laundered, the FATF estimated that money-laundering could reach about 2 percent of global GDP." (International Monetary Fund, *Financial System Abuse, Financial Crime and Money Laundering - Background Paper*, February 2001).

Table 19: FATF estimates (late 1980s) of global amounts of laundered money

Estimate of drug sales in key markets (1988)	US$124 bn
As a percentage of global GDP (1988)	0.8%
Assumed proportion that is laundered	2/3 - 70%
Estimate of amounts laundered related to drugs	US$85 bn
Proportion in % of global GDP (1988)	0.5% of GDP
Estimated proportion of drugs in total amounts laundered	25%
Estimated total amounts laundered in 1988	US$ 340 bn
As a percentage of global GDP	2.0% of GDP
Extrapolated to global GDP in 2000	US$ 0.6 trillion
Extrapolated to global GDP in 2009	US$ 1.2 trillion

Source: Organisation for Economic Co-operation and Development, *Financial Action Task Force on Money Laundering*, Paris, 1990, p. 6. quoted in UNDCP, *Economic and Social Consequences of Drug Abuse and Illicit Trafficking*, UNDCP Technical Series No. 6, Vienna 1998, p, 26; International Monetary Fund, Financial System Abuse, *Financial Crime and Money Laundering- Background Paper*, February 2001.

(US$28.8 billion) and heroin (US$12 billion). The FATF estimated that out of the US$124 billion in drug sales, around US$85 billion could be available for laundering. This was equivalent to 0.7% of GDP in the USA and Europe (1988), or 0.5% of global GDP. De facto assuming that drugs were responsible for about a quarter of global money-laundering, the FATF estimated that global money-laundering in the late 1980s would have been equivalent to some 2% of global GDP.[48] As mentioned earlier, an attempt by FATF to generate new estimates a decade later failed – and no efforts appear to have been made since.

UNODC undertook a study to estimate the size of the global illegal drug market in 2005. This was based on production, consumption, seizure, price and purity data, combined into a global input/output model, with some features of a gravity model. It also allowed for a number of calibrations to take expert knowledge into account (assuming that the likelihood of seizures in North America or Europe was higher than in Africa where law enforcement capabilities are more limited). The model arrived at higher figures (US$322 bn) than the old FATF estimates of the late 1980s, though the differences were not that significant once inflation and the consideration of drug markets besides the USA and Europe had been taken into account. If only the European and North American markets were considered, the inflation-adjusted FATF figures (some US$200 bn) would be quite similar to the UNODC estimates (US$248 bn). The 'new' estimates (US$322 bn) are also similar in magnitude to those calculated by UNDCP for the mid-1990s using a different model (US$360 billion).[49]

48 Organisation for Economic Co-operation and Development, *FATF Working Group on Statistics and Methods - Narcotics Money Laundering, Assessment of the Problem,* 1989, Financial Action Task Force on Money Laundering, Report, February 7, 1990.

49 UNDCP, "Economic and Social Consequences of Drug Abuse and Illicit Trafficking," *UNDCP Technical Series*, 1997 p. 51.

Table 20: Size of the global illicit drug market, billion US$ (2003)

	At retail level	of which bought at wholesale level	of which bought from producers
Value of drugs sold	US$322 bn	US$94 bn	US$13 bn
In % of GDP	0.9%	0.3%	0.03%

Source: UNODC, *2005 World Drug Report*, Volume 1, Analysis, Vienna 2005, p. 127.

Table 21: Regional breakdown of the global illicit drug market, 2003 (N = US$ 322 billion)

	Value	in %
North America	142	44%
South America	9	3%
Europe	106	33%
Asia	35	11%
Africa	14	4%
Oceania	16	5%

Source: UNODC, *2005 World Drug Report*, Volume 1, Analysis, Vienna 2005, p. 127.

The UNODC study estimated the global drug market at US$ 322 billion, equivalent to 0.9% of global GDP. North America and Europe were identified as the largest drug markets, accounting for 44% and 33%, respectively, of the global market. The largest drug sales were related to cannabis, followed by cocaine and opiates. Subsequent estimates confirmed the size of the opiate market (US$65-US$70 bn), though slightly higher figures were found for the cocaine market (US$88 bn in 2008 and US$85 bn in 2009). These recent figures did not signal a true increase, but a revision of coca plant yield figures in the main producer countries.

Table 22: Size of the global illicit drug market, by substances, billion US$ (2003)

	Opiates	Cocaine	Cannabis herb	Cannabis resin	Ampheta-mines	'Ecstasy'
Retail level	64.8	70.5	113.1	28.8	28.3	16.0
of which bought at wholesale level	20.5	18.8	29.7	10.4	6.8	7.7
of which bought from producers	1.2	0.5	8.8	0.7	0.6	1.0

Source: UNODC, *2005 World Drug Report*, Volume 1, Analysis, Vienna 2005, p. 127.

UNODC has a relatively good understanding of the size and value of the opiate and cocaine markets at the global level. Far higher levels of uncertainty exist with regard to the cannabis and synthetic drug markets. While the baseline for synthetic drugs is more difficult to establish, and the synthetic drug markets may have increased in recent years, some recent estimates of the US cannabis market suggest that the latter market could be substantially smaller than assumed in the model. Given such internal shifts in opposing directions, there are reasons to believe that the illicit drug market at the global level may still be at a similar magnitude to 2005. Updated global estimates of the illicit drugs markets using the current model – or alternative estimates from other models – falling into a range of US$200 – US$400 billion could be considered reasonable. Estimates of US$910 billion or more - as mentioned by some authors in the literature for 2006[50] – are outside such a range, and clearly too high.

Updating the initial FATF model with the UNODC 2003 estimates on total drug proceeds would result in an estimate of money-laundering equivalent to 2.4% of GDP or US$1.4 trillion in 2009, that is, slightly higher than the initial FATF estimate (2% of GDP which, extrapolated to 2009, would have resulted in an estimate of amounts laundered around US$1.2 trillion).

- Private sector estimates

Given the lack of more comprehensive official estimates at the international level and the need for the financial sector to get more active in the fight against money-laundering, including in response to anti-terrorism efforts and the tightening of anti-money-laundering legislation, private consultancy firms got involved in estimating the amounts of annual money-laundering. Celent, a research and consulting firm operating in the financial services industry, estimated global money-laundering to have amounted to some US$0.9 trillion over the 2002-2005 period, that is, 2.6% of global GDP in 2002 or 2.0% of global GDP in 2005, thus reaching estimates at the low end of the IMF 'consensus range'.

According to their estimates, money-laundering is particularly widespread in the Americas (38%), followed by the Asia-Pacific region (31%) and Europe (26%). Africa and the Near and Middle East account for just 5% of the total. Money-laundering related to criminal activities was estimated at around US$0.2 trillion, suggesting

Table 23: Updated FATF model of global amounts laundered

Estimate of drug sales in key markets (UNODC estimate for 2003)	US$322 bn
As a percentage of GDP	0.9% of GDP
Assumed proportion that is laundered (initial FATF estimate)	2/3 - 70%
Estimate of amounts laundered related to drugs	US$220 bn
Proportion in % of global GDP (2003)	0.6 % of GDP
Estimated proportion of drugs in total amounts laundered (initial FATF estimate)	25%
Estimated total amounts laundered in 2003	US$ 880 bn
As a percentage of GDP	2.4% of GDP
Extrapolated to global GDP in 2009	US$ 1.4 trillion

Sources: International Monetary Fund, Financial System Abuse, *Financial Crime and Money Laundering - Background Paper*, Feb. 2001 and UNODC, *2005 World Drug Report*, Volume 1, Analysis, Vienna, p. 127.

50 F. Schneider, "Money Laundering: some Preliminary Empirical Findings", presentation, October 2007.

Table 24: Annual money-laundering by region, billion US$ (2000-2005)

	2000	2002	2005*
Americas	313	328	350
Asia-Pacific	246	254	292
Europe	230	234	241
Middle East / Africa	38	40	44
Total	827	856	927
in % of GDP	2.7%	2.6%	2.0%

* forecasts

Source: Celent, *Anti-Money Laundering: A Brave New World for Financial Institutions*, September 2002.

Table 25: Volume of crime-related money-laundering, billion US$ (2002)

Drugs	66
Smuggling	37
Other crime	90
Terrorism	0.5
Total	**193**

Source: Celent, *Anti-Money Laundering: A Brave New World for Financial Institutions*, September 2002.

that between a fifth and a quarter of all money-laundering was linked to proceeds of crime. Drug trafficking was identified as the single largest crime category (about a third), followed by smuggling (about a fifth). The amounts of money laundered related to terrorism were comparatively small (less than 0.3 %). The research work by Celent was not primarily aimed at providing such estimates and explaining in detail the methodology used to generate them, but towards alerting the financial sector of potential training, software and hardware requirements to cope with the requirements resulting from improved anti-money-laundering legislation.

v. NGO estimates

- Estimates on illicit cross-border flows

Raymond Baker,[51] the founder of Global Financial Integrity (an NGO advocating for increased transparency in international financial transactions), estimated the cross-border flows of global 'dirty money' – based on a bottom-up approach – to amount to between US$1 trillion and US$1.6 trillion annually in 2005. This included US$0.3 – US$0.5 trillion emerging from criminal activities (drugs, counterfeit goods, smuggling,

Table 26: Cross-border flows of global 'dirty money,' billion US$

Dirty money	Global			
	low	in %	high	in %
Criminal				
- Drugs	120	11.0%	200	12.5%
- Counterfeit goods	80	7.5%	120	7.5%
- Counterfeit currency	3	0.2%	4	0.2%
- Human trafficking	12	1.1%	15	0.9%
- Illegal arms trade	6	2.0%	10	0.6%
- Smuggling	60	5.6%	100	6.3%
- Racketeering	50	4.7%	100	6.3%
- Subtotal crime	**331**	**31.2%**	**549**	**34.3%**
Corrupt	30	2.8%	50	5.1%
Commercial				
- Mispricing	200	18.9%	250	15.6%
- Abusive transfer pricing	300	28.3%	500	31.2%
- Fake transactions	200	18.9%	250	15.6%
- Subtotal commercial	700	66.0%	1000	62.5%
Total	**1,061**	**100.0%**	**1,599**	**100%**

Source: R. W. Baker, *Capitalism's Achilles Heel: Dirty Money and How to Renew the Free-Market System*, New Jersey, 2005, p. 172.

51 R. W. Baker, *Capitalism's Achilles Heel: Dirty Money and How to Renew the Free-Market System*, New Jersey 2005, p. 172.

Table 27: Cross-border flows of global 'dirty money' in trillion US$, shown as a percentage of average GDP over the 2000-2005 period

	2000-2005			extrapolated to 2009		
	in trillion US$		in % of GDP 2000-2005	in trillion US$		
	low	high		low	high	mid-point
Overall amounts laundered	1.1	1.6	2.9%-4.3%	1.7	2.5	2.1
of which criminal component	0.3	0.5	0.9%-1.5%	0.5	0.9	0.7

Sources: R. W. Baker, *Capitalism's Achilles Heel: Dirty Money and How to Renew the Free-Market System*, New Jersey, 2005, p. 172 and World Bank, Indicators (for GDP).

racketeering et cetera), and US$0.7 – US$1 trillion arising from illegal commercial transactions, notably those violating national tax laws. This suggests that about a third of global cross-border flows of dirty money are related to funds generated from criminal activities and about two thirds from funds related to commercial activities, mostly linked to tax evasion attempts. The largest proportion of criminal activities were related to dirty money generated out of drug trafficking, followed by those related to counterfeit goods and smuggling of licit goods (such as cigarettes).

The US$1 trillion to US$1.6 trillion estimate has also been adopted by the World Bank as a best estimate.[52] The estimate apparently refers to the first few years of the new millennium. This would have been equivalent to a proportion of 2.9% to 4.3% of average global GDP over the 2000-2005 period[53] (with a midpoint estimate of 3.6% of GDP). The estimates would thus fall well within IMF's 'consensus estimate' of 2% to 5% of GDP. The criminal component of dirty money crossing the borders (US$331 to US$549 billion) would have been equivalent to between 0.9% and 1.5% of GDP over the 2000-2005 period (midpoint estimate: 1.2% of GDP).

Extrapolating these percentages to the GDP figures for the year 2009 would result in estimates of overall amounts laundered of between US$1.7 and US$2.5 trillion (midpoint: US$2.1 trillion). The criminal component that was laundered would have amounted to between US$520 and US$870 billion (midpoint: US$700 bn) in 2009.

Baker also provided estimates on the amounts of illicit flows affecting developing countries and countries in transition. The cross-border transactions of 'dirty money' affecting such countries were estimated to have amounted to between US$0.5 and US$0.8 trillion over the first few years of the new millennium, that is, about half of the global total (US$1-1.6 trillion). Expressed as a proportion of average annual GDP, this would have amounted to proportions ranging from 5.9% to 8.6% of GDP over the 2000-2005 period, suggesting that developing countries and countries in transition are particularly affected by 'dirty money' flows. In comparison, the estimates of 'dirty money' flows out of the industrialized countries (US$522 – US$821 billion) were equivalent to 1.9%-3.0% of GDP. Thus, the midpoint estimates for developing countries and countries in transition were, at 7.3% of GDP, about three times the estimates for industrialized countries (2.5% of GDP), and twice the global average (3.6%).

The estimates of the individual categories of 'dirty money' (related to criminal sources, corruption or commercial activities) were extrapolated from information provided by major businesses, government regulatory agencies and international organizations, containing a limited number of (partial) country estimates. The resulting estimates were 'conservative,' according to the author. The criminal component related to money-laundering (US$0.3 to US$0.5 trillion or 0.9% to 1.5% of average global GDP over the 2000-2005 period) was based on estimates provided by experts, politicians or institutions (for example, OECD and Interpol). These included an estimate of global organized crime 'earnings' at the turn of the new millennium of some US$1.5 trillion,[54] suggesting that between a fifth and third of such criminal earnings ended up in cross-border 'dirty money' flows.

Baker also presents a number of individual estimates in various crime categories and for various commercial activities related to the flow of money across borders (such as abuse transfer pricing and fake transactions). The methodology applied to aggregate the various individual estimates and extrapolate them to the global level

52 F. Schneider, *The Hidden Financial Flows of the Organized Crime: A Literature Review and Some Preliminary Empirical Results*, Linz, July 2010.

53 World Bank, Indicators (GDP, current US$) http://data.worldbank.org/indicator/NY.GDP.MKTP.CD?page=1

54 Wendy Chamberlin, deputy assistant secretary, U.S. Department of State, "Intensifying the fight against Transnational Organized Crime", remarks made at the European Union – United States Conference on Strategies to Combat Transnational Organized Crime, Ghent, Belgium, January 23, 2001.

Table 28: Cross-border flows of global 'dirty money' in billion US$, shown as a percentage of average GDP over the 2000-2005 period

	Global				of which developing and transitional economies			
	low	**as a percentage of GDP**	**high**	**as a percentage of GDP**	**low**	**as a percentage of GDP**	**high**	**as a percentage of GDP**
Criminal								
- Drugs	120	0.3%	200	0.5%	60	0.7%	90	1.0%
- Counterfeit goods	80	0.2%	120	0.3%	45	0.5%	60	0.7%
- Counterfeit currency	3	0.0%	4	0.0%	1	0.0%	2	0.0%
- Human trafficking	12	0.0%	15	0.0%	10	0.1%	12	0.1%
- Illegal arms trade	6	0.0%	10	0.0%	3	0.0%	4	0.0%
- Smuggling	60	0.2%	100	0.3%	30	0.3%	40	0.4%
- Racketeering	50	0.1%	100	0.3%	20	0.2%	30	0.3%
- Subtotal crime	**331**	**0.9%**	**549**	**1.5%**	**169**	**1.9%**	**238**	**2.6%**
Corrupt	30	0.1%	50	0.1%	20	0.2%	40	0.4%
Commercial								
- Mispricing	200	0.5%	250	0.7%	100	1.1%	150	1.6%
- Abusive transfer pricing	300	0.8%	500	1.3%	100	1.1%	150	1.6%
- Fake transactions	200	0.5%	250	0.7%	150	1.6%	200	2.2%
- Subtotal commercial	700	1.9%	1000	2.7%	350	3.8%	500	5.5%
Total	**1,061**	**2.9%**	**1,599**	**4.3%**	**539**	**5.9%**	**778**	**8.6%**

Source: R. W. Baker, *Capitalism's Achilles Heel: Dirty Money and How to Renew the Free-Market System*, New Jersey, 2005, p. 172 and World Bank, Indicators (for GDP).

is not comprehensively presented. Nonetheless, the estimates' plausibility was discussed, and it was highlighted that they were only indicative of the likely magnitudes involved.

Finally, Baker discussed the negative impact that 'dirty money' flows had on society in developing countries, as well as the lack of effective anti-money-laundering action across the world. This also applies to countries with some of the most sophisticated anti-money-laundering legislation and institutions. Given internal estimates of around US$250 billion of 'dirty money' a year entering the United States in the second half of the 1990s and captures of around US$250 million a year, Baker claims that just 0.1% of the 'dirty money' entering the United States was intercepted in the 1990s. He reports even lower proportions for other countries such as Switzerland or Germany.[55] Another expert reached similar conclusions in terms of orders of magnitude.[56]

55 R. W. Baker, *Capitalism's Achilles Heel: Dirty Money and How to Renew the Free-Market System*, New Jersey 2005, pp. 173-174.

56 Based on estimates of around US$300 billion of the total volume of funds laundered in the United States and total restitutions and fines of some US$665 million in 2001 (based on information from the US Sentencing Commission), just 0.4% of the total amounts laundered in the USA may have been seized and fined by the authorities – a proportion one expert classified as 'almost trivial' (Peter Reuter and Edwin M. Truman, *Chasing Dirty Money – The Fight against Money Laundering*, Washington D.C., 2004, p. 114).

- Estimates of the proceeds generated by transnational crime

In February 2011, Global Financial Integrity (GFI) published a report on transnational crime in the developing world.[57] Analysing existing estimates of the proceeds of transnational crime in 12 key categories, which have their primary roots in developing countries, GFI arrived at a total estimate of US$650 billion of such crime proceeds per year. The largest sources were illicit drugs, accounting for 50% of the total, followed by counterfeiting (39%), human trafficking (5%) and the illicit oil trade (2%). The individual proportions of all other sectors amounted to 1% of the total or less.[58]

57 Global Financial Integrity, *Transnational crime in the Developing World*, February 2011.

58 This study has been one of a few to take a bottom-up approach, tallying together expert estimates on drugs, human trafficking, wildlife, counterfeiting, trade in human organs, small arms, diamonds and other gems, oil, timber, fish, art and cultural property, and gold. Though this list of criminal activity is extensive, it is by no means comprehensive. It does not include, for instance, credit card fraud, advance fee fraud, intellectual property, piracy, carjacking, smuggling out of free trade zones into neighboring or nearby countries, and other forms of illicit and underground economic activity. GFI acknowledged this, explaining that, as a qualitative study, the goal was to balance breadth with depth. In short, the report was seeking to analyze both the scope of the problem and the damage caused, notably to developing countries.

Table 29: Proceeds of transnational crime

	billion US$	in % of total	Sources
Drugs	320	50%	UNODC, World Drug Report 2005 (data refer to 2003)
Counterfeiting	250	39%	OECD, Magnitude of Counterfeiting and Piracy of Tangible Products, 2009
Human trafficking	31.6	5%	P. Belser (ILO), Forced Labor and Human Trafficking: Estimating the Profits, 2005
Oil	10.8	2%	GFI estimate based on Baker 2005 (quantities) and US Energy Information Administration (prices: 2003-2010)
Wildlife	7.8-10	1.4%	GFI estimate based on Francesco Colombo, "Animal Trafficking – A Cruel Billion-Dollar Business," Inter Press Service, September 6, 2003; Coalition Against Wildlife Trafficking, World Wildlife Fund
Timber	7.0	1.1%	GFI estimate for 2009 based on Seneca Creek and Wood Resources International, OECD
Fish	4.2-9.5	1.1%	GFI estimate for 2010, based on Norwegian national advisory group against organized IUU-fishing (FFA) and United Nations Food and Agriculture Organization
Art and cultural property	3.4-6.3	0.8%	GFI estimate based on Interpol, International Scientific and Professional Advisory Council of the United Nations Crime Prevention and Criminal Justice Programme
Gold	2.3	0.4%	GFI estimate based on estimates from UNODC, 2010 and other sources on illegal gold trade in DRC, South Africa and Peru
Human organs	0.6-1.2	0.1%	GFI estimate based on WHO, Council of Europe, United Nations
Small arms and light weapons	0.3-1.0	0.1%	GFI estimate based on Small Arms Survey and UNODC
Diamonds and coloured gemstones	0.9	0.1%	GFI estimate for 2009 based on UN, Kimberley Process: Rough Diamond Statistics and US Geological Survey
Total (midpoint estimates)	645	100.0%	
Total rounded	**650**		
in % of global GDP in 2009	1.1%		
in % of average global GDP, 2000-2009	**1.5%**		

Sources: Global Financial Integrity, *Transnational crime in the Developing World*, February 2011 and World Bank, Indicators (for current GDP).

The proceeds generated by the 12 analysed transnational crime sectors were equivalent to 1.1% of global GDP in 2009. As some of the large estimates referred to various earlier years in the new millennium, however, it may be more appropriate to express the total proceeds as a percentage of average global GDP over the 2000-2009 period. This would raise the proportion to some 1.5%.

Assuming (in line with the initial FATF estimates) that some 70% of these proceeds may eventually have been laundered, the amounts would have been equivalent to some US$450 bn or 1.1% of GDP over the 2000-2009 period, which would have been similar to Baker's initial estimates of crime-related transnational flows of US$330 to US$550 bn, equivalent to 0.9%-1.5% of global GDP over the 2000-2005 period. Both such estimates for transnational criminal flows would fall below the IMF consensus range of 2%-5% of GDP.

It should be noted that important crime sectors at the national level (in economic terms), such as fraud, burglaries, theft, robberies, loan sharking or protection racketeering were excluded from the GFI estimates as these are still seen to be primarily linked to domestic crime activities. There are signs, however, that this is changing. Notably, the importance of internationally operating organized crime groups involved in fraud has been growing strongly in recent years, in particular in connection with the use of information and communication technologies,[59] so that the traditional distinction

59 United Nations Economic and Social Council, Commission on Crime Prevention and Criminal Justice, Sixteenth session, *Results of the second meeting of the Intergovernmental Expert Group to Prepare a Study on Fraud and the Criminal Misuse and Falsification of Identity*, Addendum, Economic fraud, E/CN.15/2007/8/Add.2, Vienna, 23-27 April 2007, p. 3.

between domestic and transnational crime is becoming blurred. National estimates have shown that fraud alone amounts to between 0.3% and 1.0% of GDP (average 0.5%). In some countries – from an economic perspective – fraud is even more significant than trafficking in illicit drugs.

vi. Academic estimates

- Estimates of the size of the shadow/ underground economy

A broad range of illegal activities is captured in the concept of an 'underground economy' (see taxonomy below).

According to one expert, the 'underground economy' is similar to the 'shadow economy' which he defined as "market-based production of goods and services, whether legal or illegal that escapes detection in the official estimates of GDP."[60] Another key expert provided a broad definition, in line with the above-mentioned one. The shadow economy would include "those economic activities and the income derived from them that circumvent … government regulation, taxation or observation."[61]

A narrower definition includes only market-based legal production of goods and services that are deliberately concealed to avoid payment of taxes, social security contributions, to avoid adhering to minimum labour market standards or to avoid complying with certain administrative procedures. Thus all income arising from traditional criminal activities such as drug dealing, burglary, robbery et cetera is excluded. The same is true for the informal household economy.

Using the DYMIMIC and the currency demand approach, Schneider developed estimates of the shadow economies, as defined above, for most countries across the world. Based on results from 145 countries, the lowest proportions of the shadow economies were in the OECD countries (on average 16.3% of GDP in 2002/2003), rising to, on average, 30.4% of GDP in Asia, 33.4% among the South-West Pacific Islands, 40.1% in the transition countries of Eastern Europe (including all the successor states of the former Soviet Union), 43.2% in Africa and 43.4% in South America, the Caribbean and Central America.[62]

The criminal part of the underground economy is substantially lower than the proportions of the shadow economies. The high proportions of the shadow economy in several parts of the world may, however, indicate a special vulnerability of these regions for potential exploitation by criminal organizations. A large shadow economy can help camouflage criminal activities as criminal organizations can make use of the 'services' provided by legal businesses to circumvent government rules and regulations. Thus, the outflow of dirty money from developing countries and countries in transition – expressed as a percentage of GDP – is substantially higher than the outflow of dirty money from developed countries.

Table 30: Taxonomy of types of underground economic activities

Type of activity	Monetary transactions		Non-monetary transactions	
Illegal activities	Trade with stolen goods; drug dealing and manufacturing; prostitution; gambling; smuggling; fraud, et cetera.		Barter of drugs, stolen goods, smuggling et cetera. Produce or growing drugs for own use. Theft for own use.	
	Tax evasion	Tax avoidance	Tax evasion	Tax avoidance
Legal activities	Unreported income from self-employment; wages, salaries and assets from unreported work related to legal services and goods.	Employee discounts, fringe benefits.	Barter of legal services and goods.	All do-it-yourself work and neighbour help.

Source: F. Schneider, *Shadow Economies of 145 Countries all over the World: Estimation Results over the Period 1999 to 2003,* based on Lippert, Owen and Michael Walker (eds.): *The Underground Economy: Global Evidences of its Size and Impact*, 1997, The Frazer Institute, Vancouver, B.C.

60 P. Smith, "Assessing the size of the underground economy: The statistics Canada perspectives", *Canadian Economic Observer*, Catalogue No.: 11-010, 3.16-33, at 3.18; Spiro, Peter S., "Evidence of a Post-GST Increase in the Underground Economy;" *Canadian Tax Journal/ Revue Fiscale Canadienne*, 1993, 41:2, pp. 247-258.

61 F. Schneider, *Shadow Economies of 145 Countries all over the World: Estimation Results over the Period 1999 to 2003*, based on Lippert, Owen and Michael Walker (eds.): *The Underground Economy: Global Evidences of its Size and Impact*, 1997, The Frazer Institute, Vancouver, B.C.

62 F. Schneider, *Shadow Economies of 145 Countries all over the World: Estimation Results over the Period 1999 to 2003,* Linz 2005.

- Academic estimates of turnover of organized crime

A key question when analysing the extent of money-laundering is how much of the underlying turnover is realized by organized crime. One literature review shows estimates ranging from US$0.5 trillion (1996) to US$2.85 trillion (1998). More recently, the estimated proceeds of crime ranged from US$0.6 trillion (2005) to US$2.5 trillion (2005),[63] equivalent to between 1.3% and 5.5% of GDP.

Estimates generated through the DYMIMIC estimation methodology suggested that organized crime proceeds rose from US$0.8 trillion or 2.5% of GDP in 2001, to US$1.5 trillion or 3.3% of GDP in 2005 and US$ 1.7 trillion or 3.4% of GDP in 2006.[64] Assuming that this proportion remained subsequently unchanged, the turnover of organized crime could have reached some US$2 trillion in 2009.

Partly also based on the work of Schneider, Walker and Unger (2009) suggested that "excess shadow economy

Table 31: Estimates of worldwide turnover of organized crime, trillion US$, as a percentage of GDP

Origin/study	Year	Volume (worldwide)	as a percentage of global GDP
M. Schuster	1994	US$ 0.5-0.8 trillion	0.9%-3.0%
International Monetary Fund and Interpol	1996	US$ 0.5 trillion	1.6%
UN estimates	1994/98	US$ 0.7-1 trillion	2.4%-3.4%
S. Kerry	1997	US$0.42-1 trillion	1.4%-3.3%
J. Walker	1998	US$ 2.85 trillion	9.5%
National Criminal Intelligence Service	1998	US$ 1.3 trillion	4.3%
	2001	US$ 1.9 trillion	5.9%
	2003	US$ 2.1 trillion	5.6%
I. Takats (2007)	2005	US$ 0.6-1.5 trillion	1.3%-3.3%
J.D. Agarwal and A. Agarwal (2006)	2005	US$ 2.0-2.5 trillion	4.4%-5.5%
Global Financial Integrity (2011) (estimate for transnational crime)	2000-2009	US$ 0.65 trillion	1.5%
J. Walker (based on J. Walker and B. Unger) (2009)	2001	US$1 trillion	3.4%
F. Schneider (University of Linz)	2001	US$ 0.8 trillion	2.5%
	2002	US$ 0.96 trillion	2.9%
	2003	US$ 1.2 trillion	3.2%
	2004	US$ 1.4 trillion	3.3%
	2005	US$ 1.5 trillion	3.3%
	2006	US$ 1.7 trillion	3.4%
Tentative estimate*	2009*	US$ 2.0 trillion	3.4%
Median of all estimates	**2009****	**US$ 1.9 trillion**	**3.3%**
Inter-quartile range of all estimates	**2009****	**US$ 1.5-2.4 trillion**	**2.6%-4.1%**
Average of all estimates	**2009****	**US$ 2.1 trillion**	**3.6%**
Confidence interval of mean (95%)	**2009****	**US$ 1.6-2.6 trillion**	**2.7%-4.4%**

* Tentative estimate, assuming that Schneider's proportion of turnover of organized crime expressed as a percentage of GDP remained unchanged over 2006-2009 period
** extrapolated to global GDP in 2009

Sources: UNODC calculations, based on F. Schneider, Turnover of Organized Crime and Money Laundering: Some Preliminary Findings, in Public Choice, Vol. 144, 2010, pp. 473-486; J. Walker, 'How Big is Global Money Laundering?' Journal of Money Laundering Control, 1999, Vol. 3, No. 1; I. Takats, A theory of "crying wolf": the economics of money laundering enforcement. Paper presented at the conference "Tackling Money Laundering", University of Utrecht, Utrecht, The Netherlands, November 2–3, 2007; J.D. Agarwal and A. Agarwal, "Globalization and international capital flows," Finance India, 19, 2004, pp. 65–99; J.D. Agarwal and A. Agarwal, " Money laundering: new forms of crime, and victimization", paper presented at the National Workshop on New Forms of Crime, and Victimization, with reference to Money Laundering. University of Madras, Indian Society of Victimology, Department of Criminology, 2006; Global Financial Integrity, Transnational Crime in the Developing World, February 2011; J. Walker and B. Unger, "Measuring Global Money Laundering: The Walker Gravity Model," Review of Law & Economics, vol. 5, issue 2, the Berkeley Electronic Press; F. Schneider, "Money Laundering: some preliminary empirical findings", Linz, Nov. 2007, Paper presented at the Conference 'Tackling Money Laundering', University of Utrecht, the Netherlands, November 2–3, 2007 and World Bank, Indicators (current GDP).

63 F. Schneider, "Turnover of Organized Crime and Money Laundering: Some Preliminary Findings," *Public Choice*, Vol. 144, 2010, pp. 473-486.

64 F. Schneider, "Money Laundering: some preliminary empirical findings", Linz, Nov. 2007. Paper presented at the conference 'Tackling Money Laundering', University of Utrecht, the Netherlands, November 2–3, 2007.

may be used as a measure of the proceeds of organized crime…". Some interesting results can be derived by comparing Schneider's estimates of the shadow economy as a proportion of GDP against GDP per capita."[65] The analysis suggested that poorer countries have higher percentages of 'normal' shadow economy than rich countries, and there appears to be a J-curve, if put on a graph. Economic crime – including transnational organized crime - should be a subset of the shadow economy, and many of those countries to the right of the line are those reputed to have significant transnational crime, illicit drug production and corrupt business practices. If one assumes that the J-curve measures the extent of the 'normal' shadow economy, and that there is a distribution around this J-curve, then anything more than 25% above the level indicated by the J-curve could be an indication of the activities of organized crime. On this basis, Walker derived an estimate of around US$$1.1 trillion for the proceeds of organized crime for the year 2001, heavily concentrated in developing countries. This would have been equivalent to 3.4% of GDP in 2001.

Pooling the individual estimates of the 'proceeds of crime expressed as a percentage of GDP' would result in an average of 3.6% of GDP and a median of 3.3% of GDP (see Table 31). Applying such proportions to the global GDP in 2009 would give estimates of global proceeds of crime of US$2.1 trillion and US$1.9 trillion, respectively, for the mean and the median. A calculation of the inter-quartile range, which can be used to better reflect the statistical dispersion of the individual estimates around the median while eliminating the influence of (apparent) outliers, gives a likely range of criminal proceeds from 2.6% to 4.1% of GDP. This would have been equivalent to criminal proceeds ranging from US$1.5 to US$2.4 trillion in 2009. The calculation of the 95% confidence interval around the average of the various estimates would have resulted in a range of 2.7% to 4.4% of GDP, equivalent to a global total range from US$1.6 to US$2.6 trillion in 2009.

Assuming again – in line with the original FATF estimates - that some 70% would have been used for money-laundering purposes, such amounts would have been equivalent to 2.5% of GDP or US$1.5 trillion in 2009 (range: US$1.1-1.8 trillion). The estimates would fall within the IMF's original consensus range (2%-5% of GDP).

Schneider undertook an in-depth analysis of the likely turnover of organized crime in 20 OECD countries using the DYMIMIC estimation methodology, which suggested that the turnover of organized crime reached US$0.6 trillion in 2006, equivalent to 1.8% of GDP of the studied countries. The data show that the turnover, expressed as a percentage of GDP, increased in the second half of the 1990s but remained stable over the 2001-2006 period. The results of the DYMIMIC estimations suggest that out of eight causal variables, five were statistically significant, with illegal drug selling showing the highest level of statistical significance, followed by criminal activities related to illegal weapon sales and the illegal trade in human beings.[66]

The results for twenty OECD countries (1.8% of GDP) were similar in magnitude, though smaller, than the average found in the six OECD countries for which country estimates were available (2.6% of GDP). If a five-country average (USA, UK, Australia, Netherlands and Germany) were calculated, the proportion of crime proceeds would fall to between 1.6% (unweighted average) and 2.0% of GDP (weighted average) - and thus come close to the estimate for 20 OECD countries.

Table 32: Estimates of the turnover of organized crime in 20 OECD countries (1994-2006)

Year	bn US$	in % of GDP
1995	270	1.2%
1996	296	1.3%
1997	320	1.4%
1998	334	1.5%
1999	362	1.5%
2000	389	1.6%
2001	420	1.8%
2002	441	1.8%
2003	479	1.7%
2004	515	1.7%
2005	573	1.8%
2006	614	1.8%

Source: F. Schneider, "Turnover of Organized Crime and Money Laundering: Some Preliminary Findings," *Public Choice*, Vol. 144, 2010, pp. 473-486.

Schneider's estimates (like those of Baker and Walker) also suggest that the significance of organized crime in the OECD countries is far lower – in both absolute and relative numbers – than in the rest of the world. According to these estimates, 35% of the global turnover of organized crime in 2006 was generated in 20 OECD countries (US$0.6 trillion) while the bulk (65% or US$1.1 trillion) occurred in the rest of the world, that

65 J. Walker and B. Unger, Measuring Global Money Laundering: "The Walker Gravity Model", *Review of Law & Economics,* Vol. 5, Issue 2, The Berkeley Electronic Press, 2009.

66 F. Schneider, *Turnover of Organized Crime and Money Laundering: Some Preliminary Findings*, JEL-Code: K42, H26, O17, H26, http://www.econ.jku.at/members/Schneider/files/publications/OrgCrime_Feld4.pdf

is, mostly in developing countries and countries in transition. The OECD estimates also turned out to be – in relative terms – far smaller than previous estimates for organized crime at the global level by the same expert (3.4% of GDP in 2006), suggesting that developing countries and countries in transition were faced with, on average, crime proceeds equivalent to 6.8% of GDP. This would be more than three times the average proportion found in the industrialized countries - though less than the estimate reported from Italy (7.7% of GDP).[67] Would such results be plausible? At least for some developing countries, organized crime proceeds certainly amounted to more than 6.8% of GDP. The UNODC *Afghanistan Opium Survey 2006*, for instance, found that the proceeds from opiate exports to neighbouring countries amounted to a sum equivalent to 46% of Afghanistan's GDP.[68] No other proceeds from crime were included in this figure, which means that it can be assumed that the total Afghan crime proceeds in 2006 would have been even higher.

- Estimates of the proportion of crime proceeds that are laundered

What proportion of crime proceeds are laundered? A review of existing literature does not yield much empirical evidence in this area. Instead, it reveals the various authors' assumptions.

For the drug area, the FATF assumed for the late 1980s that out of US$124 bn of drug sales in North America and Western Europe, some US$85 bn (68.5%) would have been available for money-laundering purposes. Taking rounding of figures into account, the FATF de facto estimated that between two thirds and 70% of the total profits were being laundered.[69]

Similarly, Unger - putting together the results of various studies conducted in the Netherlands in midst of the first decade of the new millennium - arrived at estimates of the proportions that were laundered ranging from 71% to 75% of total crime proceeds. The estimate included drug sales, for which it was assumed that some 80% of profits were available for laundering, and a number of domestic crime activities, such as burglaries or thefts, for which the assumed proportions for money-laundering are apparently small.[70]

Walker in his initial model on estimated proceeds of crime and money-laundering in Australia (1994) arrived at proportions of money laundered as a percentage of total crime proceeds from 5% to 76% with money-laundering related to drugs ranging from 20% to 90%. His best estimates for drugs ranged from 50% to 70%, yielding a midpoint estimate for drugs of 60%. An update of the Australian crime situation for the year 1998 again showed proportions used for money-laundering ranging from 25% to 88% with an average (based on midpoint estimates of proceeds of crime and money laundered) of 47%. The extent of money-laundering related to drugs was raised to 80%[71] (see Table 33).

In a separate analysis of the estimated proceeds of crime and the extent the money is being laundered, based on an expert survey Walker conducted in Australia, the perceived proportion of laundered money in Australia was substantially higher, ranging from 57% to 73% (mid-point: 65%). The proportion estimated by experts for illicit drugs reached 83%.[72]

For the US drug trade, notably cocaine, such proportions do not seem to hold true, however. This is due to large-scale cash smuggling from the USA into Mexico in return for drugs smuggled to the USA via Mexico. According to estimates collected for a study on US-Mexico Security Cooperation (2010), the Mexican Government estimated drug-related cash flows from the USA to Mexico at some US$11 bn per year.[73] An analysis of US banknotes, repatriated from Mexico, revealed that at least US$17 bn per year must have been smuggled from the USA to Mexico in 2003 and 2004.[74] An

67 See discussion of Italy under the subchapter 'National Estimates.'

68 UNODC, *Afghanistan Opium Survey 2006*, Vienna 2006, p. 131.

69 Organisation for Economic Co-operation and Development, *Financial Action Task Force on Money Laundering,* Paris, 1990, p. 6. quoted in UNDCP, *Economic and Social Consequences of Drug Abuse and Illicit Trafficking*, UNDCP Technical Series No. 6, Vienna 1998, p, 26 and International Monetary Fund, *Financial System Abuse, Financial Crime and Money Laundering- Background Paper*, February 12, 2001.

70 M. Smekens and M. Verbruggen, *De Illegale Economie in Nederland*, Centraal Bureau voor de Statistiek, September 2004; W. van der Heide and A.Th.J. Eggen, *Criminaliteit en rechtshandhaving 2001*, WODC: 211 Onderzoek en Beleid. Centraal Bureau voor de Statistiek, Meppel: BOOM Juridische Uitgevers, Den Haag: WODC quoted in Brigitte Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 66.

71 B. Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 62.

72 J. Walker, 2005, quoted in J. Walker and B. Unger, "Measuring Global Money Laundering: The Walker Gravity Model," *Review of Law and Economics,* Vol 5, 2009, p. 840.

73 The Mexican Government figure was given in interviews with senior members of the Mexican Financial Intelligence Unit. Attorney General Eduardo Medina Mora, appearing before the Mexican Congress in October 2007, stated that Mexican banks receive about $1 billion from their US counterparts annually, but return up to $16 billion, of which about $10 billion "does not have an explanation … and could be attributed to the flow of drug trafficking money." (Source: D. Farah, *Money Laundering and Bulk Cash Smuggling: Challenges for the Mérida Initiative*, Working Paper Series on U.S.-Mexico Security Cooperation, Trans-Border Institute, University of San Diego, May 2010, p. 4.)

74 The US$17 billion estimate is based on a review of US banknotes repatriated from Mexico. The estimate represents only US currency returned to the United States, not all US currency that was smuggled to or through Mexico. This estimate is based on analysis of US banknotes purchased by US financial institutions from Mexican financial institutions from 2003 through 2004. (Source: National Drug Intelligence Center, *National Drug Threat Assessment 2010*, February 2010.).

Table 33: Proportion of crime proceeds available for laundering, in per cent

	Crime			of which drugs		
	midpoint / best estimate	**from**	**to**	**midpoint / best estimate**	**from**	**To**
FATF (1988)				69%	66%	70%
Australia, 1994		5%	76%	60%	50%	70%
Australia, 1998		25%	88%	80%	80%	80%
Australia (based on expert survey)	65%	57%	73%	83%	83%	83%
Netherlands 2004	73%	71%	75%	80%	80%	80%
USA, 2009				55%	39%	72%
Unweighted average	69%	40%	78%	71%	66%	76%
Average rounded	70%	40%	80%	70%	60%	80%

Sources: International Monetary Fund, Financial System Abuse, *Financial Crime and Money Laundering- Background Paper*, February 12, 2001; J. Walker (AUSTRAC, RMIT University), "Estimates of the Extent of Money Laundering in and through Australia," paper prepared for Australian Transaction Reports and Analysis Centre, John Walker Consulting Services, Queanbeyan, Australia, September 1995; J. Walker quoted in J. Walker and B. Unger, "Measuring Global Money Laundering: The Walker Gravity Model", *Review of Law and Economics,* Vol 5, 2009, p. 840; B. Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 62; D. Farah, *Money Laundering and Bulk Cash Smuggling: Challenges for the Mérida Initiative*, Working Paper Series on U.S.-Mexico Security Cooperation, Woodrow Wilson Center for International Scholars/Trans-Border Institute, University of San Diego, May 2010, p. 4; ONDCP, *What America's Drug Users spend on Illicit Drugs*, 1988-2000, Washington 2001 and National Drug Intelligence Centre, *National Drug Threat Assessment 2009*, (Illicit Finance – Bulk Cash Smuggling), Washington D.C., December 2008.

estimate by a financial services firm (KPMG) suggested cash smuggling from the USA to Mexico at around US$25 bn per year. Academic estimates ranged from US$6 to US$36 billion.[75] Against this background of large-scale cash smuggling, potentially fuelling the illicit drug trade, the Mexican Government introduced stricter regulations in June 2010, imposing limits on US dollar currency conversions in Mexico and announcing plans to limit the use of cash for the purchase of real estate and luxury items.[76] Estimates on cash smuggling by both Mexican and Colombian organized crime groups are even higher, ranging from US$18 bn to US$39 bn per year,[77] with a midpoint estimate of US$29 bn. Applying such figures to US drug sales estimates (US$64 bn in 2000)[78] suggest that some 45% of the total receipts may be smuggled abroad in cash. This means that the amounts available for money-laundering in the USA would probably be around 55% (range: 39%-72%) of drug-related proceeds.

Pooling these estimates suggests that around 70% crime proceeds may be laundered (range: 40%-80%). For drugs, the likely proportions are from 60% to 80%. These results are based on a very small and biased sample, which means that the actual averages may differ substantially. Far more research, from a larger number of countries across the globe, would be needed to generate more reliable estimates on the extent of money-laundering from criminal proceeds globally.

- Summary of estimates of crime proceeds and money laundered

Combining the results of the various groups of estimates (based on country estimates, global 'scientific' estimates, et cetera) shows a surprising convergence, irrespective of the divergence within each group. The overall best estimates of criminal proceeds seem to fluctuate around 3.6% of GDP, equivalent to some US$2.1 trillion in

75 R. Sierra, *Evolución y Situación Actual de la Prevención de Lavado de Dinero en el Sistema Financiera Mexicano*, KPMG, April 2006. The lower figure comes from interviews and writings by Ricardo Gluyas Millán, in particular, "Ganancia Ilícita: Prevención Contra el Lavado de Dinero, México, 2005," p. 233. The upper-end figure was provided by numerous academic sources in interviews. According to Samuel Gonzalez of the Mexican Autonomous Institute of Technology, drug proceeds laundered in Mexico account for as much as four percent of the country's GDP, or roughly US$35.7 billion annually. ("Marching as to War," economist.com, January 31, 2008.) All sources quoted in D. Farah, *Money Laundering and Bulk Cash Smuggling: Challenges for the Mérida Initiative*, Working Paper Series on U.S.-Mexico Security Cooperation, Woodrow Wilson Center for International Scholars/Trans-Border Institute, University of San Diego, May 2010, p. 4.

76 The regulations apply to cash for cash transactions from dollars to pesos as well as to deposits, credit payments and service fees. The Government of Mexico also announced new reforms, including greater interagency coordination to identify and investigate suspicious transactions, harsher penalties for using resources from illicit activities, and restrictions on the use of large amounts of cash. This would prohibit cash purchases of real estate and cash payments in excess of 100,000 pesos ($7,700) for luxury items. (Source: US Department of State, *2011 International Narcotics Control Strategy Report*, Washington D.C., March 2011.

77 National Drug Intelligence Centre, *National Drug Threat Assessment 2009,* (Illicit Finance – Bulk Cash Smuggling), *Washington D.C.,* December 2008.

78 ONDCP, *What America's Drug Users spend on Illicit Drugs*, 1988-2000, Washington 2001.

2009. The best estimates of the amounts laundered fluctuate around 2.7% of GDP or US$1.6 trillion in 2009. Converting the proportions for 'transnational organized crime' discussed earlier to figures in 2009 suggests that some US$ 870 billion (1.5% of global GDP in 2009) in proceeds may have been generated by 'transnational organized crime'. Out of this amount some US$ 580 billion (1% of global GDP in 2009) may have been potentially available for money laundering activities.

The average range of the estimates for the amounts available for laundering out of crime in general (2.1% - 4.0% of GDP) fall well within the IMF's original 'consensus range' of 2%-5% of GDP, though data also suggest that the best estimates (around 2.7% of GDP) are situated towards the lower end of the range (see Table 34.

Once tax- and customs-related money-laundering activities were included, results would move towards the upper end of the IMF 'consensus range,' or – depending on the extrapolation models applied - slightly beyond. On the other hand, if only international crime related proceeds were considered, available estimates suggest that the amounts available for laundering would fall to levels around 1% of GDP, i.e. below the original IMF consensus range.

- Estimates of money laundered by destination

Based on an IMF estimate of US$1.5 trillion for the year 2005 (which would have been within the range of US$1 to US$1.6 trillion estimated by Baker, and well within the US$1.2-2.3 bn estimate for 2009, shown above), Unger[79] provided an overview of the likely destinations of amounts laundered for the 1997-2000 period. The results suggested that two thirds of money laundered worldwide is transferred to some 20 countries. Most of these countries are developed, with sizeable legal economies. The study also found a limited number of very small offshore countries among the top 20 inverstment locations. If these 20 countries are categorized by region, the model suggests that 31% of global money-laundering takes place in the Americas, 31% in Europe and 5% in Asia.

- Estimates of wealth distribution and importance of offshore centres

The subsequent section of the report analyses the licit capital flows. In order to better understand the relative importance of illicit cross-border money flows, an overview of the global distribution of wealth (in the form of financial assets) may be useful. Despite of the possibili-

Table 34: Summary of estimates of criminal proceeds and amounts laundered at the global level

	Reference year/ period	Criminal proceeds			Amounts laundered		
		best estimate	from	to	best estimate	from	To
a/ Original FATF estimate	1988				2.0%		
b/ FATF estimate updated with UNODC drug data	2003				2.4%		
c/ Six industrialized countries	1990-2009	2.5%	1.4%	4.6%			
d/ Six industrialized countries extrapolated to global level	1990-2009	3.5%	2.0%	6.4%	2.5%*	1.4*	4.5*
e/Consulting firm	2002				2.5%		
f/ NGO (Baker)**	2000-2005				3.6%	2.9%	4.3%
g/ Scientific estimates (based on studies by 10 authors)	1994-2009	3.6%	2.7%	4.4%	2.5%*	1.9*	3.1*
Average (b,d,f,g) as a percentage of GDP		**3.6%**	**2.3%**	**5.5%**	**2.7%**	**2.1%**	**4.0%**
Extrapolated to 2009* in trillion US$**	**2009**	**2.1**	**1.4**	**3.2**	**1.6**	**1.2**	**2.3**
Memo: IMF 'consensus range'	1998				3.5%	2.0%	5.0%

* Assuming – in line with original FATF estimates – that some 70% of crime proceeds are available for laundering.
** Including components such as mispricing, abuse transfer pricing and fake invoices which are – inter alia - used for tax or customs avoidance.
*** Average proportions applied to global GDP in 2009.

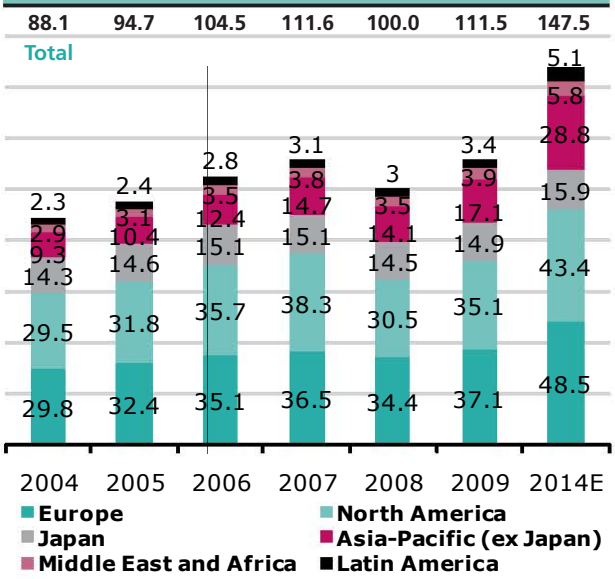
79 B. Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 80.

ties of instant money transfers in the age of communication by electronic means, the subsequent analysis shows, for instance, that there is still a concentration of money transfers to nearby countries or countries in the region.

According to estimates by the Boston Consulting Group, an internationally operating management consulting firm, 'global wealth' - defined as 'assets under management' by 'wealth management institutions' (such as banks and other financial services providers) - amounted to US$111.5 trillion in 2009, up from US$94.7 trillion in 2005. If US$1.5 trillion had been laundered in 2005 (the above-mentioned IMF estimate), this would have been equivalent to 1.6% of such global assets.

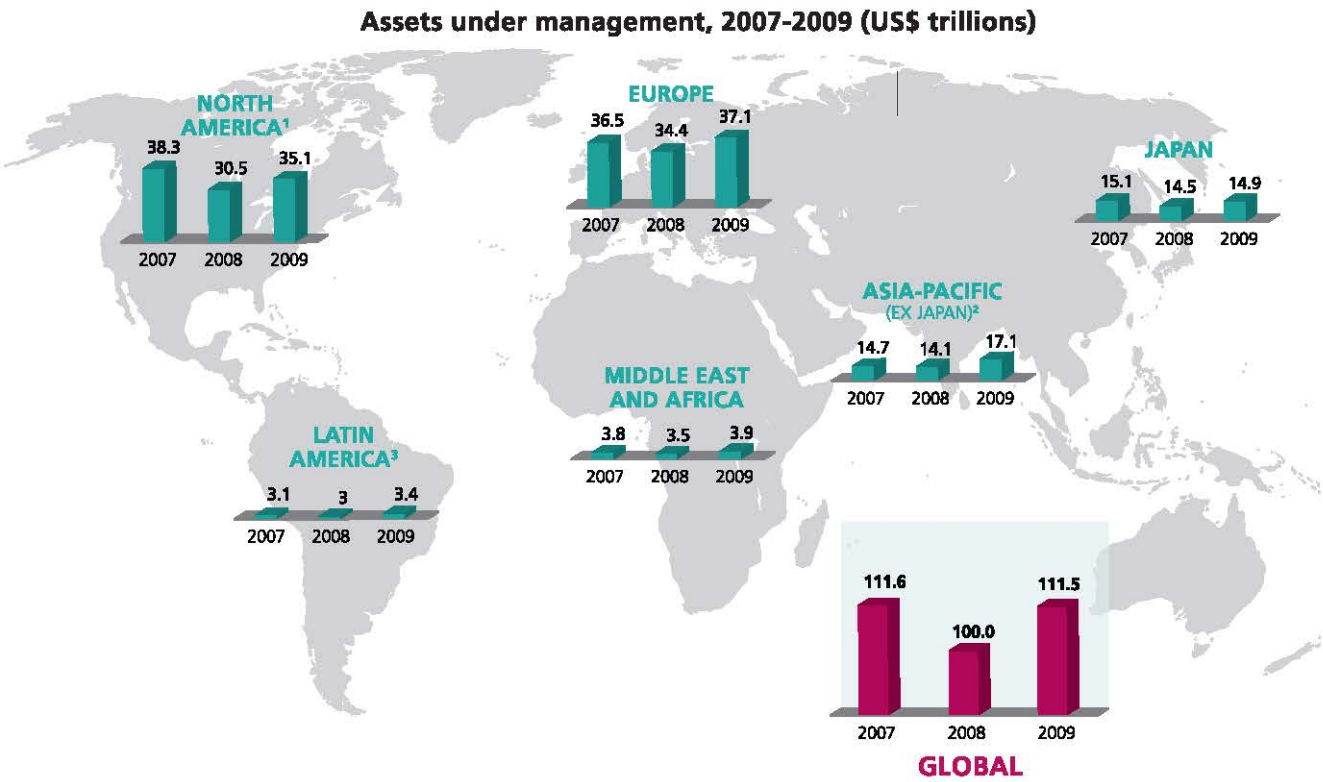
The global financial assets are primarily found in Europe (33% of the world total), the USA and Canada (31%), and the Asia/Pacific region (29%). Overall wealth in the Middle East and Africa (3.5% of the world total) and Latin America (3.0%) is comparatively low.

Fig. 1: Development of 'global wealth,' 2004-2009 (and estimates for 2014)



Source: The Boston Consulting Group, *Global Wealth 2010, Regaining Lost Ground*, June 2010.

Fig. 2: Estimates and distribution of 'global wealth', by region, 2007-2009



Note: Assets under management numbers for all years were converted to U.S. dollars at year-end 2009 exchange rates to exclude the effect of currency fluctuations. Percentage changes and global totals of assets under management are based on complete, not rounded, numbers. Calculations for 2007 and 2008 are based on the same methodology used for the 2009 calculations. Global wealth is measured by assets under management across all households.

1 United States and Canada.
2 Includes Australia and New Zealand.
3 South America, Central America and Mexico.

Source: The Boston Consulting Group, *Global Wealth 2010, Regaining Lost Ground*, June 2010.

Offshore wealth, defined by the Boston Consulting Group (BCG) as assets booked in a country where the investor has no legal residence or tax domicile, amounted to US$7.4 trillion in 2009, equivalent to 6.6% of globally held assets. The BCG identified Switzerland as the largest offshore centre,[80] with non-resident assets of US$2 trillion held there in 2009. This is equivalent to 27% of all offshore assets or 1.8% of global assets. The next largest offshore centres were the British Isles, including the United Kingdom, the Channel Islands and Ireland (US$1.9 trillion or 26% of all offshore assets), the Caribbean and Panama (US$0.9 trillion or 12%), Luxembourg (US$0.8 trillion or 11%), Hong Kong China and Singapore (US$0.7 trillion or 9%) and the United States (US$0.6 trillion or 8%). Other offshore centres account for US$0.5 trillion or 7% of total offshore assets.

The breakdown suggests that investors tend to prefer offshore centres that are geographically close. European investors choose primarily (80%) offshore centres in Europe (Switzerland, British Isles and Luxembourg). Most North American investors also prefer close offshore centres (Caribbean and Panama: 44% of the total). Similarly, Latin American investors prefer offshore centres in the Caribbean and Panama (33%) and in the USA (34%), whereas Asian investors trust primarily offshore centres in Singapore and Hong Kong, China (38%). The closest offshore centres for investors in the Middle East and Africa are those located in Europe. These investors choose primarily to invest in offshore centres in the UK and the Channel Islands (38%) and Switzerland (35%).

The data also indicate the sources of the assets invested in offshore centres. Most of the money is sourced from Europe (US$3 trillion or 41% of all assets invested offshore), followed by the Asia-Pacific region (US$1.5 trillion or 20%) and the Middle East and Africa (US$1.3 trillion or 18%). Investors from North America account for just 9% of global offshore investment.

Expressed as a percentage of global wealth held in different regions, the data suggest that the popularity of investing in offshore centres differs substantially across regions. The highest 'proportions' of offshore investment are found from clients in the Middle East and Africa. Their offshore investment is equivalent to one third of financial assets in their own countries. In Latin America, the proportion is nearly one quarter. In the rest of the world, the proportion of offshore investment is well below 10%, falling to just 2% for the USA and Canada.

Table 35: Breakdown of financial assets held in offshore centres (2009)

	Wealth held in offshore centres, 2009 (US$ trillions)							
	Destination of offshore wealth							
Origin of offshore wealth	Switzerland	United Kingdom, Channel Islands and Dublin	Luxembourg	Caribbean and Panama	Hong Kong and Singapore	United States	Other	Regional total
North America	0.14	0.22	-	0.31	0.05	0.003	-	0.7
Europe	0.98	0.76	0.67	0.16	0.09	0.13	0.24	3.0
Asia - Pacific	0.21	0.33	0.06	0.11	0.57	0.12	0.06	1.5
Latin America	0.21	0.06	0.004	0.27	-	0.27	0.01	0.8
Middle East and Africa	0.46	0.49	0.04	0.06	0.01	0.04	0.23	1.3
Booking center total	**2.0**	**1.9**	**0.8**	**0.9**	**0.7**	**0.6**	**0.5**	**7.4**

Source: The Boston Consulting Group, *Global Wealth 2010, Regaining Lost Ground,* June 2010.

80 These 'offshore centres' differ from 'offshore financial centres' as defined by the IMF,in 2007: "*An OFC is a country or jurisdiction that provides financial services to nonresidents on a scale that is incommensurate with the size and the financing of its domestic economy.*"

Table 36: Breakdown of global (financial) assets in 2009

	Total assets (in trillion US$)	Offshore (countries of origin) (in trillion US$)	Expressed as a percentage of total assets
North America*	35.1	0.7	2.0%
Europe	37.1	3.0	8.1%
Asia-Pacific	32	1.5	4.7%
Latin America	3.4	0.8	23.5%
Middle East / Africa	3.9	1.3	33.3%
Total	**111.5**	**7.4**	**6.6%**

* United States and Canada

Source: The Boston Consulting Group, Global Wealth 2010, Regaining Lost Ground, June 2010.

Detailed analysis of a transnational organized crime sector

The previous chapter contained an overview of methodologies used and results obtained by various authors on the extent of criminal proceeds and the amounts that are assumed to be laundered at the global level. This chapter will develop a number of models to deal with the process of estimating the proceeds of transnational organized crime, estimating the amounts entering the financial sector and showing the likely destinations of such flows. The models that were developed for this study will be applied to one specific transnational organized crime sector – trafficking in cocaine – where sufficient information and expertise is already available to undertake such an exercise.

The models developed for this exercise are - in principle - also applicable to other transnational organized crime sectors. The analysis of the process and its application to one concrete crime sector, however, revealed that this is still a complex exercise, requiring detailed insight knowledge by experts in order to generate reasonable results. Any simple mechanistic application of the models to other sectors, without such knowledge, bears significant risks of failure.

There are many definitions of organized crime at the national level.[1] Though the concept of 'organized crime' is widely used by criminologists, law enforcement agencies, the justice system and journalists in many countries, the definition of 'organized crime' at the international level has been rather vague. The United Nations Convention against Transnational Organized Crime (TOC) defined some of the main constituent components of what can be considered *transnational organized crime*. These components include:

- a *serious offence* [notably a serious crime],
- the *transnational* nature of such an offense,
- an *organized criminal group*.

Article 3 stipulates that the offence has to be *transnational* in nature, involve an organized criminal group and the offence must be serious, that is, either a *serious crime* (as defined below), related to the participation of a person in an *organized criminal group*, involve *the laundering of proceeds of crime* or concern *corruption* of a public official geared towards the obstruction of justice.

An *organized criminal group* is defined in Article 2 of the TOC as '*a structured group of three or more persons, existing for a period of time and acting in concert with the aim of committing one or more serious crimes or offences established in accordance with this Convention, in order to obtain, directly or indirectly, a financial or other material benefit*. In other words, the number of persons needed to participate in an organized crime group is limited. The group must, however, exist for a period of time and be 'structured'. A 'structured group' is defined as a group that is not randomly formed for the immediate commission of an offence.

The term *serious crime* (Art. 2) has been defined in the Convention as constituting an offence punishable by a *maximum deprivation of liberty of at least four years or a more serious penalty*. This requirement (four years or more potential prison sentence) is less restrictive than the 'serious crime' requirement under the FATF recommendations.

The next criterion is the *transnational nature* of an offence. According to Article 3, para 2, an offence is transnational in nature if:

1. *It is committed in more than one State;*
2. *It is committed in one State but a substantial part of its preparation, planning, direction or control takes place in another State;*
3. *It is committed in one State but involves an organized criminal group that engages in criminal activities in more than one State; or*
4. *It is committed in one State but has substantial effects in another State.*

UNODC has already worked on the identification of some key transnational organized crime activities, fulfilling the criteria set out above. They include trafficking in drugs such as cocaine and heroin, smuggling of migrants, trafficking in persons (for sexual exploitation), smuggling of firearms, trafficking of natural resources (such as timber and wildlife, including elephant ivory, rhino horn and tiger parts), product counterfeiting (including counterfeiting of medicines), maritime piracy and cyber-

1 In the USA, for instance, the Organized Crime control Act of 1970 defines organized crime as "the unlawful activities of a highly organized, disciplined association".

crime[2] (see Table 37).

The current study, however, does not attempt to map the financial dimensions of all such transnational organized crime activities. Instead, it focuses on one prominent example of a transnational organized crime sector: trafficking in cocaine. Drug trafficking clearly constitutes the largest income for transnationally operating crime groups worldwide and within that area cocaine trafficking plays a key role. The heroin market is smaller and the same applies to the markets for the various amphetamine-type stimulants. Though the cannabis market is possibly larger in total, it is to a large extent dominated by local cultivation and consumption and thus – compared to cocaine - less characterized by an involvement of transnationally operating crime groups.

The first challenge was to arrive at monetary estimates of the cocaine-related flows in the various subregions. The next question related to how much of these flows are used to maintain the illegal business activities and for the personal consumption of traffickers, and to what extent such funds enter the financial system. The final questions are how much of the flows into the financial system remain within the jurisdiction where they were generated, and how much is directed to other destinations, including offshore centres. A model has been created to help answer these questions.

a) Methodology

i. Overview

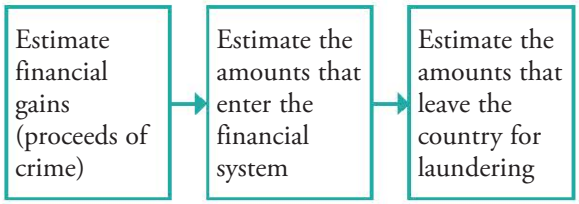
The discussions on the methodology in the previous chapter have shown that a significant number of proposals exists to estimate the extent of money-laundering. But there is no single method that can be regarded as the 'gold standard' for undertaking such a study. Though promising, most of the methods discussed suffer from a number of drawbacks. Some of them rely on case studies, which raises questions as to the statistical representativeness of the results. Others are based on interviews to gather expert opinion. In this case, there is a potential problem of a perception bias. Some models rely heavily on financial transactions data, including suspicious activity reports. In such models, there is no direct nexus between the proceeds of crime and the amounts of money being laundered, and the same money may be counted multiple times as the funds are moved from country to country for laundering. There are also a number of problems if the analysis is based on statistical discrepancies in balance of payment and trade statistics, or if it is based on currency demand.

2 UNODC, *The Globalization of Crime – a Transnational Organized Crime Threat Assessment,* June 2010.

Against this background, a new method was tested for this study. This model is more directly linked to criminal activities and the resulting financial flows.

The method consists of the following sub-components:

1. Calculating the financial gains arising from the transnational crime activities considered at the various subregional levels;
2. Estimating the amounts - arising from transnational crime activities in the various subregions - that enter the financial system;
3. Estimating the amounts that cross borders for money-laundering purposes, reflecting the actual 'transnational illicit financial flows' from the proceeds of transnational crime.



Key financial flows emerging from various transnational organized crime activities were summarized in the UNODC report *The Globalization of Crime – a Transnational Organized Crime Threat Assessment* (June 2010). The study, which also presented preliminary estimates of the amounts involved for some key trafficking flows, suggested that drug-related trafficking, notably cocaine trafficking, is by far the most important transnational organized crime activity in monetary terms (see Table 37).

Major challenges exist, however, if one wishes to go beyond the numbers presented here. The figures only reflect the value of some key trafficking flows in 2008 - but not of all trafficking flows. In the case of cocaine, the flows going to North America and Europe account for around 80% of the global flows in monetary terms.[3]

In the case of heroin, the flows to Western Europe and the Russian Federation cover around 60% of the total flows in monetary terms.[4] A detailed methodology for arriving at these figures exists as well as a breakdown by individual countries or at least some groups of countries. The spread of the Hawala system across the Near and Middle East complicates, however, the analysis of the money flows. This was illustrated when the 'Paris Pact' requested participating Member States to share informa-

3 UNODC, *World Drug Report 2010* and UNODC, *World Drug Report 2011*.

4 UNODC, *Addiction, Crime and Insurgency – the Transnational Threat of Afghan Opium*, October 2009 and UNODC, *The Global Afghan Opium Trade: A Threat Assessment*, July 2011.

Table 37: Estimates of the extent and value of key transnational organized crime-related flows

TOC PROBLEM		ESTIMATED EXTENT	ESTIMATED ANNUAL VALUE (US$)
TRAFFICKING IN PERSONS	TO EUROPE FOR SEXUAL EXPLOITATION	70,000 victims (annual) 140,000 victims (stock)	3 billion (stock)
SMUGGLING OF MIGRANTS	FROM LATIN AMERICA TO NORTH AMERICA	3 million entries (annual)	6.6 billion (income for smugglers)
	FROM AFRICA TO EUROPE	55,000 migrants (annual)	150 million (income for smugglers)
COCAINE	FROM THE ANDEAN REGION TO NORTH AMERICA	309 tons (depart) 196 tons (at destination)	38 billion (at destination)
	FROM THE ANDEAN REGION TO EUROPE	212 tons (depart) 124 tons (at destination)	34 billion (at destination)
HEROIN	FROM AFGHANISTAN TO THE RUSSIAN FEDERATION	95 tons (depart) 70 tons (at destination)	13 billion (at destination)
	FROM AFGHANISTAN TO EUROPE (EXCL. RUSSIA)	140 tons (depart) 87 tons (at destination)	20 billion (at destination)
TRAFFICKING OF FIREARMS	FROM THE UNITED STATES TO MEXICO	20,000 weapons, mostly handguns	20 million
	FROM EASTERN EUROPE TO THE WORLD	At least 40,000 Kalashnikovs in 2007/2008	At least 33 million (in 2007/2008 at destination)
TRAFFICKING OF NATURAL RESOURCES	WILDLIFE FROM AFRICA AND SOUTH-EAST ASIA TO ASIA	Elephant ivory: 75 tons Rhino horn: 800 kg Tiger parts: Perhaps 150 tiger skins and about 1,500 kg of tiger bones	Elephant ivory: 62 million Rhino horn: 8 million Tiger parts: 5 million
	TIMBER FROM SOUTH-EAST ASIA TO THE EUROPEAN UNION AND ASIA	Perhaps 10 million cubic meters	3.5 billion (at destination)
PRODUCT COUNTERFEITING	CONSUMER GOODS FROM ASIA TO EUROPE	Some two billion articles per year	8.2 billion (at destination)
	MEDICINE FROM ASIA TO SOUTH-EAST ASIA AND AFRICA	Billions of dose units	1.6 billion (at destination)
MARITIME PIRACY	OFF THE COAST OF SOMALIA	217 attacks in 2009	100 million
CYBERCRIME	IDENTITY THEFT	Around 1.5 million victims	1 billion
	CHILD PORNOGRAPHY	Perhaps 50,000 new images generated annually	250 million

Source: UNODC, *The Globalization of Crime: A Transnational Organized Crime Threat Assessment*, June 2010.

tion on the flows of heroin-related proceeds in 2010. Most Member States faced considerable difficulties to supply such information. Questionnaires were either not responded to or sent back blank.

UNODC's estimate for trafficking in persons to Europe for sexual exploitation would be equivalent to some 10% of the previous ILO estimate on the amounts generated from trafficking in persons worldwide.[5] For most of the other flows no reliable global estimates can currently be given. A simple extrapolation from these key regional flows to the global level would thus be problematic. The most basic estimates in these areas are still highly questionable and subject to major error margins.

Alternatively, the calculations could start from statistically-based estimates of the proceeds generated by transnational organized crime in individual countries. However, such estimates are non-existent for most countries, notably for developing countries. This does not mean that they could not be generated. However, law enforcement necessarily focuses on the most visible part of the organized crime spectrum and rarely catches a glimpse of the whole picture. Occasional proceeds of crime data are produced when organized crime suspects are convicted, but few countries have conducted any comprehensive analysis of the overall proceeds of crime. Some of these assessments are dated, going back some twenty years, including for countries such as the United States.

There are some exceptions. Recent work by the International Monetary Fund, for instance, estimated the proceeds of crime, excluding tax evasion, in Germany at €32 bn equivalent to 1.3% of GDP (as discussed in the previous sub-chapter under 'national estimates'). The underlying calculations would provide a useful model for other countries to follow. Another exception in this regard has been work done by UNODC in a recent study on the income derived from the illicit exploitation and smuggling of raw materials in the Democratic Republic of the Congo, reflecting some of the most prominent transnational organized crime activities in this country. This study revealed that such income amounts to some US$200 million per year,[6] close to 0.2% of GDP. Nonetheless, serious work on illicit money flows and related laundering activities should not be based on just a few national studies which are – in addition – using different methodologies to arrive at their estimates.

Against this background, this study was limited to just one offence type – *trafficking in cocaine* - for which a body of proceeds of crime data exists, and for which methods of estimation could be developed to fill data gaps. Even within the area of trafficking in cocaine, major difficulties have been encountered. While there is knowledge about the extent of cocaine use, and some basic understanding of the profits earned by crime in the countries of origin and destination, transnational organized crime also generates important proceeds in transit countries, and much less is known about these activities. In fact, the area where available information is weakest is in the countries of transit. Yet significant profits – notably if compared to the size of the economies concerned - may be generated there as the 'middlemen' take their share of the proceeds in return for services rendered.

As is the case with illicit drugs as well as trafficking in other goods and persons, the trade often involves a complex distribution network, covering many countries. There are countries of production, wholesalers in a range of other intermediate or transit countries, and retailers in countries of consumption. All of these need to be quantified. While lots of efforts have gone into estimating the number of users of drugs, very little efforts have gone into quantifying the numbers of traffickers involved. Where numbers of producers, wholesalers and retailers can be estimated, and sales volumes and unit prices are known, estimates can be made of the average per capita income of these groups in the network. Then, an estimate can be made of the excess income over a measure of living costs, and this can be used as an estimate of the amount of 'launderable' income. In addition, the market structure needs to be taken into account. The study on cocaine will experiment with some more sophisticated approaches to deal with these problems.

A further major challenge is to develop estimates of the extent to which proceeds from crime enter the financial system. For this purpose, a literature review has been undertaken to obtain some baseline data. Moreover, a number of techniques have been developed and used to generate such estimates. They include - in the drug area - an analysis of individual drug seizure cases reported to UNODC by Member States. This was done to identify reasonable cut-off rates for the amounts that are spent by small-scale drug traffickers to cover their current living costs versus surpluses generated by larger dealers that would be available for money-laundering purposes. In addition, the study also tried to obtain and analyse expert opinions on this topic from Financial Intelligence Units (FIUs) and other relevant institutions at the

5 International Labour Organisation (ILO), *A Global Alliance Against Forced Labour,* Geneva, 2005.

6 This includes illicit income generated from the illegal exploitation and smuggling of gold worth US$120 million; timber US$30 million; cassiterite US$ 29 million; diamonds US$21 million, cannabis 5 million and ivory US$3 million, totalling US$$208 million. (Source: UNODC, *Organized Crime and Instability in Central Africa: A Threat Assessment*, October 2011).

national and international level, as well as from experts working in academia. This was done, inter alia, through a Reference Group involving experts from various regions.

Another major challenge is the identification of the proportion of illegal funds that enter the financial system and are subsequently laundered by leaving the respective jurisdiction. In order to tackle this problem, a model was developed based on a literature review and expert opinions from FIUs and other relevant institutions.

ii. The models

A business is typically formed to earn profit that will increase the wealth of its owners and grow the business itself. The owners and operators of a business have as one of their main objectives *the receipt or generation of a financial return* in exchange for work and acceptance of risk.

Transnational organized crimes are generally conducted as businesses in one of four main categories:

- Businesses whose profitability depends on their satisfying some demand for prohibited goods/services; for example, illicit drugs, firearms, forced labour, body parts and endangered species;
- Businesses involving satisfying a demand for legal goods/services, but avoiding tax, excise duties or regulations; for example, cigarettes, alcohol, prostitution (where legal) and immigration;
- Businesses involving satisfying a demand for legal goods/services, but through undercover production or theft of resources; for example, stolen vehicles, illegally copied DVDs, cultural treasures, illegal logging or extractive industries such as oil or diamonds;
- Businesses involving the predatory diversion of government or private funds or business profits through fraud or corruption; for example, false invoicing, political and financial manipulation of funds, internet and ID frauds, stock market manipulation and fraud.

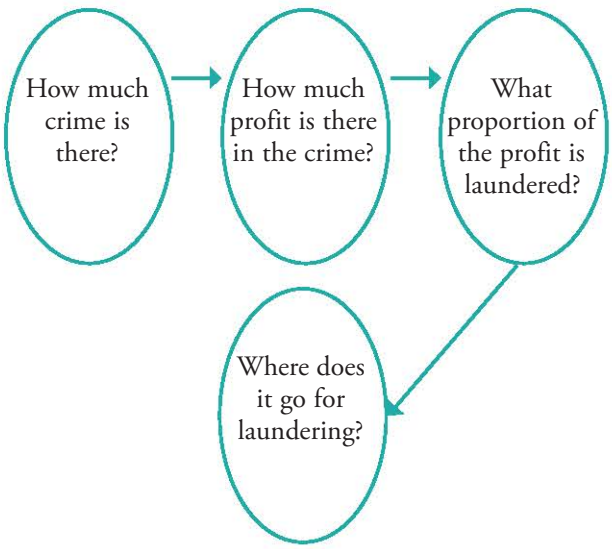
Transnational organized crime groups conduct this business because of the significant profits that can be earned. Business is conducted in places where profits are maximised, and may involve various stages, such as production, wholesaling and retailing (as in the illicit drugs trades) which may each involve transnational movements and different degrees of profitability. Profits may be generated in terms of cash, other financial assets, or in commodities (for example, diamonds and timber) that can be resold.

Since all of these characteristics of transnational organized crime are also features of normal business and international trade - other than their criminality - the approach used is inspired by that area of economics. A 'gravity model' of the proceeds of crime and money-laundering was developed. When provided with estimates of the proceeds of crime and the extent to which these proceeds of crime are likely to be laundered, the purpose of the model is to estimate the likely extent and direction of the resulting flows for the first stage of laundering.[7]

iii. The proceeds of crime

The project commenced with a compilation of data on the proceeds of crime related to trafficking in cocaine, proceeded to estimate the proportion of illegal funds that enter the financial system (as opposed to being spent on personal consumption or business costs) and finally estimated the amounts that subsequently leave the jurisdiction in which they were generated.

In the area of illicit drug trafficking, including trafficking in cocaine, UNODC has compiled a comprehensive database with annual time-series data covering a large number of countries, and an extensive list of data items. These data provide sufficient information to estimate the supply, demand, price levels, and therefore profits made.[8]



The supply of illicit drugs proceeds in stages. Wholesalers import drugs in bulk and sell in smaller quantities to their network of retailers for resale, in even smaller quantities, to consumers. When crime generates proceeds in small amounts, the offender will spend a significant proportion of this income on living costs and

7 Note that no attempt is made to analyse subsequent stages of money-laundering.

8 See, for example, UNODC, *World Drug Report 2005*, Vol. 1, Ch. 2., 'Estimating the Value of Illicit Drug Markets.'

minor luxuries, leaving only a small proportion available for laundering. In contrast, offenders whose proceeds of crime accrue in large amounts are likely to launder a greater proportion of their income.[9] It follows, therefore, that there are significant differences between wholesalers of illicit goods and services and retailers of the same goods and services, in their propensities to launder money, since wholesalers typically deal in bulk and retailers in much smaller quantities. The modelling of the illicit cocaine trade followed this logic. Separate estimates of the gross profits were made at the wholesale and retail level for each country.

iv. The proportion of proceeds that is laundered

The proportions of funds laundered for illegal income – as reported in the literature – typically fall within a range of 40%-80%, or 60%-80% for illegal drugs (see chapter 1). As the literature review also revealed, these estimates are mostly assumptions. Relatively little actual information exists about the proportions of the proceeds of crime that are laundered. Against this background some new, innovative approaches have been developed for this study to generate more empirically backed estimates on the proceeds of crime that are available for laundering purposes.

One approach would be to estimate average income per wholesaler and retailer of cocaine in each country. Once 'reasonable living expenses' are subtracted, an estimate could be derived of the amount of 'launderable' money per capita generated from cocaine trafficking. Summing these amounts over the total estimated numbers of wholesalers and retailers would give an estimate of the total amount of money available for laundering.

The results from such a model, however, can be grossly misleading as the 'average drug trafficker' does not exist in practice. In fact, the distribution of drug traffickers tends to be very uneven, with a few traffickers accounting for the bulk of the drugs sold on the market, and a large number earning the bare minimum to survive.

Thus, a more sophisticated model has been developed. The basic steps here are to:

1. estimate the number of traffickers involved at the retail and wholesale levels in key countries;
2. analyse the market structure;
3. apply the analysed market structure to the estimated number of traffickers at the retail and wholesale levels and introduce a cut-off rate ('reasonable living expenses') above which drug traffickers are able to launder money.

- Modelling the money-laundering processes – the Gravity Model

There are, of course, differences between how transnational organized crime and legitimate businesses manage their activities and determine how to invest their profits. But the differences are in the types of risks that are considered, not in the ways they are assessed. The factors that determine whether transnational organized crime choose to transfer money from the country in which it is generated to another country in which it will be laundered differ only in some respects – particularly in their need for secrecy – from the factors that determine legitimate business transfers.

One specific difference between legitimate businesses and transnational organized crime is in the tendency of many crime types to generate proceeds in the form of cash, because cash is not traceable. When cash is generated, *placement*[10] processes are required prior to *layering and integration*.

- Banking systems initially attractive to these crime types will be those that are cash-friendly, rather than particularly sophisticated.
- Because of the problems involved in transporting large amounts of cash, countries that are geographically close may be particularly attractive as the first step in the laundering process.

9 Walker, J., *Estimates of the Extent of Money Laundering in and through Australia*, Australian Transaction Reports & Analysis Centre, 1995; Walker, J. and J. Stamp, *The Extent of Money Laundering in and through Australia in 2004*, Australian Institute of Criminology, 2007..

10 The Financial Action Task Force defines the three stages of money-laundering as follows:

In the initial - or placement - stage of money laundering, the launderer introduces his illegal profits into the financial system. This might be done by breaking up large amounts of cash into less conspicuous smaller sums that are then deposited directly into a bank account, or by purchasing a series of monetary instruments (cheques, money orders, etc.) that are then collected and deposited into accounts at another location.

After the funds have entered the financial system, the second – or layering – stage takes place. In this phase, the launderer engages in a series of conversions or movements of the funds to distance them from their source. The funds might be channelled through the purchase and sales of investment instruments, or the launderer might simply wire the funds through a series of accounts at various banks across the globe. This use of widely scattered accounts for laundering is especially prevalent in those jurisdictions that do not co-operate in anti-money laundering investigations. In some instances, the launderer might disguise the transfers as payments for goods or services, thus giving them a legitimate appearance.

Having successfully processed his criminal profits through the first two phases the launderer then moves them to the third stage – integration – in which the funds re-enter the legitimate economy. The launderer might choose to invest the funds into real estate, luxury assets, or business ventures.

http://www.fatf-gafi.org/document/29/0,3343 ,en_32250379_32235720_33659613_1_1_1_1,00.html.

- The money may then proceed to other countries, where more sophisticated banking systems perform the layering and integration processes.

Offences that generate non-cash financial proceeds may generate funds already *placed* and maybe *layered* in financial accounts, and do not require these initial laundering stages.

- Proceeds will be attracted to the larger or more sophisticated banking systems.
- Proceeds may be transferred electronically, so that geographic proximity has little relevance. Of more significance is the *willingness* of the banking system to protect the identity of the customer, and the *capacity* of the banking system to provide the necessary services.
- Offences that generate proceeds in the form of commodities may require processes that disguise the illicit nature of their origins – for example, integration into legitimate businesses.
- Proceeds will then appear as the profits from apparently legitimate sources.

- Attractiveness to money-launderers

There are multiple dimensions to attractiveness to money-launderers. In particular, each country will have an intrinsic attraction to launderers, based exclusively on its own characteristics. Some will be attractive to those requiring 'cash-friendly' banking services, whereas others will be attractive to those requiring sophisticated banking services.

Essential to these issues are questions of the extent to which the country's regulatory regime prohibits the provision of money-laundering services, and the finance sector has the expertise and capacity to provide such services.

In addition to the country's intrinsic attractiveness to money-launderers, there is the issue of its pair-wise attractiveness with other countries, based on shared characteristics. Countries that share certain characteristics, including common ethnic backgrounds, common language(s), regular and extensive trade and shared (and porous) borders will be more attractive to money-launderers because of the greater ease of doing business.

As is shown by Walker and Unger,[11] these concepts can be brought together in the form of an international input-output economic model,[12] using a form of 'gravity model'[13] to express the attractiveness factor.

- Measuring a region's intrinsic attractiveness to money-launderers

The relative size of an economy can attract money-launderers since it may be easier and safer to hide huge illicit funds in a more advanced economy than in a less developed country where government institutions would not be strong enough to bail out financial institutions in case of bankruptcy. Financial services exports and foreign direct investment are measures of the capacity of a country to undertake transnational financial transactions. Measures of the rule of law may indicate the unwillingness of a country's operators to launder illicitly generated funds. Similarly, compliance with the Financial Action Task Force's "40+9" recommendations may be an indicator of the unwillingness of a country's operators to launder illicitly generated funds. At the same time, the existence of a large shadow economy tends to facilitate effective hiding of illicit funds and is thus likely to act as an incentive for money-launderers to invest their funds in such countries.

Based on the considerations mentioned above, a range of variables has been used in this study to measure a country's intrinsic attractiveness to money-launderers. Key parameters used in the current model were:

- GDP per capita;
- the importance of the financial services sector in GDP (financial services exports as % of GDP);
- foreign direct investment inflows as % of GDP;
- indices measuring the rule of law (Rule of Law index);
- indices measuring human development (HDI Index);
- FATF compliance (Financial Action Task Force recommendations compliance index);
- extent of the shadow economy (Shadow Economy as a percentage of GDP).

The data for some of these variables are far from complete. The methodology for missing values varies according to the context and the information available, but generally, countries of a similar character to the one with missing data were identified, and corrections for popula-

11 Walker, John and Unger, Brigitte, "Measuring Global Money Laundering: "The Walker Gravity Model"," *Review of Law & Economics*: 2009, Vol. 5: Iss. 2, Article 2.

12 Developed by Wassily Leontief (Leontief, W. 1986. Input-Output Economics, 2nd edition. Oxford University Press.), and long used by economists as the basis for economic modeling.

13 The gravity model is related to the input-output model and says that the amount of trade from place A to place B depends on the size of the population in place A, the 'attractiveness' of place B to people based in A, and the distance between the two places. The 'distance' need not refer simply to geographic distance, but can, for example, include other geographical deterrents to trade, such as mountain ranges. (Walker and Unger, 2009, op. cit.)

tion or GDP were made where appropriate. For example, where no data were found for financial services exports as a percentage of GDP for some significant financial centres, the data for another financial centre with similar characteristics (port city, similar population, GDP and regional significance) was applied. In the case of numerous, less important centres, regional averages were applied.

The Model produces an index based on these data and assumptions, which was then aggregated to the subregional level.

- Measuring specific region-to-region attractiveness to money launderers

The gravity model (first put forward by Tinbergen (1962[14]), assumes that traders (in our case, money-launderers) will prefer to conduct business between countries with attractive trading features, including cultural or linguistic links, but that geographical distance is an impediment to laundering. As stated in Walker and Unger (2009):

> *Distance is important for trade flows because it is a proxy for transport costs. It also indicates the time elapsed during shipment, the damage or loss of the good which can occur when time elapses (ship sinks in a storm), or when the good spoils. It also can indicate the loss of the market, for example when the purchaser is unable to pay once the merchandise arrives. Distance also stands for communication costs; it is a proxy for the possibility of personal contact between managers, customers, i.e. for informal contacts which cannot be sent over a wire. Distance can also be seen in a wider perspective as transaction costs, such as the search for trading opportunities or the establishment of trust between partners.*

Geographic distances between capital cities can be computed from their latitudes and longitudes. Of course, distance is no longer an absolute impediment to business, so it is likely that the weight given to this factor should be lower in a model based on twenty-first century forms of trade, including illicit trade, than it was given in earlier models. It is also likely that distance is a greater deterrence to illicit financial flows when they are in the form of bulk cash, rather than in other financial assets, simply because of the risks inherent in moving bulk cash across borders. This means that the weight given to distance, as a deterrent to money-laundering, would depend upon the nature of the proceeds of crime, and – in particular – whether the proceeds are generated in cash or in other forms. In this case, it is also likely that two countries that share a common border may have a greater mutual attraction than countries that do not have a common border, even when they are equidistant.

The model also follows gravity model tradition in assuming that launderers will prefer to deal with countries that share common languages, cultural and trade ties. Walker and Unger (2009) note that:

> *Speaking a common language and sharing a common history and cultural background can lower transaction costs. "Two countries that speak the same language will trade twice to three times as much as pairs that do not share a common language".*

Principal languages and trading partners can be compared, country by country, and similarities noted. An analysis of data on major trading partners, languages and distances between capital cities produces the following results:

- Exports decrease with the square of the distance between countries.
- Only one out of seven countries traded more with distant countries than with closer countries.
- Countries that share a common language are more than twice as likely to be named as principal export destinations.
- Only one of five countries was more likely to trade with countries of dissimilar languages than with countries with a similar language.

Both Di Giovanni (2003[15]) and Wong (2007[16]) have used the gravity model to examine what drives (legal) capital flows. They included variables that can be considered as measures of intrinsic attractiveness as well as measures of country-to-country attractiveness. Di Giovanni finds that:

> *In particular, the size of financial markets, as measured by the stock market capitalization to GDP ratio, has a strong positive association with domestic firms investing abroad. The importance of the stock market is particularly strong in market-based vs. bank-based economies. Second, bilateral distance has a negative effect, while telephone traffic has a positive effect. … Third, consistent with the last finding, a common language has a positive effect. Fourth, bilateral service agreements stimulate deals. Fifth, high tax rates in the target country provides a*

14 Tinbergen, J., *Shaping the World Economy*, Twentieth Century Fund, 1962, New York.

15 di Giovanni, J., 'What drives capital flows? The case of cross-border M&A activity and financial deepening,' *Journal of International Economics*, 2005.

16 Wong, W.K., *Comparing the Fit of the Gravity Model for Different Cross-Border Flows* (http://courses.nus.edu.sg/course/ecswong/research/wb9-ML.pdf).

disincentive, while bilateral capital tax agreements have a positive effect. Finally, some other controls, such as economic size, are also significant.

Wong found empirically that a model based on distance, language and 'colonial experience' *"works well for trade and telephone traffic, but less satisfactorily for merger and acquisition flows"*. He found that *"bilateral flows are higher if two countries share a common border or a common language"*.

It is reasonable to hypothesize that similar principles to those that apply to trade between countries also apply to the flows of the proceeds of crime. A range of variables, consistent with these findings, has therefore been used in this study to measure attractiveness to money-launderers:

- Geographic distance.[17]
- Whether the countries share a common border or are linked by a key transport route (a simple Yes/No index).[18]
- Whether the countries share a principal language.[19]
- The proportion of exports from country A that go to country B.[20]

The geographic distance and the common border index reflect the traditional gravity model, plus Wong's findings about common borders. The language expresses the ease of doing business, and the export data measure the strength of existing (mostly legal) trade patterns between the two countries.

The individual country results were then aggregated to the subregional level. The results in this study are only shown at the subregional level.

- Model calibration

As described in Rodrigue et al (2009), a calibration process is necessary to ensure that the gravity model produces results that match known facts.

A significant challenge related to the usage of spatial interaction models, notably the gravity model, is related to their calibration. Calibration consists in finding the value of each parameters of the model (constant and exponents) to insure that the estimated results are similar to the observed flows. If it is not the case, the model is almost useless as it predicts or explains little. It is impossible to know if the process of calibration is accurate without comparing estimated results with empirical evidence[21].

The model is therefore constructed so that a weighting can be applied to each of the variables listed above to generate different scores for each country. A zero weighting excludes the variable from the scoring system. A negative weighting can be applied to those factors believed to reduce the attractiveness to money-launderers. In some cases, a negative value can also be seen as a correction factor. The higher the weighting, the more influence the factor has in the intrinsic attractiveness score. These weightings can then be manipulated to achieve a good match between the model's results and observed flows.

The Attractiveness Index is calibrated in this way by reference to the many existing lists of money-laundering countries, offshore centres, tax havens and AML compliance matrices,[22] and by reference to the few existing attempts to quantify elements and correlates of money-laundering to or from particular countries.[23]

b) Application of the model(s) to cocaine trafficking

The various models outlined above were tested for one specific transnational organized crime activity: trafficking in cocaine. Trafficking in cocaine is particularly interesting as it tends to have a higher level of organized crime involvement than trafficking in other drugs. This

17 Distance was calculated as follows: Distanceij, for countries i and j not sharing common borders = the geographic distance between capital cities; for countries i and j sharing common borders = "Distance Reduction for Common Borders" * geographic distance between capital cities; and for i = j, = "Notional Distance for Internal Laundering" * Min(Distanceij, i not equal j). The 'notional distance for internal laundering is related to the nearest "other" country, so the model finds the distance from country I to the nearest country J, and multiplies it by 0.049, reflecting the results of research done on internal money-laundering in the Netherlands. .

The data was computed from the latitudes and longitudes of the cities: http://www.racerecon.com/trailrecon/gmaps/Chapters/chapter5/ScreenScraping/scrape_me.html.

18 Compiled from Google Maps

19 Source: http://www.infoplease.com/ipa/A0855611.html

20 Compiled from http://comtrade.un.org/db/default.aspx. A simple gravity model, based on the GDPs of the two countries and the distance between them, was used to estimate the remaining percentages.

21 Rodrigue, J-P, C. Comtois and B. Slack (2009), The Geography of Transport Systems, Second Edition, New York: Routledge. See http://people.hofstra.edu/geotrans/eng/ch5en/meth5en/ch5m2en.html.

22 These include the International Narcotics Control Board, the OECD tax implementation standards list, and the Tax Justice Network.

23 For example, Baird Maritime, "Laundered ransoms cause Kenyan property boom," 25 February 2010 (http://www.bairdmaritime.com/index.php?option=com_content&view=article&id=5693:piracy-cash-lands-in-kenya-property-market-in-nairobi-skyrockets-&catid=113:ports-and-shipping&Itemid=208), and the Global Financial Integrity Programme's attempt to quantify privately held , non-resident deposits in secrecy jurisdictions - http://www.gfip.org/storage/gfip/documents/reports/gfi_privatelyheld_web.pdf.

also results in the concentration of funds in a more limited number of hands and thus in more significant amounts potentially available for money-laundering than for other drugs. The geographic concentration of cocaine trafficking activities in the Western hemisphere also means that the banking sector plays a larger role for money-laundering than in the Eastern hemisphere where traditional, informal financial transaction systems (such as the Hawala system, based on trust and family ties) are of larger importance.

Whenever countries are explicitly mentioned in the subsequent sub-chapters, this was done to explain the methodology used to arrive at estimates, but is not intended to denounce such countries or downplay the efforts made by these countries to fight the scourge of cocaine trafficking. In fact, some of the most frequently mentioned countries have been those that have made most progress in dealing with the cocaine problem in recent years. This includes Colombia which succeeded in reducing its area under coca cultivation by 65% over the 2000-2010 period, the United States of America, which succeeded in significantly reducing cocaine use (cocaine positive urine tests among the general workforce fell by 68% between 2006 and 2010) and Mexico, where the Government actively confronted the drug cartels in recent years and thus contributed to the massive decline of cocaine use in the United States.[24]

i. Estimating the proceeds of the illicit cocaine trade

UNODC has undertaken several rounds of estimates of the various illicit drug markets, notably for cocaine and the opiates. With regard to cocaine, UNODC's latest estimates suggest a total retail sales figure of around US$85 billion (range: US$75-US$100 bn) for 2009.

UNODC has compiled a comprehensive database with annual time-series data covering almost all countries, a range of key drug types, and an extensive list of data items. From these data, estimates can be derived of the extent of cocaine market-related activities affecting various countries, and the profits generated by those activities. The data include:

- Estimated numbers of producers.
- Estimated area under cultivation.
- Estimated quantity of production.
- Estimated quality of production and of the amounts trafficked ('purity').
- Estimated 'farmgate' prices to producers.
- Estimated losses in transit to consumers (seizures).
- Trafficking routes.
- Estimated wholesale prices (price per kilogram).
- Estimated retail prices (price per gram).
- Estimated numbers of consumers.
- Socio-demographic profiles of consumers.
- Estimated consumption per consumer (for a limited number of countries).
- Numbers of traffickers /consumers arrested.

These data provide sufficient information to estimate the supply, demand, price levels, and therefore, potential profits.[25]

ii. Number of cocaine users

The calculation process – using the example of cocaine - will be explained here in more detail. The calculation starts with estimates of the number of users in each country. This information is typically obtained from household surveys. The proportion of people who have used cocaine at least once over the last 12 months are identified via such surveys. Most countries have signed and ratified the 1961 Single Convention, and as such, the national authorities are required to provide UNODC with their best national estimates. Nonetheless, information provided by Member States is uneven. Good information is available from countries in North America, Europe, Oceania and South America (including Central America and the Caribbean). On the other hand, information is poor for the majority of countries in Asia, and – in particular – Africa.

The population aged 15-64 of a given country is multiplied with the prevalence rate to give an estimate of that country's total number of cocaine users. In case the surveys were conducted for different age groups, the results are adjusted accordingly, typically assuming that there are hardly any cocaine users above the age of 65. In case the surveys used other measures (lifetime prevalence, past month prevalence), countries in the region having measured annual prevalence and lifetime or past month prevalence were used to reach – via a regression analysis – an estimate of the likely annual prevalence rate of the country concerned. Where countries only conducted school surveys, regression analyses were undertaken to arrive at a prevalence estimate based on information of countries that had conducted a school survey and a national household survey. Another question is how to

24 UNODC, *World Drug Report 2011*, June 2011.

25 See, for example, UNODC, *World Drug Report 2005*, Vol. 1, Ch. 2., 'Estimating the Value of Illicit Drug Markets,' 2005.

handle old information. For the purposes of this exercise, all available estimates were used. The prevalence rates obtained from surveys in previous years were applied to the current population aged 15-64. A greater challenge is to deal with missing information. In these cases, the subregional average was taken as a proxy and adjusted if other available information (including qualitative information) indicated that cocaine use is likely higher or lower than the subregional average.

The result of this complex exercise was a 'best estimate' of around 15.6 million cocaine users in 2009 or 0.35% of the population aged 15-64, which is in line with results obtained for the previous year (15.9 million in 2008). The 'best estimate' also falls within the range of 14.3 to 20.5 million users, or 0.3%-0.5% of the population aged 15-64, calculated on the basis of rigorous 'mechanical' rules in dealing with missing information: for each non-reporting country the cocaine use levels were set at the 10th percentile and the 90th percentile level of the highest and the lowest country results at the subregional level (or regional level, in case insufficient country estimates at the subregional level were available). However, it is unlikely that large-scale cocaine use exists, for example, across China, Mongolia or in most of inland Africa. Qualitative information, suggesting relatively high or low levels of cocaine use in individual countries, indicates that the global cocaine use figures (estimated at 15.6 million) are probably closer to the lower end of the overall range (14 to 21 million users).

The model, based on the 'best estimates,' suggests that the largest numbers of cocaine users are found in North America (5.7 million), West and Central Europe (4.1 million) and South America (2.7 million, including the Caribbean and Central America). Estimates for Asia are low (0.7 million). The best estimates for Africa give a figure of 1.7 million people – but this estimate should only be considered as indicative, as most African countries have not conducted national household surveys.

iii. Cocaine consumption

The next step was to estimate per capita consumption. This was based on the results of the 2005 input-output model,[26] linking demand and supply. These results were adjusted in line with more recent research.

The per capita use levels range from 6 and 7 grams of pure cocaine per year in East Europe and Oceania (where cocaine is expensive) to 35 grams in South America, Central America and the Caribbean (where it is cheap). Per capita use of cocaine in North America (32 grams) and West and Central Europe (28 grams) seems to be relatively similar. No information has been found regarding per capita use of cocaine in either Africa or Asia. The number was set at 20 grams per user. Multiplying the per capita use levels with the number of

Table 38: Number of cocaine users in 2009 – best estimates

	Population (in million)		Cocaine users	in % of population aged 15-64
	Total	aged 15-64		
Europe	804	550	4,522,000	0.82
West and Central Europe	480	322	4,051,000	1.26
South-East Europe	127	87	157,000	0.18
East Europe	200	143	313,000	0.22
North America	458	305	5,693,000	1.86
South and Central America and Caribbean	472	307	2,728,000	0.89
Asia	4,063	2,719	673,000	0.02
Oceania	36	23	300,000	1.29
Africa	1,008	566	1,711,000	0.30
TOTAL	**6,841**	**4,471**	**15,627,000**	**0.35**
Americas	929.51	612.53	8,421,000	1.37
Western Europe	482.15	320.62	3,900,000	1.21
Eastern Europe	322.07	229.19	624,000	0.27

Source: UNODC, calculations based on replies to the Annual Reports Questionnaire (ARQ) and other information sources.

26 UNODC, World Drug Report 2005, Volume 1: Analysis, 2005, pp. 123-143.

cocaine users gives a total global demand for cocaine of some 440 tons, including almost 180 tons for consumption in North America, 123 tons for West and Central Europe and more than 95 tons for South America, Caribbean and Central America. The estimates for Africa (20 tons) and Asia (13 tons) are far lower.

The consumption estimates of 440 tons at the global level were cross-checked against supply estimates. Global production of cocaine in 2009 was estimated by UNODC to have amounted to between 842 tons and 1,111 tons. (The difference is due to various assumptions about the yields of the coca leaf and the transformation of coca leaf to coca paste, cocaine base and cocaine hydrochloride). Global production must satisfy consumption as well as seizures. Global seizures amounted to some 732 tons in 2009. Applying average retail purity (33%), weighted by the amounts consumed in each country, this would be equivalent to seizures of pure cocaine of 242 tons, or applying average wholesale purity, weighted by the seizures made (81%) would amount to seizures of 593 tons of pure cocaine. Assuming that 75% of the cocaine is being seized at the wholesale level and 25% at the retail level, purity-adjusted global seizures in 2009 would have amounted to 505 tons of pure cocaine. Adding seizures to consumption would result in global total demand for cocaine of (440+505=) 945 tons (range: (440+242=) 682 to (440+593=) 1,033 tons), which would be basically in line with global production estimates for that year (842 to 1,111 tons for the year 2009).

iv. Cocaine prices

A subsequent step was to identify the retail and wholesale prices in each country, adjusted for purity, in order to arrive at a pure price per gram (retail level) or per kilogram (wholesale level). This information is also to be supplied to UNODC as part of the ARQ process. When only price ranges were reported, the midpoint price was used – unless official additional information was available to estimate the typical price. (For example, this was

Table 39: Tentative estimate of the amounts of cocaine consumed in 2009

	Users		Per capita use	Consumption	
	in million	in % of total	grams per year	in metric tons	in % of total
Americas	**8.4**	**54%**	**32.6**	**275**	**63%**
of which					
South America	2.4	15%	35.0	85	19%
Central America	0.1	1%	35.0	5	1%
Caribbean	0.1	1%	35.0	6	1%
North America	5.7	36%	31.5	179	41%
Europe	**4.5**	**29%**	**28.4**	**129**	**29%**
of which					
West and Central Europe	4.1	26%	30.3	123	28%
South-East Europe	0.2	1%	24.7	4	1%
East Europe	0.3	2%	6.0	2	< 1%
Africa	**1.7**	**11%**	**12.0**	**21**	**5%**
of which					
West and Central Africa	1.1	7%	12.0	13	3%
Southern Africa	0.3	2%	12.0	4	1%
Northern Africa	< 0.1	<1%	12.0	< 1	< 1%
Eastern Africa	0.2	1%	12.0	3	< 1%
Asia	**0.7**	**4%**	**20.0**	**14**	**3%**
Oceania	**0.3**	**2%**	**7.3**	**2**	**< 1%**
Total	**15.6**	**100%**	**28.1**	**440**	**100%**

Source: UNODC estimates based on UNODC, Annual Reports Questionnaire data, *World Drug Report 2005* and updates based on selected scientific studies.

done for the United States, where the STRIDE database[27] reports all prices of federally seized or purchased drugs, including their purity). When 2009 data were not available, data from the latest year available were used. The challenge was to deal with missing data. For this purpose, the unweighted average of the prices or purities reported in a subregion or region was applied. A number of consistency checks were performed to guarantee that retail prices were not lower than wholesale prices, which would be unlikely as traffickers tend to make profits, not losses.

The data, aggregated to the regional level, showed – as expected - high cocaine retail prices in Oceania (US$785 per pure gram) and low prices in South America, Central America and the Caribbean (US$39 per pure gram). Purity-adjusted retail prices in West and Central Europe ($273 per pure gram) are higher than in North America (US$222 per pure gram), even though prices there have increased strongly after 2006. Average retail prices at the global level (weighted by consumption) amounted to US$194 per pure gram in 2009.

The calculation of wholesale prices was more complex. The ARQ asks for wholesale prices per kilogram and for wholesale purity. This gives prices of around US$6 per pure gram in South America (including Central America and the Caribbean), US$35 in North America and US$84 in West and Central Europe. Research in the USA (likely true for most other countries as well) shows that dealers selling to end users typically do not purchase a kilogram of cocaine, as this would be too expensive, but rather purchase smaller quantities, ranging between 20 and 50 grams, from a mid-level dealer. In the USA, this quantity is typically an ounce (28.4 grams). Thus, in order to calculate the size of the retail market at the national level, it would not be particularly useful to calculate the difference between gram and kilogram prices as this would include a sizeable proportion of the national wholesale market. A more appropriate calculation of retail profits would be based on the price difference between 'ounce' and 'gram' prices.

Detailed prices at several levels are, however, only collected in the USA. Analysing the STRIDE database for the years 2002-2006 when the US cocaine market was relatively stable (in contrast to subsequent price hikes),

Table 40: Purity-adjusted cocaine retail, wholesale and import prices per gram (2009)

	Consumption	Average retail price in US$	Average wholesale prices in US$		Average import price in US$	
	In kilograms	per gram	at the ounce level per gram	at the kilogram level per gram	from countries bought	in countries of origin
Europe	128,568	277	115	86	39	2.2
West and Central Europe	122,793	273	112	84	37	2.2
South-East Europe	3,897	360	153	117	63	2.2
East Europe	1,877	408	197	160	96	2.2
North America	179,476	222	68	35	15	2.2
South and Central America and Caribbean	95,480	39	11	6	2.4	2.2
Asia	13,464	181	102	88	27	2.2
Oceania	2,186	785	329	248	38	2.2
Africa	20,533	88	44	36	14	2.2
TOTAL	**439,706**	**194**	**70**	**47**	**20**	**2.2**

Source: UNODC, calculations based on replies to the Annual Reports Questionnaire (ARQ) and other information sources.

27 The US Drug Enforcement Agency runs a database *System to Retrieve Information from Drug Evidence* (STRIDE), which includes detailed information of drug seizures and undercover drug purchases, including price and purity.

data show that in each period, the ounce prices (per gram) (that is, the average prices charged for purchases between 20 and 50 grams) has been between the gram and the kilogram prices of cocaine, though far closer to the kilogram prices, expressed in grams. If the total difference between the gram and kilogram prices (per gram) were set at 100 (0 for gram price and 100 for kilogram price, expressed in grams), the ounce prices would fluctuate closely around 83. In other words, a good approximation of the ounce price is to calculate the difference between the retail and kilogram prices, calculate 83% of this difference and then deduct this price difference from the retail price. This method was subsequently applied to all other countries in order to obtain an estimate of the ounce prices.

The next challenge was the calculation of the typical import price. While the original import price in the Andean region is known (on average around US$2,200 per kilogram in 2009 or US$2.2 per gram), cocaine is not only bought directly from the Andean countries, but typically from various transit countries. Thus most of the cocaine destined for the USA, for instance, was bought in Mexico (that is, shipped by Mexican cartels from Mexico across the border into the USA). In order to get the typical import price, all available information about trafficking routes and transit countries was taken into consideration.

v. Estimating retail and wholesale value

Multiplying the purity-adjusted retail prices with the amounts of cocaine consumed in each country gives the retail value. The calculations result in a global retail value of the cocaine consumed of US$85 billion for the year 2009. The largest markets are North America (US$40 billion or 47% of the global market), followed by the markets of West and Central Europe (US$34 billion or 39% of the global market). The other regions account for just 14% of the total.

Valued at 'ounce prices' (reflecting the market at which street dealers purchase the cocaine) the size of the global cocaine market amounts to US$31 billion; valued at kilogram prices, the value falls to US$20 billion. Valued at the import level, from where the cocaine was bought, drug traffickers had to pay some US$9 billion.

vi. Estimating cocaine-related gross profits

The global retail sales of cocaine were estimated at US$ 85 billion in 2009. The total value of the cocaine in the countries of origin amounted to US$1 billion. This indicates that gross profits of some US$84 billion were generated in 2009.[28]

The data calculated above allow for the determination of gross profits at the various levels. The data show that most gross profits at the global level are made at the retail level (US$54 bn), more than twice as much as those (US$22 bn) generated at the wholesale level (difference of import and ounce prices). By far the largest gross retail profits are generated in North America (US$28 bn) and West and Central Europe (US$20 bn), accounting for 87% of global gross retail profits for cocaine.

The overall gross wholesale profits (US$22 bn) can be split into two components: wholesale profits at the national level (between the kilogram price and the ounce price: US$10 bn) and international wholesale profits (from the importing country to the national wholesalers: US$12 bn). Additionally, gross profits are also made in shipping the cocaine from the countries of origin to various transit countries (US$8 bn).

In other words, these figures suggest that international cocaine trafficking generates some US$20 bn (US$8 bn for trafficking to major transit countries and some US$12 bn for trafficking to final destination countries). In addition, some US$10 bn are generated from local wholesale trafficking and a further US$54 bn from local cocaine retail sales, thus totalling some US$64 bn in gross profits that are generated at the national level related to the consumption of cocaine.

vii. Adjusting gross profits for seizures

The gross profits calculated so far do not take into account that drug traffickers also lose some of their merchandise due to seizures. Taking seizures into account does not change the overall profits generated (some US$84 bn), however. It only impacts on the distribution of the profits made across countries. The gross profits rise in the producer countries (as more cocaine is sold there) and decline in the consumer countries (as traffickers have to purchase more cocaine than what they can eventually sell to consumers due to seizures).

This issue is not just of academic interest. As mentioned before, global consumption of cocaine – expressed in pure drug equivalents – is estimated at some 440 tons. Global cocaine seizures amounted to some 732 tons in 2009. Adjusted for retail purity (≈33%) this would amount to seizures of 242 tons expressed in pure cocaine equivalents, or – based on wholesale purity (≈81%) – to

28 'Gross profits' here do not take into account any other expenses that may be accruing to drug traffickers. In economic terms, a perhaps more correct terminology would be the 'value-added'; however, this terminology has positive connotations which may not be appropriate when applied to harmful and potentially deadly substances such as illicit drugs.

Table 41: Value of cocaine consumed in 2009 (in US$ million)

	Retail value		Wholesale value (in mio US$)		Import value (in mio US$)	
	in mio US $	in %	based on 'ounce prices'	based on kilogram prices	Value in countries bought	Value in countries of origin
Europe	35,650	42%	14,755	11,068	5,011	154
West and						
Central Europe	33,480	39%	13,788	10,313	4,585	147
South-East						
Europe	1,404	2%	597	455	246	5
East Europe	767	1%	370	300	180	2
North America	39,873	47%	12,142	6,327	2,700	215
South and Central America and Caribbean	3,765	4%	1,084	610	229	115
Asia	2,431	3%	1,374	1,187	363	16
Oceania	1,716	2%	719	543	83	3
Africa	1,806	2%	897	737	279	25
TOTAL	**85,241**	**100%**	**30,970**	**20,472**	**8,670**	**528**

Source: UNODC, calculations based on replies to the Annual Reports Questionnaire (ARQ) and other information sources.

Table 42: Cocaine-related gross profits in million US$ generated at the global level – and their distribution (unadjusted for seizures and transit profits)

	Retail profits	Wholesale profits			Profits from country of origin to transit countries
	(from ounce to gram price)	Total wholesale profits (from import price to ounce price)	Of which: National wholesale profits (from kg to ounce price)	Of which: International wholesale profits (from import to kg price)	
Europe	20,985	9,744	3,687	6,056	4,857
West and Central Europe	19,692	9,203	3,475	5,728	4,437
South-East Europe	807	209	142	209	242
East Europe	397	120	70	120	178
North America	27,731	9,442	5,815	3,627	2,485
South and Central America and Caribbean	2,681	854	473	381	115
Asia	1,057	1,006	187	819	352
Oceania	997	636	176	460	80
Africa	909	618	160	458	254
TOTAL	54,270	22,300	10,498	11,802	8,142

Source: UNODC, calculations based on replies to the Annual Reports Questionnaire (ARQ) and other information sources.

seizures of 593 tons of pure cocaine. Assuming that half was seized at the wholesale level and half at the retail level, the purity-adjusted seizures would have amounted to 417 tons; assuming that practically all was seized at the wholesale level would result in purity-adjusted seizures of 593 tons. Taking the mid-point of the two estimates (417 and 593 tons) would result in a 'best estimate' of around 505 tons of pure cocaine seizures. This would be equivalent to an assumption that 75% of the seizures take place at the wholesale level and 25% at the retail level.

If such purity-adjusted seizures (505 tons) were to be multiplied with the average global purity-adjusted wholesale price of cocaine calculated above (≈US$47 per gram, based on the amounts consumed), the calculations suggest that some US$24 bn in gross profits (out of global profits of US$84 bn) could shift from traffickers in consumer countries to traffickers in producer countries. Such a calculation based on the average wholesale price, weighted by the amounts of cocaine consumed in each country, would, however, over-estimate the actual shifts. The shifts are smaller as the distribution of cocaine consumption and cocaine seizures at the global levels are far from identical. In fact, significant cocaine seizures take place close to the source countries where cocaine prices are far lower.

Once the purity-adjusted cocaine wholesale prices are weighted by the seizures made in each country, the average global cocaine price falls to some US$15 per gram; multiplied with purity-adjusted seizures this results in shifts in gross profits of some US$7 bn, mainly going from consumer towards producer and transit countries. The amounts taken out of the market by the authorities in the consumer countries de facto increase the gross profits of the South American drug traffickers as they are able to sell more to their clients in the main consumer markets of North America, Europe and other regions. In other words, the reductions in profits of the North American and European organized crime groups due to seizures made in their respective regions help to increase – ceteris paribus - the profits of the South American crime groups.[29] Gross profits at the national level thus fall to some US$57 bn (US$64 – US$7 bn) while international cocaine trafficking profits rise to some US$27 bn (US$20 bn + US$7 bn).

While it is straightforward to identify – with a reasonable degree of accuracy - the overall costs for criminal groups related to cocaine seizures, it is far more difficult to identify the countries where the costs have to be borne. Assume that a cocaine delivery from Colombia to Spain is intercepted by the Spanish navy. Who has to bear the cost of the lost delivery – the Colombian exporters or the Spanish importers? In some cases it may be the Colombian exporters, in others the Spanish importers. Given the lack of empirical knowledge about the frequency distribution, it is assumed in the model that the cost will have to be borne by both the Colombian exporters (50%) and by the Spanish importers (50%). As some of the losses are covered by the Colombian exporters, the Spanish importers reap a 'benefit'.

Table 43: Losses and gains from law enforcement cocaine seizures in million US$ (2009)

	Losses suffered by drug traffickers due to seizures in million US$	Gains from payments of losses by exporters and from additional cocaine sales in million US$ (simplified model)	Net losses/gains in million US$
Europe	-2,469	1,235	-1,235
West and Central Europe	-2,344	1,172	-1,172
South-East Europe	-114	57	-57
East Europe	-11	5	-6
North America	-3,004	300	-2,704
South and Central America and Caribbean	-1,598	5,608	4,010
Asia	-51	25	-26
Oceania	-43	22	-22
Africa	-49	24	-25
TOTAL	**-7,214**	**7,214**	**0**

Source: UNODC, calculations based on replies to the Annual Reports Questionnaire (ARQ) and other information sources.

29 It would be wrong, however, to consider seizures a zero-sum game. Seizures increase the risk, and thus the cocaine prices in the consumer countries, which helps to limit drug consumption in the consumer countries.

This assumption is probably reasonable for most regions. Only in North America are there indications that the bulk of the trafficking is organized by Mexican drug cartels, and thus criminal groups from North America. Assuming that the financial cost of the cocaine seizures made in North America (equivalent to some US$3 bn) have to be borne primarily by North American drug traffickers (90%), their net losses still amount to US$2.7 bn. The net losses for North American drug traffickers due to seizures are far higher than the net losses suffered by traffickers in West and Central Europe (US$1.2 bn).

The assumption that seizures in North America affect primarily North American drug groups seems to be a fair reflection of reality. In this case, all available information suggests that the Mexican drug cartels and US drug gangs dominate cocaine trafficking and the local cocaine markets in North America.

viii. Transit profits

In addition, the calculations above revealed that the approximately US$8 bn generated in transporting the cocaine from the cocaine-producing countries in the Andean region to the primary transit countries, have so far not been accounted for in the gross profit country tables established.

The gross country by country profits calculated above were based on the calculated cocaine consumption in each country and did not include transit profits or shifts in profits generated due to seizures. A systematic incorporation of the missing factors into the calculations at the country level is, however, rather difficult. Moreover, the factors cannot be tackled in isolation. Seizures are reported as an annual total per country. Many seizures concern drugs in transit, rather than drugs used for local consumption. Deducting the seizures from the gross profits realized from consumption would result in 'negative profits' for a number of transit countries. This would be wrong, in most cases. In other words, losses linked to seizures can only be subtracted once the model has been adjusted to take transit profits into account.

Another issue concerns the actual location of the seizures and the appropriate price. As indicated above, there are a number of open questions. Assume that the Spanish navy makes a big cocaine seizure off its coasts. What price should be used to calculate the loss for organized crime; the wholesale price in Spain, the import price in South America, or some price in between?

All of this means that the model and the results presented need to be further refined. Based on the initial findings, more than US$20 bn in wholesale profits (US$12 bn linked to imports for domestic consumption, US$8 bn linked to so far unaccounted profits from producer to transit countries and up to US$7 bn linked to seizures) would need to be shifted. In order to do this, a number of assumptions need to be made.

One approach to deal with the identification of the transit profits is to start the analysis from the cocaine flow out of the source countries to the main consumer markets. In the 2011 World Drug Report, the calculations started with the global cocaine production estimate of 1,111 tons for the year 2009. Deducting amounts consumed in the three Andean countries (13 tons), seizures made in these countries (254 tons, purity-adjusted), as well as estimates of the losses incurred (56 tons), the calculations suggested that 788 tons were available for export. Most of these exports were thought to have been leaving the Andean countries towards North America (378 tons), West and Central Europe (217 tons) and other markets (193 tons). Deducting seizures in South America, Central America and the Caribbean suggested that 280 tons left South America (including Central America and the Caribbean) towards North America, 158 tons towards West and Central Europe, 83 tons were for local consumption in South America (including Central America and the Caribbean) and 46 tons were for other destinations. The final consumption in the consumer countries was estimated to have amounted to 179 tons in North America, 123 tons in West and Central Europe and 43 tons in other parts of the world, including 21 tons in Africa, 14 tons in Asia, 6 tons in East and South-East Europe and 2 tons in Oceania.

Starting with these amounts, the trafficking profits can be calculated. There are, first of all, trafficking profits generated within the Andean region. Estimates for 2009 suggest that coca leaf worth slightly less than US$1.2 billion was produced by farmers in the Andean region.[30] Not all of this was used for cocaine production – some was for coca leaf chewing and other 'traditional uses' of the coca plant. The value of the cocaine actually produced in the Andean region amounted to some US$1.3 bn in the main coca producing areas. Statistics suggest that only slightly more than 70% of the initial cocaine production was actually exported (788 tons out of 1,111 tons produced). Most of the 'losses' were due to seizures made in the Andean region (purity-adjusted, some 254 tons), and, to a lesser extent, local consumption of cocaine (13 tons) and some actual losses (56 tons, including due to the destruction of some laboratories). Despite these losses, the value of the cocaine leaving the Andean countries increased to some US$1.7 billion. This suggests that in spite of massive seizures, overall, some US$0.6 bn in trafficking profits related to cocaine consumption outside the region were generated within the Andean countries.

30 UNODC, 2010 World Drug Report, June 2010.

Continuing the analysis with the trafficking flows along the trafficking routes to the main consumer markets, available estimates suggest that the amounts leaving the Andean region towards North America amounted to some 378 tons of cocaine in 2009, equivalent to a value of some US$0.8 bn. Given massive seizures along the route, 167 tons of pure cocaine are actually consumed in the USA and Canada. Nonetheless, the value of this cocaine consumed – measured at wholesale level – rises to US$6.1 bn. This suggests that there are gross transit profits to be made of around US$5.3 bn.

The gross transit profits for trafficking cocaine to Europe appear to be even higher, though the amounts trafficked are smaller. The cocaine destined for West and Central Europe amounted to some 217 tons, which in the Andean countries is equivalent to some US$0.5 bn. Given massive seizures along the way, 123 tons become available for consumption in Europe. But, these amounts fetch – on average – a purity-adjusted wholesale price of US$84,000 in the countries of West and Central Europe, which results in a value of the cocaine at the wholesale level of US$10.3 bn (or US$7.8 bn if the amounts were valued at wholesale prices in Spain, the main entry point of cocaine into Europe). Thus, the gross profits until the main entry points (using Spanish prices as a proxy) amounted to US$7.3 bn, rising to US$9.9 bn once the amounts consumed are valued at average purity-adjusted West and Central European cocaine wholesale prices.

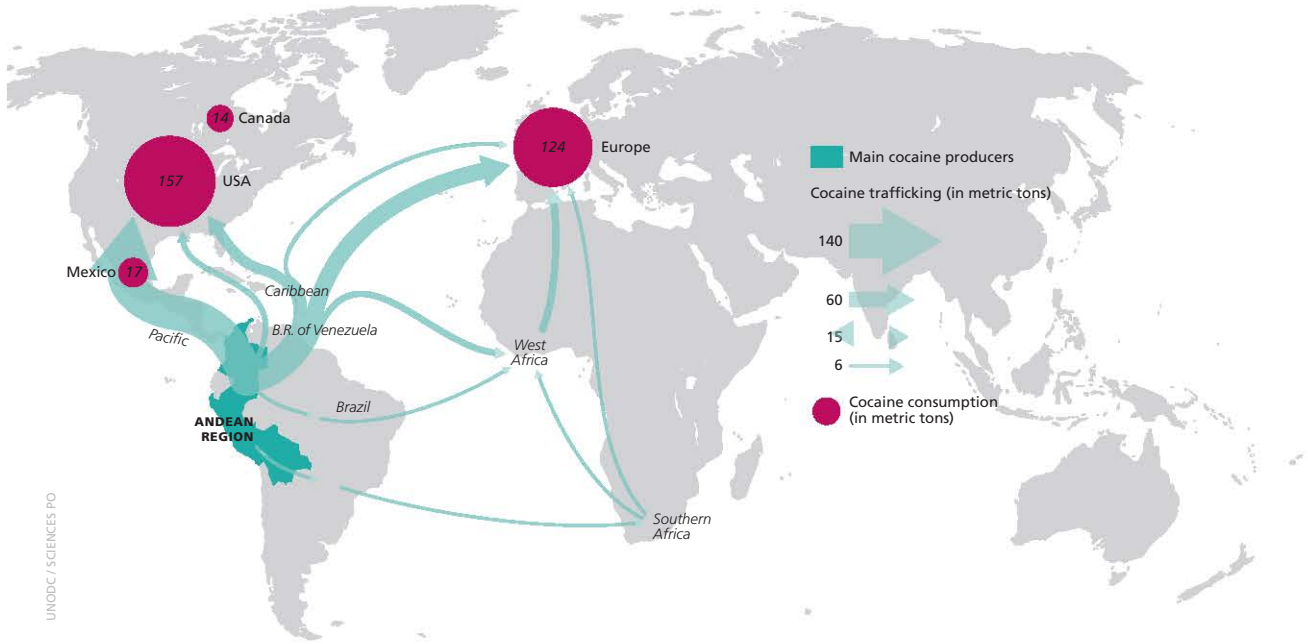
While the gross profits arising from trafficking cocaine via the other South American, Central American and Caribbean countries are important when it comes to trafficking towards North America (US1.1 bn) and Europe (US$ 0.6 bn), the cross-country trafficking profits for local consumption within South America, Central America and the Caribbean are more modest (US$ 0.3 bn). A further US$0.2 bn is generated for trafficking activities to other regions (Oceania, Africa and Asia). Thus, total transit trafficking for countries outside the Andean region amounts to some US$2.2 bn.

Table 44: Flows of cocaine, purity-adjusted*, to major consumer markets (tons), 2009

Production	1,111		
Less seizures in Andean countries	-254		
Less domestic consumption in Andean region	-13		
Potential amounts available for export out of the Andean countries	844		
Less losses in production and/or losses in global trafficking which cannot be attributed to specific regions	-56		
Actual exports out of Andean countries	788		
	West and Central Europe	**North America**	**Non-Andean South America / Caribbean, Central America, Africa, Asia, Oceania**
Amounts of cocaine leaving the Andean countries	217	378	193
Less amounts seized in non–Andean South America, Caribbean and Central linked to trafficking flows	-59	-98	-64
Less domestic consumption in non-Andean South America / Caribbean / Central America			-83
Amounts leaving South America, Caribbean and Central America	158 (incl. 21 tons via West Africa)	280	46
Less amounts seized in consumer countries outside South America / Central America / Caribbean	-35	-101	-3
Amounts of cocaine consumed in countries outside South America / Central America / Caribbean	123	179 (incl. 157 in the USA)	43 (incl. 21 Africa, 14 Asia, 6 East and South-East Europe; 2 Oceania)

*Purity levels tend to decline along the trafficking chain. All numbers in this table have been adjusted to pure cocaine equivalents.
Seizure data were adjusted based on reported wholesale purity data.
Source: UNODC estimates based on Annual Reports Questionnaire data and other government or scientific sources.

Map 1: Main global cocaine flows, 2009



Source: *World Drug Report 2011*, June 2011

Finally, transit profits are also made in trafficking cocaine for local consumption in Asia, Africa and Oceania as well as East and South-East Europe. The total transit profits for these secondary cocaine markets add up to US$3.4 bn.

All of the gross transit profits to Europe, North America and the other regions add up to some US$19 bn and are thus of similar magnitude as the previously calculated wholesale profits arising from international trafficking activities (totalling less than US$20 bn, linked to less than US$12 bn of gross profits of international wholesale trafficking activities related to local drug consumption plus US$8 bn for non-allocated transit profits to transit countries).

The above calculations helped to identify the likely orders of magnitude of the gross transit profits resulting from the main flows of the cocaine trade. As a next step, these transit trafficking profits have to be 'allocated' to individual countries. Given the lack of precise input-output flows of cocaine trafficking activities, any such 'allocation' of regional flows to individual countries remains rather arbitrary. The fact that the final results in this exercise will only be shown at the subregional level entails, however, that potential mistakes in the allocation of the profits to individual countries are not necessarily significant. The main subregional aggregates are still a fair reflection of reality.

In other words, the next key question concerns the identification of the share of the transnational cocaine trafficking profits generated by criminal groups from South America, versus criminal groups from the Caribbean, Central America and Africa.

Calculating trafficking profits to North America (total transit profits of US5.3 bn) is relatively straightforward. The largest part of these profits are generated by South American groups, notably groups from Colombia (most of the US$3.3 bn in profits generated in shipping the cocaine to Mexico), followed by profits made by Mexican drug cartels (US$2 bn for shipping the cocaine across the border to the USA; far more money is then made by the Mexican drug cartels within the United States in trafficking the cocaine to the various wholesalers and retailers). Arrest data provided by the US Drug Enforcement Administration show that Mexican drug traffickers accounted for 15% of all cocaine traffickers arrested in the United States or 64% of all foreign cocaine traffickers arrested in the USA in 2009. Applying this proportion (15%) to the retail and wholesale profits generated in the USA (US$35 bn), would add another US$5 bn in gross profits for the Mexican drug cartels. The total profits of the Mexican drug cartels arising from cocaine sales to the USA and within the USA can thus be estimated at around US$7 bn. In addition, the Mexican cartels reap profits from cannabis, methamphetamine and heroin trafficking to the USA as well as from migrant smuggling and other illegal activities. The US authorities estimated that the drug-related profits alone may have reached some US$13.8 bn for the Mexican cartels in 2006.[31] This seems to be in line with

31 ONDCP, *National Drug Control Strategy*, February 2006, p. 35.

Table 45: Gross profits generated from trafficking cocaine to main consumer markets

	Flows in tons (purity adjusted	Purity adjusted prices	Comment	Value in million US$	Gross profits in million US$
Within Andean region for trafficking to other regions					
Production of coca leaf			at farmgate level	1,173	
Production of cocaine	1,111	1,200	at farmgate/ laboratory level	1,333	
Exports out of Andean countries	788	2,200	wholesale price in Andean region	1,734	
Gross profits					561
Towards West and Central Europe					
Amounts of cocaine leaving the Andean countries	217	2,200	wholesale price Andean region	477	
Amounts leaving South America, Caribbean and Central America	158	7,000	wholesale price South America	1,106	
Amounts of cocaine consumed in West & Central Europe	123	84,000	wholesale price West and Central Europe	10,332	9,855 (of which 7,139 up to Europe)
- via West Africa	21		$84,000 (wholesale price in West & Central Europe)		
- about a third done by African groups	7	56,000	- $28,000 (wholesale price in Africa)		392
- direct from South America to Europe					9,463
Towards North America					
Amounts of cocaine leaving the Andean countries	378	2,200	wholesale price Andean region	832	
Amounts leaving South America, Caribbean and Central America	280	7,000	wholesale price South America	1,960	
Amounts of cocaine arriving in Mexico	280	9500	wholesale price	2,660	
Amounts of cocaine in Mexico	280	14,700	wholesale price	4,116	
Amounts of cocaine arriving in the USA	250	22,000	wholesale price Texas	5,500	
Amounts of cocaine consumed in the USA	157	36,000	wholesale price	5,652	
Amounts of cocaine consumed in Canda	10	48,300	wholesale price	483	
Subtotal USA, Canada	167			6,135	
Gross profits towards North America					5,303
Towards South America, Central America, Caribbean					
Amounts of cocaine leaving the Andean countries	127	2,200	wholesale price Andean region	280	
Amounts consumed in South America	83	7,000	wholesale price South America	581	
Overall gross profits					301
Towards rest of the world					
Amounts of cocaine leaving the Andean countries	58	2,200	wholesale price Andean region	128	
Amounts of cocaine leaving South America, Central America, Caribbean	46	7,000	wholesale price South America	322	
- Africa	21	35,900	wholesale price	754	
- Oceania	2	248,400	wholesale price	497	
- Asia	14	87,400	wholesale price	1,224	
- East and South-East Europe	6	167,500	wholesale price	1,005	
Amounts consumed in rest of world	43	76,500		3,480	3,352
Overall transit profits					**18,811**

Sources: UNODC calculations based on Annual Reports Questionnaire Data.

some estimates suggesting that up to $25-$30 billions' worth of illegal drugs come through Mexico into the United States each year.[32]

The next major flow – in volume terms - is to West and Central Europe. The calculations suggest that 217 tons leave the Andean countries for final consumption of 123 tons in West and Central Europe. In total, US$9.9 bn in gross transit profits are generated by this flow. Of this, some US$0.4 bn are generated by traffickers in West Africa. Out of the remaining US$9.5 bn, the bulk of the money seems to be reaped by organized criminal groups from South America, notably groups from Colombia. The profits up to the main European transit countries (such as Spain and the Netherlands) would amount to US$7.1 bn, which are to a large extent reaped by South American groups. The remaining US$2.4 bn are mostly made by criminal groups within Europe.

The gross transit profits generated by trafficking cocaine to countries within South America, Central America and the Caribbean for local consumption are more moderate, amounting to US$300 million. Trafficking groups from many South American countries seem to be involved in these activities.

The total gross transit profits for trafficking cocaine to the rest of the world for local consumption in Asia, Africa, Oceania as well as East and South-East Europe are far lower. Calculations suggest that they may total close to US$3.4 bn. This includes almost US$1.2 bn generated in trafficking cocaine to Asia for local consumption, almost US$1 bn in trafficking cocaine to East and South-East Europe, US$0.7 bn in trafficking cocaine to Africa for local consumption and US$0.5 bn in trafficking cocaine to Oceania. Trafficking to Africa involves mainly Colombian, Brazilian and Venezuelan criminal organizations. Trafficking to East and South-East European destinations involves trafficking organizations from the Balkan countries and, to a lesser extent, Colombian, Central American and Brazilian organizations. Trafficking to Oceania and Asia seems to increasingly involve Mexican organizations, in addition to various South American ones.

The next challenge is to combine all of this information in order to make reasonable assumptions about the allocation of the gross profits. In order not to complicate calculations too much only the most important adjustments to the figures from the initial model will be made.

As previously mentioned, the 'import profits' from the transit countries to the countries of final destination amount to some US$12 bn. For the purposes of the model, it is assumed that a third of these profits are generated by residents of the final destination countries. It is thus assumed, for instance, that a third of the profits generated by importing cocaine from South America via Spain to the UK is generated by UK residents (who often purchase the cocaine from traffickers in Spain or the Netherlands to ship it to the UK, as well as smaller amounts directly in South America); the rest is generated by residents from the respective production and transit countries. This assumption has been applied to all countries except for the USA, the world's largest cocaine market. All available information suggests that US citizens play an important role in selling cocaine to users in the United States, but only a minor role in importing the cocaine into the USA. Here the assumption has been made that the bulk of the profits are generated by Mexican drug cartels and just 5% is linked to US citizens importing cocaine.

The next task is to identify the major transit countries and to 'allocate' the overall transit profits. While available data allow for a reasonably good understanding of the overall transit profits, the allocation of such profits to individual countries remains a major challenge. Given current data availability, only rough estimates are possible, which are subject to change once new information becomes available.

The allocations have been done based on a detailed analysis of ARQ replies, reports by other international organizations, various government reports (such as the International Narcotics Control Strategy Report prepared by the US State Department) as well as individual drug seizures reported to UNODC. The analysis suggests that criminal groups from South America (notably Colombia) continue to play an important role in trafficking cocaine towards North America (in particular Mexico) and Europe (in particular Spain).

Based on the qualitative and quantitative data available (and a number of triangulations to cross-check the results), it has been assumed that 80% of the cocaine flow (and the related gross profits of US$3.3 bn) going from Colombia to Mexico are generated by Colombian criminal groups. Mexican drug cartels then dominate the trafficking flows to the United States. Direct trafficking of cocaine from Colombia to the USA appears to hardly play a role any more.

The situation is different with regard to trafficking of cocaine to West and Central Europe. Cocaine is trafficked by Colombian groups to West and Central Europe, notably to Spain, Europe's main entry point for cocaine. Here, it has been assumed that some 40% of the total flow to the European entry points (generating profits of US$7.1 bn) are generated by Colombian groups, a further 30% by groups from other countries in the Americas, including South America, Central Amer-

32 Stratfor Global Intelligence, *Organized Crime in Mexico*, March 2008.

ica and the Caribbean, and most of the rest by various European and African groups.

A similar proportion for the involvement of Colombian groups (40%) was also assumed for trafficking cocaine to countries in East and South-East Europe (US$1 bn), while the importance of Colombian groups for cocaine trafficking to Asia (US$1.2 bn), Oceania (US$0.5 bn) and Africa (US$1.2 bn) seems to be slightly lower (assumed to be around 30%).

Adding the flows linked to Colombia results in gross profits of around US$6.6 bn. These are only the flows linked to actual consumption in the various cocaine markets. As mentioned earlier, far more cocaine is shipped out of the Andean region, only to be seized and destroyed by the authorities. Some of this cocaine was sold by Colombian groups to traffickers from other countries before it was seized. While the income of the foreign trafficking groups thus declines, that of the Colombians increases. Based on the model assumptions that the value of such seizures is measured at wholesale prices in the country where the seizures took place, and only half have to be borne by the exporters, such 'extra-flows' of cocaine generated for Colombian organized crime groups would result in extra income of some US$ 3.3 bn, more than offsetting the losses due to the large seizures made in Colombia, which have to be borne by Colombian crime groups (US$0.5 bn). The difference is mainly due to far lower cocaine prices in Colombia compared to the much higher prices in North America and West and Central Europe. Overall gross profits linked to cocaine exports are thus estimated at around US$9.4 bn for the Colombian groups. This would be equivalent to some 11% of global cocaine profits (wholesale and retail) or around 3% of Colombian GDP (2010).[33] Nonetheless, the importance of cocaine trafficking for the Colombian economy is overall far lower than the importance of opium and heroin trafficking for the Afghan economy where the corresponding shares exceeded 50% of GDP in several years during the last decade and amounted to US$2.8 bn, equivalent to 26% of GDP in 2009.[34]

As previously mentioned, overall gross profits linked to the drug trade generated by the Mexican drug cartels are significantly higher, US$13.8 bn,[35] of which some US$7 bn (based on calculations in this report) is linked to cocaine smuggling from Mexico to the United States and trafficking of cocaine within the United States. Most of the income of the Mexican drug cartels is made in the United States. Some of this money enters the financial system already in the USA though some is smuggled back to Mexico and enters the financial system there. The amounts earned in shipping cocaine from Mexico to the USA are comparatively small, estimated at around US$2.7 bn in 2009. Including shipments of cocaine to Asia and Oceania, the gross profits of the Mexican drug cartels related to the cocaine wholesale business are estimated at some US$3.5 bn.

All the numbers quoted above are only indicative of likely orders of magnitude involved.

A slightly different approach was used to 'allocate' the remaining major transit profits to the main transit countries. The 'origin' of cocaine reported in the individual drug seizures was used as a proxy for the importance of individual subregions (South America, Central America, Caribbean, West Africa) for trafficking cocaine to the main markets (North America, West and Central Europe). Subsequently, seizures made by countries in the transit regions were used as an indication of the relative importance of individual countries as transit locations. The logic was that seizures can only be made if trafficking takes place, and that law enforcement in countries within one region with similar levels of development will make larger seizures if the trafficking flow is significant, and will seize less when trafficking is of less importance. Thus, higher seizures in Spain compared to the Nordic countries, for instance, are seen in the model as a reflection of the fact that trafficking of cocaine via Spain to other destinations in Europe is of greater importance than trafficking via the Nordic countries. A three-year average (2007-2009) was used for the analysis of the individual drug seizures to identify the importance of a country.

A further criterion was introduced to avoid implausible results. If the losses suffered due to seizures in individual transit countries exceeded the 'allocated' transit profits, the allocated transit profits were increased to the value of the amounts seized.

The distribution of the gross wholesale profits at the regional level shows significant shifts from the main consumer markets (North America and West and Central Europe) towards South America. The calculations after adjustments suggest that the largest wholesale prof-

33 Such estimates of gross profits of some US$9.4 billion would also be in line with estimates cited by the Colombian Attorney General, Viviane Morales, at a meeting of a Pan-American forum on money-laundering and terrorism financing in July 2011. At this meeting, the Attorney General, citing government estimates, reported that at least US$8 billion, roughly equivalent to 3% of Colombia's GDP, were laundered in Colombia each year. (Agence France Presse, "$8 billion laundered through Colombia each year", 29 July 2011; Colombia Reports, "$8 billion laundered through Colombia every year", 28 July 2011; CNTN, "Billion of dollars laundered in Colombia from drug trafficking," 2 August 2011.) Other press articles spoke of "money laundering operations in Colombia involving funds from drug-trafficking amounting to close to US$8.7 billion per year (Alliance for the Advancement of the Agora. "Money Laundering in Colombia surpasses 8 billion dollars").

34 UNODC, *Afghanistan Opium Survey 2010*, December 2010.

35 ONDCP, *National Drug Control Strategy*, February 2006, p. 35.

Table 46: Cocaine-related gross profits in million US$ generated at the global level prior to adjustments for seizures and transit profits

	Retail profits	Wholesale profits			Profits from country of origin to transit countries
	(from ounce to gram price)	Total wholesale profits (from import price to ounce price)	Of which: National wholesale profits (from kg to ounce price)	Of which: International wholesale profits (from import to kg price)	
Europe	20,985	9,744	3,687	6,056	4,857
West and Central Europe	19,692	9,203	3,475	5,728	4,437
South-East Europe	807	209	142	209	242
East Europe	397	120	70	120	178
North America	27,731	9,442	5,815	3,627	2,485
South and Central America and Caribbean	2,681	854	473	381	115
Asia	1,057	1,006	187	819	352
Oceania	997	636	176	460	80
Africa	909	618	160	458	254
TOTAL	54,270	22,300	10,498	11,802	8,142

Source: UNODC, calculations based on replies to the Annual Reports Questionnaire (ARQ) and other information sources.

Table 47: Cocaine-related gross profits in million US$ generated at the global level after adjustments for seizures and transit profits

	Retail profits	Wholesale profits		
		Total wholesale profits	of which: National wholesale profits (from kg to ounce price)	of which international wholesale profits
Europe	20,985	6,594	3,687	2,906
West and Central Europe	19,692	6,272	3,475	2,797
South-East Europe	807	212	142	70
East Europe	397	110	70	40
North America	27,731	7,095	5,815	1,280
South and Central America and Caribbean	2,681	15,077	473	14,604
Asia	1,057	460	187	273
Oceania	997	308	176	132
Africa	909	706	160	546
TOTAL	54,270	**30,239**	**10,498**	**19,741**

Source: UNODC, calculations based on replies to the Annual Reports Questionnaire (ARQ) and other information sources.

its are generated by criminal groups operating out of South America (including the Caribbean and Central America), amounting to some US$15 billion, while the largest retail profits are still being generated in North America (some US$28 billion), ahead of Europe (US$20 billion). The calculated overall gross profits at the global level (US$84 bn) remain basically unchanged.

ix. The proportion of proceeds from the cocaine trade that is laundered

The next question refers to the proportion of the amounts laundered out of the total proceeds generated, and work is still underway to try to reach reasonable estimates based on empirical evidence. Assumptions of the amounts laundered related to illicit drug income, found in the literature, range from 39% to 83%, with an average of around 70%. Such estimates have been either assumptions by individual authors, and only in one case the results of an expert survey conducted in one country (Australia). A key question which will be dealt with in this sub-chapter are whether such assumptions are reasonable.

A review of the literature reveals that there are substantial differences in the income levels of drug traffickers. Drug traffickers dealing in large amounts at the wholesale level usually have a far higher income than street dealers who hardly earn enough to cover their cost of living. Thus, it is very likely that there are significant differences between the proportion of total income laundered at the retail level compared to the wholesale level.

So, what are the proportions laundered in the wholesale market? An analysis of the US cocaine market (see below) indicates that 51% of retail profits and some 83% - 90% of wholesale profits could have been subject to laundering. But not all laundering starts in the USA. Some of the funds generated, notably by the Mexican drug cartels, are smuggled in cash out of the USA to Mexico and are laundered there.

Subsequent calculations for other countries suggest that the overall proportions available for laundering may be slightly lower. Calculations of the distribution of profits at the retail level (which accounts for the bulk of the profits) suggest that the proportions available for money-laundering are slightly below 50%.

- ### Simple Model for estimating the proportion available for laundering

One approach to estimating the proportion of proceeds that are laundered would be to estimate average income per wholesaler and retailer of illicit drugs in each country. Once 'reasonable living expenses' are subtracted, an estimate could be derived of the amount of 'launderable' money per capita, generated from crime. Summing up these amounts over the total estimated numbers of wholesalers and retailers would give an estimate of the total amount of money available for laundering.

Such a model seems logical and straightforward. Nonetheless, it is not without pitfalls. Results could be misleading as the 'average drug trafficker' does not exist. This would not be a problem with a normal distribution around the characteristics of such an 'average drug trafficker'. However, available information suggests that this is not the case. The income distribution of drug traffickers tends to be extremely uneven, with a few traffickers accounting for the bulk of the drugs sold on the market, and a large number earning just the bare minimum to survive. Such an uneven distribution can have an important impact on the calculation of the amounts available for laundering.

Model for estimating the proportion available for laundering taking market structure into account

Against this background, a more sophisticated model has been developed, at least for some key markets. The basic steps here are to:

1. estimate the number of traffickers involved at the retail and wholesale levels in key countries;
2. analyse the market structure;
3. apply the analysed market structure to the estimated number of traffickers at the retail and wholesale levels and introduce a cut-off rate ('reasonable living expenses') at which drug traffickers are able to launder money.

Number of cocaine traffickers

The first challenge – irrespective of the model used - is to estimate the number of cocaine traffickers in a country. While significant research has been undertaken to estimate drug production and the number of drug users over the last few decades, very little is known about the number of drug traffickers. This is a significant knowledge gap, not only for the purposes of this study, but for law enforcement in general. How can one effectively measure the success of police operations if it is not known whether 50%, 10%, 1% or 0.1% of drug dealers are actually arrested?

One study of the cocaine market, which included estimates of the number of wholesalers at the various levels, was published by the US Institute for Defence Analyses (IDA) in the late 1990s. Their task was to provide the US military – and subsequently US drug control authorities – with information on the cocaine market structure in order to identify potential weaknesses in the supply

Simple model

Retail profits (P_r) / number of retail sellers (R)

= avg. gross profits per retailer (p_r)

Wholesale profits (P_w)/ number of wholesale trader (W)

= avg. gross profits per wholesaler (p_w)

Difference between average gross profits per retailer (p_r)

or per wholesaler (p_w) and a cut-off per capita income figure (i) reflecting reasonable living expenses [e.g. GDP per capita] gives the average per capita amounts available for laundering

for the retailer (l_r) = p_r - i or

for the wholesaler (l_w) = p_w - i

Total amounts available for laundering at retail level $L_r = l_r * R$

Total amounts available for laundering at wholesale level $L_w = l_W * W$

Proportion available of profits available for laundering at

Retail level $Q_r = P_r / L_r$

Wholesale level $Q_w = P_w / L_W$

chain from producer countries to street markets that could be targeted by interventions.

One of the findings of this research was that the cocaine market basically follows a so-called 'power law' distribution, also known as 'Pareto distribution.'[36] Based on an extensive analysis of production, seizures, purities, typical transaction prices and the price structure along the supply chain and demand data, the IDA research suggested that there may be, on average, 30-32 customers for each actor (drug trafficking group) along the supply chain.[37] Given a cocaine-using population of 5.4 million persons in the USA at the beginning of the new millennium, this would have resulted in some 180,000 street dealers, 6,000 wholesalers and 200 major cocaine importers. The total cocaine-dealing population in the USA would have amounted to some 186,200 traffickers.[38] Given ongoing arrests and long prison sentences as well as a fall in the cocaine-consuming population to around 5.0 million persons in the USA in 2009, the application of the original model would have suggested that there was a decline in the total number of 'cocaine dealers' to 161,300 in the USA by 2009.

The model and the statistical calculations behind are complex. But this does not guarantee that the results from the model are a fair reflection of reality. A key question is thus whether the findings of this model are confirmed by other empirical evidence.

Jonathan Caulkins, another expert on the US cocaine market, came to different conclusions. Based on a number of plausibility considerations (assuming, for instance, an average income per trafficker of US$50,000 and a size of the total US cocaine market of US$35 bn), he arrived at a total of some 700,000 full-time cocaine traffickers, which – taking the existence of part-time traffickers into consideration - would raise the figure of

36 A power law, also known as Pareto distribution, is a special kind of mathematical relationship between a data series and its frequency distribution, which in common language is often known as the 80-20 rule (e.g. 20% of the population earn 80% of the income in a country; 20% of the cocaine using population account for 80% of the total cocaine consumption, etc.).There is evidence that the power law distribution is found for a wide variety of physical, biological and social phenomena, including such diverse phenomena as Pareto's law of income distribution, the impact and frequency of earthquakes (Gutenberg-Richter law for earthquake sizes), craters on the moon, solar flares, size and activity of neuronal populations (Stevens' power law of psychophysics), distribution of family names, sizes of power outages, scaling laws in biological systems, and frequency and impact of wars. The most common power laws relate two variables and have the form of $f(x) = ax^k + o(x^k)$, where a and k are constants, and o(xk) is an asymptotically small function of xk. Here, k is typically called the scaling exponent. Thus, a rescaling of the function's argument (e.g. having x be in terms of nanometers instead of millimeters) changes the constant of proportionality but preserves the shape of the function itself.

37 R. Anthony and A. Fries (Institute for Defense Analyses), "Empirical modelling of narcotics trafficking from farm gate to street", United Nations, *Bulletin on Narcotics*, Nos 1 and 2, 2004, Illicit drug markets, pp. 1-48, New York 2006.

38 B. Crane (Institute for Defense Analyses), History of the US Cocaine Market", presentation given to UNODC, November 2009.

persons involved in cocaine trafficking to 1 million people in the USA, or possibly more.[39]

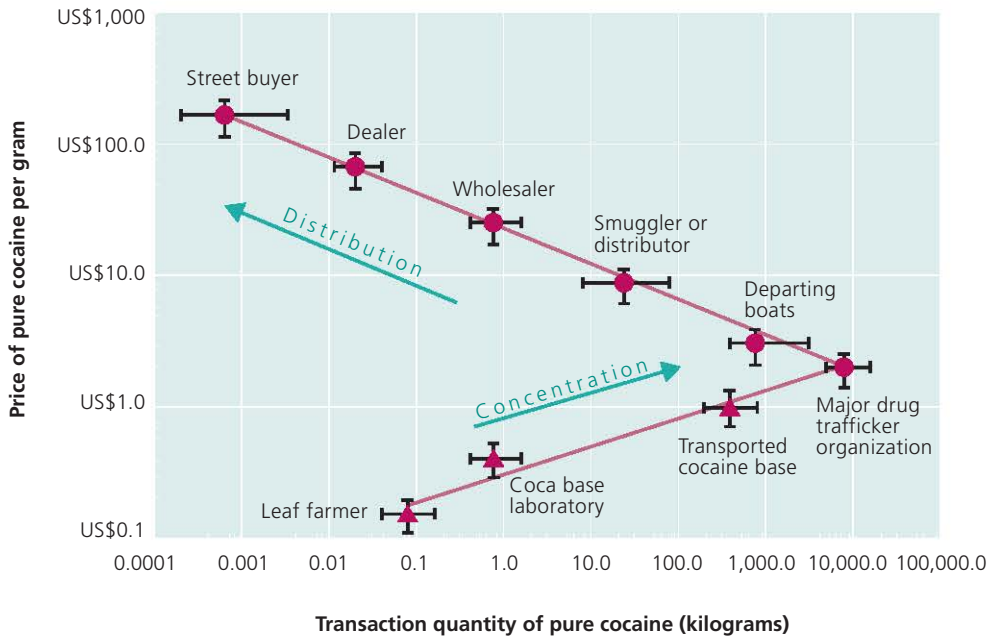
Given some 5 million cocaine users who have used cocaine at least once in the previous year (based on US household survey data), Caulkins' estimate suggests that there would be, on average, five customers for each cocaine dealer. This may seem – at first sight - a small ratio. However, it must be taken into account that a large number of cocaine users are also dealing in cocaine, though in small quantities only, and often providing it 'to friends only'.

Moreover, not all customers have just one dealer. Research undertaken in the USA in 2000 found that 34% of those arrested and admitting to having consumed cocaine over the last 30 days had more than one dealer. This proportion rose to 64.5% among those admitting to having consumed crack-cocaine. The average number of dealers that the drug users had over the last 30 days was, on average, 1.8 in the case of cocaine and 3.2 in the case of crack-cocaine.40 The total number of dealers over the last 12 months would probably have been even higher. This does not fully explain the difference between the results of Caulkins and IDA, however.

In comparing the results of Caulkins with those of IDA, one must take into account that the IDA speaks of wholesalers as 'criminal groups' rather than individuals - and some of the criminal groups in the USA are large. The US National Gang Intelligence Center reported in its National Gang Threat Assessment 2009 that there were some 33,500 gangs in the USA, comprising some 870,000 members (an average of 26 members per gang) and that 'much gang-related criminal activity involved drug trafficking.' The report also stated that gang members were the primary retail-level distributors of most illicit drugs, including cocaine, in the country, though some of them are also involved in wholesale trafficking.[41]

Starting with the estimate of some 870,000 gang members (based on the aggregation of subregional estimates) and assuming that 75% of them were involved in cocaine trafficking, one would obtain an estimate of 650,000 people. Adding another 100,000 non-gang members

Fig. 3: Price quantity relationship of the cocaine market in the late 1990s



Source: R. Anthony and A. Fries (Institute for Defense Analyses), "Empirical modelling of narcotics trafficking from farm gate to street", *United Nations, Bulletin on Narcotics*, Nos 1 and 2, 2004, Illicit drug markets, pp. 1-48, New York 2006.

39 J. Caulkins, 2002, "Law Enforcement's Role in a Harm Reduction Regime," *Crime and Justice Bulletin,* Number 64, New South Wales Bureau of Crime and Justice Research; J. Caulkins, "Do Drug Prohibition and Enforcement Work?" White paper published in the "*What Works*?" series, 2000, Lexington Institute, Arlington, Virginia, USA; J. Caulkins, and P. Reuter, "Toward a Harm Reduction Approach to Enforcement," *Safer Communities*, Vol. 8, No. 1, 2009, pp.9-23.

40 US Department of Justice, *Arrestee Drug Abuse Monitoring (ADAM) - Annual Report 2000*, April 2003.

41 National Gang Intelligence Center, *National Gang Threat Assessment 2009*, January 2009.

Fig. 4: Hierarchical market structure of the cocaine trade in the late 1990s and the late 2000s

Source: B. Crane (Institute for Defense Analyses), "History of the US Cocaine Market", presentation given to UNODC, November 2009.

would give a rough estimate of some 750,000 cocaine traffickers in the USA.

Another method would be to look at the number of persons arrested for possession of cocaine (federal and state arrests), and to extrapolate this number with some ratio to a likely total of cocaine traffickers. The first question is to identify the number of cocaine-related arrests. The number of trafficking arrests related to cocaine and heroin was reported to have amounted to 118,114 in 2009. No further breakdown is given. A breakdown exists, however, for the federal level. An analysis of arrests at the federal level reveals that some 80% of the total (cocaine and heroin trafficking related arrests) is related to cocaine trafficking in the USA. Applying this ratio to the number of cocaine and heroin related trafficking arrests would result in a likely number of 94,088 cocaine trafficking-related arrests for the year 2009. The next question concerns the identification of an appropriate extrapolation factor. The analysis of reported violent and property crimes reveals an overall 'clearance rate by arrest' of 22.2% in the USA for the year 2009.[42] The 'clearance rate' is far higher for murder and manslaughter (66.6%) or aggravated assault (56.9%) but far smaller for less severe but more frequent offences such as motor vehicle theft (12.4%) or burglary (12.5%). One could argue that the 'effectiveness' of the police to detect and arrest cocaine traffickers is probably closer to their effectiveness in detecting motor vehicle theft or burglary than in identifying and arresting murderers. It may be interesting to note, that the 'clearance rate' for arresting cocaine users (i.e. persons arrested for cocaine possession in percent of past month cocaine users as derived from household surveys) also amounted to 12.4% in the USA in 2009. Applying this ratio to the number of persons arrested for cocaine trafficking gives an estimate of around 757,000 cocaine traffickers or, on average, 6.6 cocaine traffickers per user.

But is it fair to assume that police officers are as likely to arrest a regular cocaine user as a cocaine trafficker?

Arguments for lower numbers of drug traffickers:

- One could argue that the police tends to pursue traffickers far more vigorously than consumers. This would increase the interception rate for traffickers ('clearance rate'). Given a certain number of reported cocaine trafficking arrests, it would mean a lower estimate of the number of traffickers.
- Moreover, traffickers typically 'operate' more hours a day in the market than users. This may increase the likelihood of arrests of cocaine dealers, leading to an overall lower number of cocaine traffickers.

42 U.S. Department of Justice, Federal Bureau of Investigation (FBI), Offenses Cleared, Clearances – Table 25: Percent of Offenses Cleared by Arrest, http://www2.fbi.gov/ucr/cius2009/data/table_25.html

Arguments for higher numbers of drug traffickers:

- However, it can also be argued that traffickers are far more cautious and knowledgeable about police tactics, and thus face a lower risk of arrest than consumers who – under the influence of the drug – are far more visible and thus an easier target for the police. Once facing addiction, consumers have to buy a drug, and thus tend to be less cautious than traffickers. This would lead to a lower interception rate of traffickers, and thus to higher estimates of the number of cocaine traffickers based on any given number of persons arrested for cocaine trafficking.
- Moreover, the likelihood of a trafficker being arrested in a year may be lower as he is usually only arrested once, and then put to jail for longer periods. A consumer generally faces far shorter sentences and the same person may be arrested several times a year. This would lead to lower interception rates and higher estimates of the total number of cocaine traffickers based on any given number of persons arrested.

In short, there is no conclusive answer whether the interception rate of a trafficker ('clearance rate') should be higher or lower than the interception rate of a user as there are a number of biases working in opposite directions. Thus, it may be fair to assume that the overall interception rates for traffickers may not differ drastically from those of cocaine users.

Can such estimates based on arrest data (757,000) be brought into line with the IDA estimates, which were based on a more sophisticated model of the US cocaine market? The original IDA estimate suggested that there were some 186,200 'groups' involved. It would thus suffice to assume that each group had, on average, 4.1 members to reach a total number of 757,000 persons involved in cocaine wholesales in 2009. Working with the adjusted figures of 161,300 groups (based on a lower number of cocaine users for the year 2009), the ratio would slightly increase to, on average, 4.7 persons per group. This does not seem unrealistic. Given the well-established presence of large trafficking groups, the IDA estimates of the number of groups involved do not really contradict the estimate of some 757,000 individuals

Table 48: Estimates of the number of cocaine traffickers in the USA (2009)

Estimate of trafficking groups (IDA):		**161,300**
Estimate of cocaine traffickers (Caulkins)		**> 1,000,000**
Estimated number of gang members (2009):	870,000	
Assumed percentage involved in cocaine trafficking	75%	
Estimate of 'organized' cocaine traffickers	650,000	
Estimate of 'individual' cocaine traffickers	100,000	
Estimate derived from gang members:		**750,000**
Number of cocaine/heroin trafficking arrests:	118,114	
Proportion related to cocaine (based on federal data)	79.66%	
Estimated number of arrested cocaine trafficker	94,088	
Number of cocaine/heroin possession arrests	294,454	
Proportion related to cocaine (based on federal data)	69.13%	
Estimated number of arrested cocaine users	203,544	
Number of past month cocaine users in the USA	1,637,000	
Proportion of arrests ('clearance rate')	12.43%	
Estimated number of arrested cocaine trafficker	94,088	
Estimated 'clearance rate'	12.43%	
Estimated total number of cocaine traffickers derived from arrested cocaine traffickers		**757,000**

Sources: UNODC, Annual Reports Questionnaire data; B. Crane (Institute for Defense Analyses), "History of the US Cocaine Market", presentation given to UNODC in November 2009; J. Caulkins, 2002, "Law Enforcement's Role in a Harm Reduction Regime," *Crime and Justice Bulletin,* Number 64, New South Wales Bureau of Crime and Justice Research; J. Caulkins, "Do Drug Prohibition and Enforcement Work?" White paper published in the "*What Works*?" series, 2000, Lexington Institute, Arlington, Virginia, USA; J. Caulkins, and P. Reuter, "Toward a Harm Reduction Approach to Enforcement," *Safer Communities*, Vol. 8, No. 1, 2009, pp.9-23; National Gang Intelligence Center, *National Gang Threat Assessment 2009*; Substance Abuse and Mental Health Services Administration (SAMHSA), *2009 National Survey on Drug Use and Health Household Survey*, Office of Applied Studies, NSDUH Series H-38A, HHS Publication No. SMA 10-4586 Findings, Rockville, MD, 2010.

involved in cocaine trafficking (a minority as individuals and a majority as members of a criminal group involved in cocaine trafficking).

The estimation method established above based on (i) arrest data for possession of cocaine and for trafficking of cocaine, and (ii) monthly prevalence estimates of the number of cocaine users was subsequently adopted as the currently preferred method for other countries as well. It seems to show reasonable results and can be replicated for a number of other countries – though differences in collecting arrest data and differentiating between arrests for possession versus trafficking limit direct comparability. Individual country results must thus be interpreted with caution and are only tentative.

Applying this method to 17 mostly industrialized countries, covering 57% of the global cocaine-using population, suggests that there are some 1.4 million cocaine traffickers in these countries, equivalent to 6.4 (annual) cocaine users per cocaine trafficker. The unweighted average ratio of the country results amounts to 5.9 (annual) users per cocaine trafficker. Applying such ratios to the estimates of the number of cocaine users at the global level suggests that there could be some 2.5 million people (2.4 million based on the weighted average and 2.6 million people based on the unweighted) involved in cocaine trafficking worldwide. Using a 95% confidence interval of the calculated ratios for the individual countries, the ratios at the global level range from

Table 49: Estimated number of cocaine traffickers and ratios of cocaine users per trafficker

	Estimated number of annual cocaine users (based on latest survey results and population in 2009)	Tentative estimates of the number of cocaine traffickers (extrapolated from arrest and survey data)	Ratio annual cocaine users to 1 cocaine trafficker
Australia	281,100	23,000	12.2
Austria	48,600	9,600	5.1
Canada	280,500	57,100	4.9
Cyprus	3,600	835	4.3
England and Wales	813,000	125,100	6.5
Estonia	6,400	2,430	2.6
France	242,600	59,100	4.1
Germany	489,900	60,000	8.2
Greece	7,500	2,100	3.6
Hungary	13,800	2,500	5.5
Ireland	52,300	9,300	5.6
Italy*	824,500	173,500	4.8
Malta	860	123	7.0
Portugal	43,100	30,900	1.4
Spain	795,400	69,800	12.4
Sweden	30,300	5,100	5.9
United States	5,000,000	757,000	6.6
Subtotal	**8,933,460**	**1,387,488**	**6.4**
Global total	**15,627,000**	**2,427,000**	**6.4**
Unweighted average			**5.9**
Global total	**15,627,000**	**2,638,000**	**5.9**
Confidence interval (95%)			**4.5 – 7.3**
Global range	**15,627,000**	**2,140,000 - 3,438,6000**	**4.5 – 7.3**

* a breakdown of cocaine arrest data for possession and trafficking has not been reported by Italy; as a proxy, the breakdown of possession and trafficking violations for all drugs was applied to the cocaine-related offenses to estimate the likely number of cocaine traffickers.

Sources: UNODC calculations based on information provided in Annual Reports Questionnaires; EMCDDA, Statistical Bulletin; national household surveys.

One source model: situation

$f_1, f_2, ..., f_k$ frequencies of units identified 1,2,…k times; f_0 is unobserved.

Look at associated probabilities. $p_1, p_2, ..., p_k$; p_0 is unknown.

Let:

$$n = \sum_{i=1}^{k} f_i, \quad m = \sum_{i=1}^{k} f_i, \quad N = f_0 + f_1 + ... + f_k.$$

Horvitz-Thompson estimator under Poisson homogeneity

How to estimate N, the size of drug user population?

f_j j=0,1,2…,k are generated by the same Poisson distribution with parameter λ.

The MLE of λ, for the zero-truncated Poisson distribution, leads to:

$$\hat{p}_0 = e^{-\hat{\lambda}}$$

Horvitz-Thompson (1952) estimator follows:

$$\hat{N}_{HT} = n/(1 - \hat{p}_0)$$

Including heterogeneity: Zelterman and Chao estimators

Zelterman (1988) upper bound estimator:

$$\hat{N}_Z = \frac{n}{1 - \exp(-2 f_2 / f_1)}$$

Chao (1987, 1989) lower bound estimator:

$$\hat{N}_C = n + f_1^2 \,(\, 2 f_2)$$

The influence of the persons often seen is weighted down in both estimators which are robust against heterogeneity.

Source: C. Rossi (Centre for Biostatistics and Bioinformatics, University of Rome Tor Vergata) and Centre for Biostatistics and Bioinformatics, University of Rome Tor Vergata (Dept of Mathematics, University La Sapienza, Rome), "Capture-recapture methods to estimate prevalence indicators for evaluating drug policies", presentation given to UNODC, April 2010.

4.5 to 7.3. The actual number of cocaine traffickers is thus likely to fall within a range of 2.1 to 3.4 million people.

There are also some promising alternative approaches to estimating the number of traffickers which could yield interesting results in the future. Carla Rossi and her team from the University of Rome[43] have started to experiment with a number of capture-recapture models, in combination with truncated Poisson models and the Chao and the Zelterman estimators to arrive at estimates of the number of drug traffickers.

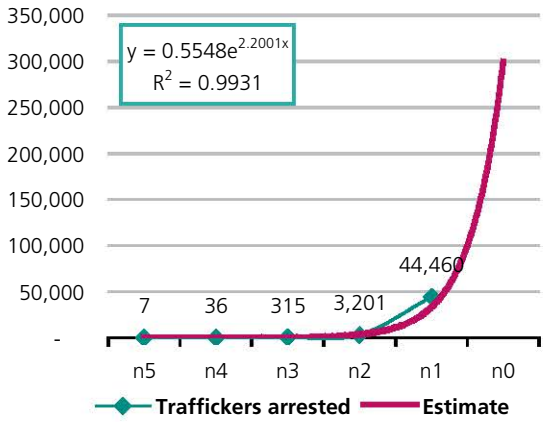
The basic data requirement here is a distribution of the number of times a drug trafficker was arrested in the past. The minimum requirement is a distribution of the number of persons arrested for drug trafficking (i) for the first time and (ii) arrested before.

More precise estimates can be obtained once a more detailed distribution is available. Data for Italy for 2009 showed the following distribution of arrests (total 48,019): n1 (persons arrested for the first time): 44,460; n2 (persons arrested for the second time): 3,201, n3: 315, n4: 36; n5: 7. Based on this data the Chao estimate of the total number of drug traffickers gives an estimate of 361,561 drug traffickers for Italy.[44]

43 C. Rossi, L. Di Censi, N. Esposito, F. Mascioli and D. Scacciatelli, Centre for Biostatistics and Bioinformatics, University of Rome Tor Vergata and G. Serpelloni, N. Balestra, B. Genetti, Department of Antidrug Policy of the Presidency of the Council of Ministers, Italy, "Estimating the size of the dealers population for monitoring the drug market: a comparison between different metropolitan areas in Italy", presentation given to UNODC, November 2010.

44 Carla Rossi (Centre for Biostatistics and Bioinformatics, University of Rome Tor Vergata) and Centre for Biostatistics and Bioinformatics, University of Rome Tor Vergata (Dept of Mathematics, University La Sapienza, Rome), "Capture-recapture methods to estimate prevalence indicators for evaluating drug policies", presentation given to

Fig. 5: Estimates on the number of drug traffickers in Italy in 2009 based on exponential regression



Source: UNODC calculations based on Italian arrest data from the Central Direction of Criminal Police of the Italian Ministry of Interior.

If such detailed breakdowns of arrest data are available, even some simpler approaches can lead to reasonably good approximations. Applying a simple exponential regression to the data shown above (as provided in standard computer software) would give an estimate of around 300,000 traffickers not yet arrested (n_0), and thus a total estimate of around 348,000 ($n_0 + n_1 + n_2 + n_3 + n_4 + n_5$) drug traffickers in Italy for the year 2009.

The main practical problem with these models - so far - is that most countries do not seem to have such distributions of arrest statistics, broken down by individual drug categories, readily available. This may change, though, once the practical utility of such statistics is proven.

Number of retailers and wholesalers

A remaining question is the distribution between the number of retailers and wholesalers among drug traffickers.

Again, very little on this topic – in quantitative terms - has been found in the literature. Taking the 'licit drugs industry' (pharmaceutical industry, pharmacies and drug stores) as a starting point for comparison, data for the USA suggests that 85% of such establishments operate in the retail sector and 15% in the wholesale sector, giving a ratio of 5.7 retail enterprises for 1 wholesale enterprise (85% / 15%). Would such a ratio also apply to the illicit sector?

The IDA model – as discussed before – arrived at a 32 : 1 or 30 : 1 ratio, across all levels along the supply chain, and thus also between the retail and the wholesale sector, that is, 30 retailers for 1 wholesaler. The problem is that the average size (in terms of manpower) of a criminal group at the retail level versus the size of such groups at the wholesale level is not known. There are, however, indications that criminal groups at the wholesale level tend to be much larger than those at the retail level. A 30:1 ratio may be thus true in terms of *actors* (crime groups) involved, but not in terms of *persons* involved.

So, how could the relationship be determined? One possible approach is to analyse arrest and sentencing statistics. US data show that about 10% of persons arrested for drug trafficking are arrested for federal offences – which tend to be far more severe than state offences. Similarly, the number of persons incarcerated in a federal prison account for about 10% of persons charged with drug trafficking offences. The numbers of persons sentenced to federal prison for more than one year are equivalent to 9.6% of all trafficking offences. All of this indicates that there could be a 10 : 1 ratio of retailers to wholesalers in the USA. Jonathan Caulkins, in personal communication with the author, also spoke of a 10:1 ratio.

What are likely retail to wholesale ratios in other countries? Firm results are difficult, if not impossible, to obtain. Only some proxy calculations are currently possible:

- Assuming again that the length of a sentence is an indication of the amounts trafficked[45] and thus of whether a trafficker was a retail or wholesale trafficker, data for Austria suggest that 15.6% of all persons convicted for violations against the narcotics law (349 out of 2,240) in 2009[46] got a sentence of one year or more, which would be equivalent to a ratio of 5.4 : 1 (349/(2,240-349). This suggests that there could be more than 5 drug retailers for each drug wholesaler in Austria. (No breakdown by drug type is available).
- Data for Germany are slightly more difficult to interpret. The German narcotics law punishes in §29 drug traffickers (3,704 cases related to trafficking of cocaine and crack-cocaine in 2009) and in §29a offenders

UNODC, April 2010.

45 The Austrian narcotics law foresees sentences for up to 1 year for (small-scale) drug traffickers according to (§27); for drug traffickers involved in the trafficking of 'non-small' quantities (§28), the sentence goes up to 3 years, and increases further for persons importing such drugs (up to 5 years) and goes up to 10 years for people involved in drug-related organized crime activities and up to 15 years for repeat offenders in organized crime groups. (Source: Bundesgesetz über Suchtgifte, psychotrope Stoffe und Drogenausgangsstoffe (Suchtmittelgesetz – SMG)).

46 Convictions – in reality - concern drug traffickers rather than consumers in Austria. Out of 22,729 persons charged for violations against the Austrian Narcotics Act in 2009, 2,240 were convicted (≈ 10%). Most of the convicted persons had been involved in drug trafficking activities.

trafficking 'non-small' quantities of drugs (241 offenders for cocaine and crack-cocaine in 2009). The latter can be interpreted as traffickers involved in large-scale trafficking operations which would typically be wholesalers rather than retailers. The ratio of retailers to wholesalers could be estimated at 15.4 : 1, that is, more than 15 retailers (3,704/241) for one wholesaler. The ratio looks, however, quite different once 'smuggling activities' (trafficking activities across borders) are included. The number of arrested persons due to cocaine and crack-cocaine trafficking and smuggling according to §29 rises slightly to 3,978 cases while the number of arrested persons involved in trafficking of cocaine and crack-cocaine in 'non-small quantities' (§29a) and for illegally importing cocaine and crack-cocaine in 'non-small quantities' (§30) would rise to 783 cases. The ratio of retailers to wholesalers, including smuggling activities, would amount to 5.1 : 1, that is, more than 5 cocaine retailers (3,978/783) for one cocaine wholesaler.[47]

- Indications of the likely distribution of retail to wholesale activity in the UK can be derived from sentences statistics. Data for England and Wales show that there were 56,620 sentences for offenses against the drug laws in 2009,[48] out of 235,000[49] recorded drug offences in that year. This included 9,425 persons who were sentenced to immediate custody, while others were fined, sent to community service or received a suspended sentence. The British judiciary distinguishes between the magistrates' courts and the Crown Court. While the average custodial sentence for a drug offence at the magistrates' court was 2.2 months, it was 35.9 months (almost 3 years) at the Crown Court in 2009. It can be assumed that large-scale traffickers (a proxy for wholesale traffickers) will typically have to stand trial before the Crown Court where they can expect a sentence for immediate custody (affecting 8,383 persons in 2009 or 14.8% of all persons sentenced). Assuming that most of the other sentenced offenders were street dealers, this would result in a likely ratio of retail to wholesale traffickers of 5.8 : 1 in England and Wales.

- Data for France show 177,964 recorded drug-related offences in 2008. Of this, 42,649 persons were subsequently sentenced by the courts. The number of persons who were given a prison sentence amounted to 28,849, of which 5,057 persons got a sentence of one year or more. Assuming that the persons who obtained a prison sentence for more than one year were trafficking in larger quantities while those sentenced to less than a year were trafficking in smaller quantities, a ratio of 4.7 retailers for 1 wholesaler could be established.

An unweighted average of the 'results' of the five countries investigated would give a ratio of 6.2 retail traffickers for one wholesale trafficker. These are tentative results that may change substantially once more data becomes available. The results so far suggest that there are – on average - about 6 (annual) cocaine users for 1 trafficker, and around 6 retail traffickers for 1 wholesale trafficker.

Income threshold levels

The next question concerns the identification of an appropriate 'threshold' beyond which money will be available for laundering. A street seller earning just enough to make ends meet will not be in a position to engage in large-scale money-laundering operations. On the other hand, large drug kingpins will not be able to spend all their drug-related income on consumption. They will try to invest at least some of the drug money – and for these purposes will have to launder the 'dirty money' so that it can enter the legal economy. But at what level is surplus income generated?

There is no straightforward answer to this question. Many factors will affect the actual threshold levels. They will differ from country to country and among individuals. So, many hypotheses can be formulated.

One possibility could be to stipulate that the average income in a country is the likely threshold level. It could be argued that only income above the average income levels are likely to be laundered. Drug-related income below the average income would be consumed.

The gross domestic product (GDP) per capita is sometimes used as a proxy for the average income in a country. This is a valid approach for cross-country comparisons, but it is not without problems. The GDP refers to the market value of all final goods and services produced in a country in a given period (typically a year). The GDP – based on the income approach – consists of wages and salaries, corporate profits, profits of unincorporated businesses, interest and other investment income as well as farmers' income. These income components are added up to give the net domestic income at factor cost. Two adjustments are then made to get to the GDP. Indirect taxes minus subsidies are added to get from factor cost to market prices. Depreciation (reflecting 'capital consumption') is added to get from net domestic product to the gross domestic product.

47 Bundeskriminalamt (BKA), *Polizeiliche Kriminalstatistik (PKS), 2009, Bundesrepublik Deutschland* - Anhang des PKS Jahrbuch 2009 abgedruckte Tabellen mit 6-stelligen Straftatenschlüsseln http://www.bka.de/nn_193360/DE/Publikationen/PolizeilicheKriminalstatistik/pks__node.html?__nnn=true

48 UK Ministry of Justice, *Sentencing Statistics England and Wales, 2009*, Supplementary Tables, October 2010.

49 Home Office Statistical Bulletin, *Crime in England and Wales 2009/10*, July 2010.

These explanations indicate that the GDP per capita is probably an over-estimate of the average income in most countries. This can be exemplified with data available from UNODC's host country: Austria. The net national disposable income is far smaller than GDP. According to national accounts, it is equivalent to around 83% of GDP (2009). The total compensation of employees has been equivalent to just about half of the country's GDP over the last few years (51% of GDP in 2009). The average GDP per capita (including babies and retired persons) amounted to €32,800 in 2009; in comparison, the average net income of an employee (total wages and salaries divided by total number of employees) amounted to €25,200 in the same year, equivalent to around 77% of GDP per capita. If the median income were used instead, income levels per employee would fall further to €18,000, equivalent to 55% of GDP per capita.

Similar magnitudes of such ratios can also be found for other countries. Assuming that the threshold level for money-laundering is the average or median income of a normal employee, the discussion so far has shown that the GDP per capita is too high to serve as an appropriate proxy for average income in a country. Average or median income statistics would be far better indicators. The problem here is that such average or median income statistics for countries at the global level are not being published, at least not in any standardized way. Thus, alternative solutions must be identified.

One possible alternative is to deduct gross savings from the gross domestic product figures in order to arrive at a proxy for the money needed for consumption. Amounts earned above such per capita consumption expenditure would be available for money-laundering; amounts below would be used for consumption. For the purposes of this report, it will be assumed that the threshold level upon which money is available for laundering will be equivalent to the current gross domestic product less gross savings, expressed per capita. The World Bank provides such data: current GDP per capita and gross savings as a percentage of GDP. The thresholds can be calculated by adjusting the GDP per capita figures (GDP/N) with the gross savings ratios (GSR). (GDP/N * (1 – GSR)). The World Bank defines gross savings as gross national income less total consumption plus net transfers. Such gross national savings are equivalent to some 19% of GDP at the global level - though they differ greatly across countries. While gross savings in the USA amount to around 10% of GDP, they increase to 18% in the European Union, around 39% in the Arab world and more than 50% in some Caribbean countries. Data for Austria show gross savings of 24% of GDP. The calculated threshold would thus amount to a figure equivalent to 76% of GDP per capita, almost identical to the 77% of GDP per capita calculated for the average income per employee.

Market structure in the United States

As previously discussed, the total number of cocaine traffickers in the USA has been estimated at 757,000, of which some 90% (680,000) are thought to be involved in retail trafficking activities. The total gross retail profits for cocaine (defined as the difference between the gram prices and the ounce prices, multiplied with the amounts consumed in the USA) equal some US$26.1 bn – a large amount. Simply dividing the gross profits by the number of cocaine retail traffickers would result in per capita profits of US$38,400, a relatively small amount which would hardly leave any money available for laundering. In fact, the GDP per capita in 2009 was some US$46,000, that is, far higher than the per capita income of the retail cocaine traffickers in the USA. Adjusting the GDP per capita figures with gross savings to arrive at a proxy figure for per capita consumption still gives a figure of around US$41,300 (threshold level in this report), which is higher than the per capita income of a cocaine retailer. This would mean that no money could be laundered from cocaine retail sales in the USA. But can it be true that no earnings made from US retail sales are laundered? Probably not.

In fact, the income distribution among cocaine traffickers is extremely uneven. This means that a few cocaine traffickers earn large amounts of money – that will be available for laundering – while a much larger number of cocaine traffickers are hardly able to meet their consumption requirements.

This was – inter alia – documented in *Freakonomics* (2005), where the question was asked why so many drug dealers were still living with their mothers.[50] As part of field research, starting from 1989 to the early 1990s, a then-young sociologist, Sudhir Venkatesh, gained access to a Chicago-based street gang selling crack-cocaine. He also got access to the notebooks containing the detailed monthly income and expenditures of that gang over a four-year period. This gang was one of around a hundred branches – or franchises – of a larger criminal organization, the 'Black Disciples'[51], also based in Chicago. The Black Disciples had a leader who reported to a 'board of directors' of close to 20 members. Each street gang had to pay the board of directors of the Black Dis-

50 Steven D. Levitt and Stephen J. Dubner, *Freakonomics: A Rogue Economist Explores the Hidden Side of Everything,* April 2005.

51 The Black Disciples are one of Chicago's most well known 'folks' gangs. In later years, the Black Disciples were more structured like a religious sect. The gang leaders were then called 'ministers' and the overall head was called 'king'. At the same time they continued to expand. Around 2004 they encompassed some 300 street gangs in the Chicago area, each of some 30 to 40 members. (George Knox, *Gang Threat Analysis: The Black Disciples*, National Gang Crime Research Center 2004). Apart from being known as a drug trafficking gang, they are also known for extreme violence. While in 1990 they had some 5,400 members, their membership increased to more than 24,000 towards the end of the first decade of the new millennium.

ciples nearly 20% of their revenues in exchange for the right to sell crack in a designated twelve square-block area. The head of the street gang had three officers below him, as well as a treasurer and a runner (for transporting large quantities of drugs and money to and from the supplier). Each officer had a number of street-level salesmen - known as foot soldiers - beneath him. Depending on the season, the gang leader had in total between 25 and 75 foot soldiers on his payroll. At the very bottom of the hierarchy were some 200 members, known as the rank and file. They were not employees, but had to pay 'dues' to the gang, for protection from rival gangs or for the chance to move up the hierarchy and earn a job as a foot soldier.

Over a four-year period, the gang's notebooks showed an increase in monthly revenue from US$18,500 to US$32,000 in the third and US$64,800 in the fourth year. The average monthly breakdown of revenues in the third year was as follows:

According to the information obtained from the specific crack-cocaine selling gang, the Black Disciples had 1 leader and another 19 on the 'board of directors', probably around 100 street gang leaders, 300 officers (3 * 100) and 5,000 foot soldiers (50 * 100), that is, in total, 5,420 'members' at the time. In addition, some 20,000 unpaid rank-and-file were paying dues to the organization.

The leader and the members of the 'board of directors' each earned around US$500,000 per year, or more than US$40,000 per month. The gang leader's income of US$8,500 was equivalent to an hourly wage of US$66. The wages paid to the 'officers' amounted to on average US$700 a month or about US$7 per hour. The foot soldiers, who accounted for the bulk of drug traffickers in the organization, earned on average just US$3.30 an hour, which was less than the minimum hourly wage in the USA (US$3.80 in 1990).[52] Thus most of the foot soldiers actually held minimum-wage jobs in the legitimate sector to supplement their small illicit earnings.

The analysis of the income distribution, expressed in annual income equivalents, suggests that it follows a power-law distribution as can be seen from the graph:

Assuming that money-laundering would take place for income above per capita GDP (US$23,045 in 1990) less gross savings (15%), the annual threshold income in 1990 would have amounted to around US$20,000 (rounded). According to this structure and the threshold levels, only the members of the 'board of directors' and the gang leaders, some 120 persons out of some 5,420 members or 2.2% of the total number of traffickers in this crack-cocaine distribution network, would have earned enough money to engage in laundering activities.

Table 50: Average monthly revenues and expenditures of a crack-cocaine selling gang based in Chicago, 1990

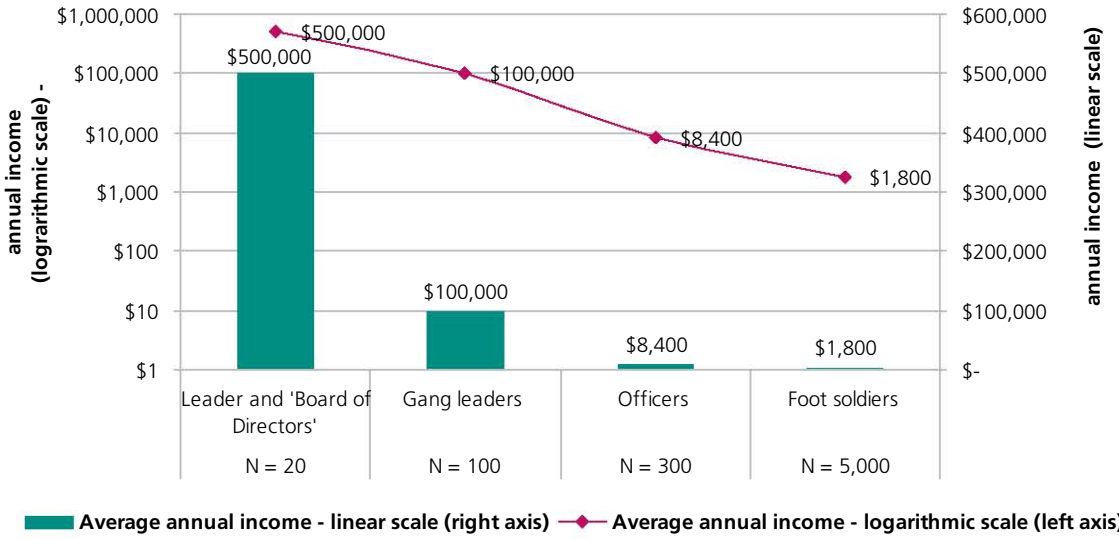
Revenues:		
	Drug sales (crack-cocaine)	US$ 24,800
	Dues from rank and files	US$ 5,100
	Extortionary taxes (stores, pimps, fences et cetera)	US$ 2,100
	Total monthly revenues:	**US$ 32,000**
Expenditures		
	Wholesale cost of drugs (crack-cocaine)	US$ 5,000
	Fees to 'board of directors'	US$ 5,000
	Mercenary fighters (hired to fight turf war)	US$ 1,300
	Weapons	US$ 300
	Miscellaneous (funeral, support for victim's family)	US$ 2,400
	Total monthly (non-wage) costs	**US$ 14,000**
	Wages for three 'officers'	US$ 2,100
	Wages to foot soldiers	US$ 7,400
	Monthly wages	US$ 9,500
	Total monthly net income for gang leader	**US$ 8,500**

Source: Steven D. Levitt and Stephen J. Dubner, *Freakonomics: A Rogue Economist Explores the Hidden Side of Everything*, April 2005.

52 Federal Minimum Wage Rates, 1955-2011 (http://www.infoplease.com/ipa/A0774473.html).

Deducting the threshold income needed to cover living expenses (estimated at around US$20,000), data suggest that the Black Disciples may have laundered some US$17.6 million per year. Expressing this amount as a proportion of total wages (around US$31.5 million), the calculations suggest that more than half (about 56%)

Fig. 6: Income structure of a crack-cocaine selling distribution network in the USA (Chicago), 1990



Source: UNODC calculations based on Steven D. Levitt and Stephen J. Dubner, Freakonomics: A Rogue Economist Explores the Hidden Side of Everything, April 2005.

Table 51: Total 'wages' in crack-cocaine distribution network in the USA (Chicago), 1990

	Number of traffickers	Per capita income	Total
Leader and members of 'board of directors'	20	$500,000	$10,000,000
Gang leaders	100	$100,000	$10,000,000
Officers	300	$8,400	$2,520,000
Foot soldiers	5000	$1,800	$9,000,000
Total	**5,420**		**$31,520,000**

Source: UNODC calculations based on Steven D. Levitt and Stephen J. Dubner, *Freakonomics: A Rogue Economist Explores the Hidden Side of Everything*, April 2005.

Table 52: Calculation of amounts available for laundering, 1990

	Annual income	Threshold income	Income for laundering	Number of persons	Amounts available for laundering
Board of directors	$500,000	$20,000	$480,000	20	$9,600,000
Gang leaders	$100,000	$20,000	$80,000	100	$8,000,000
Total					**$17,600,000**

Source: UNODC calculations based on Steven D. Levitt and Stephen J. Dubner, *Freakonomics: A Rogue Economist Explores the Hidden Side of Everything,* April 2005.

Table 53: Proportion of wages available for laundering, 1990

	Total wages in million US$	Amounts available for laundering in million US$	in %
Amounts	$31.5	$17.6	56%

Source: UNODC calculations based on Steven D. Levitt and Stephen J. Dubner, Freakonomics: A Rogue Economist Explores the Hidden Side of Everything, April 2005

of the total wages may have been subject to laundering. Simply dividing the wages of this crime organization by the number of its members would have resulted in a per capita income of US$5,815 (US$31,520,000 : 5420), far below the threshold level for money-laundering.

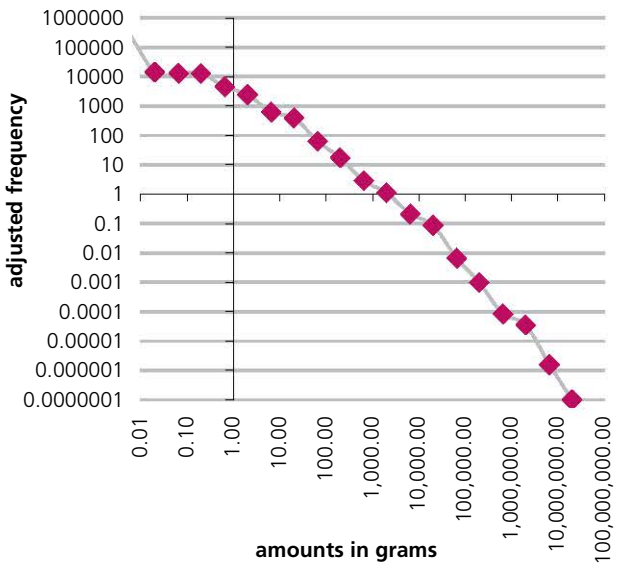
Taking the income distribution structure into account is thus a prerequisite for arriving at reasonable results for the amounts available for laundering. While such detailed examples of individual drug trafficking groups are certainly interesting to gain a better insight into the hierarchical structure of cocaine trafficking, a more generalized model would still be needed to take the skewed market structure into account. The calculations cannot hinge on one example of an income distribution of a drug trafficking group in one American city back in 1990. One possibility in this regard is to analyse seizure data in more detail.

Application of the 'market structure' to total retail sales and number of retail traffickers

As this research - as well as previous work by the Institute of Defense Analysis - has shown, the cocaine market is characterized by a power-law structure. This is also true for illegal drug markets in general. This is, *inter alia,* reflected in seizures. The power-law structure is particularly visible in the wholesale market, less so in the retail market (smaller quantities).

This statement (see graph) is based on a detailed analysis of US seizures over the 2004-06 period, that is, prior to the disturbances of the US cocaine market due to major reductions in supply. The calculations were based on the more than 52,000 cocaine seizure cases reported in the DEA's STRIDE database over the 2004-06 period, including more than 31,000 seizure cases at the retail level (seizures of less than an ounce) and some 21,000 seizure cases at the wholesale level (seizures of an ounce or more).

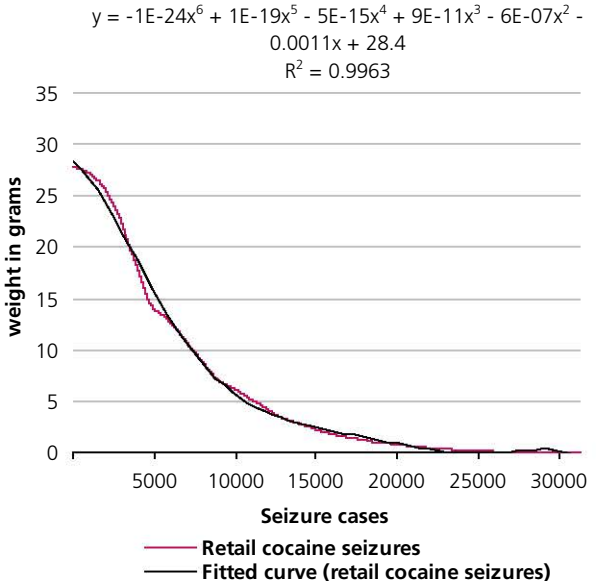
Fig. 7: Frequency distribution of cocaine seizures in the USA, 2004-2006 (logarithmic scale)



Source: US Drug Enforcement Agency, Retrieve Information from Drug Evidence (STRIDE database).

As a next step, the retail market segment will be defined. According to US data, there is a frequency of purchases at the ounce level (28.4 grams), and then again at the 1 gram level. This suggests that the retail market mainly takes place by retail sales purchasing around an ounce of cocaine, and then selling a gram of cocaine to the end users.

Fig. 8: Distribution of US cocaine seizures in the retail market segment, 2004-2006



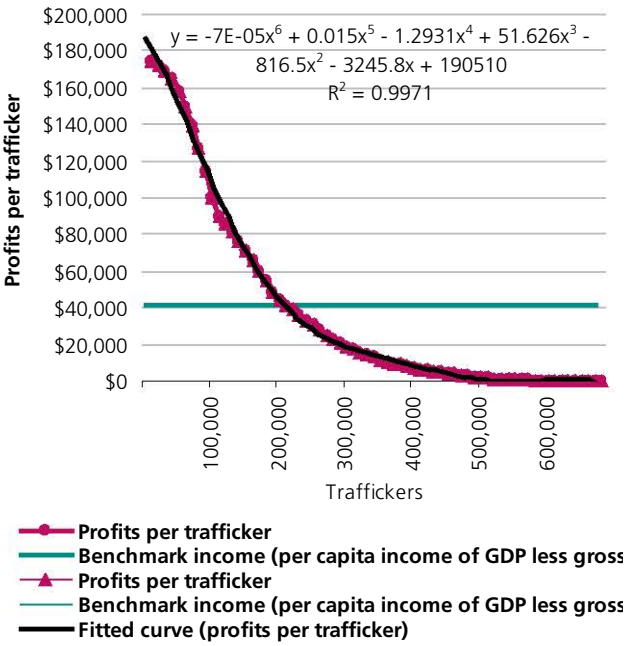
Source: US Drug Enforcement Agency, Retrieve Information from Drug Evidence (STRIDE database).

The distribution of the retail segment of the market (as reflected in seizures) is shown in the graph below. It follows very closely a binomial regression curve.

Assuming that the distribution of the seizures, discussed above, is a fair reflection of the structure of the US cocaine market, the seizure distribution can be used to allocate the total US retail market profits to the individual drug traffickers. This is shown on the next graph. In addition, a benchmark figure or cut-off rate, here defined as GDP per capita less gross savings, was introduced.

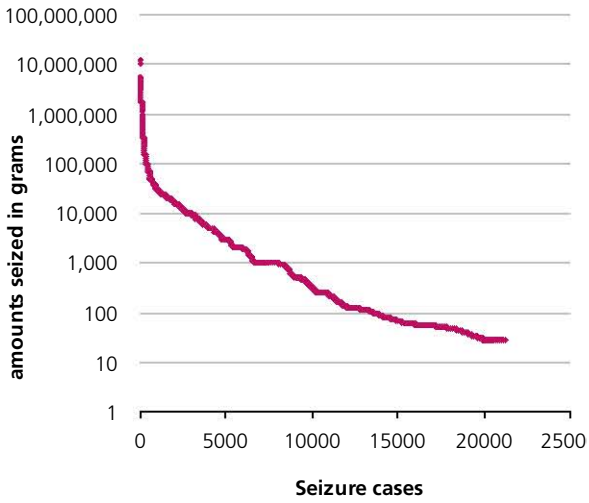
The results emerging from this model suggest that indeed the majority of the retail sellers (76%) earn less than the benchmark income figure. However, the amounts generated above GDP per capita (less gross savings) by the remaining 24% of the retail traffickers are sufficient for laundering US$ 13.2 billion, or 51% of the total gross cocaine retail profits.

Fig. 9: Distribution of retail traffickers' income in the USA, 2009



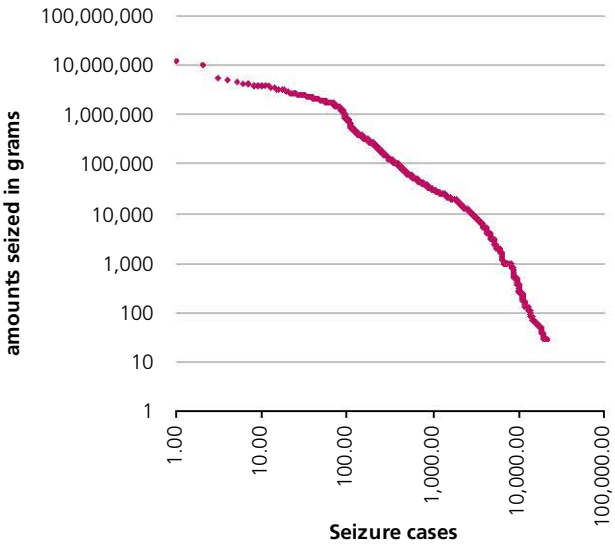
Sources: US Drug Enforcement Agency, Retrieve Information from Drug Evidence (STRIDE database), World Bank and study estimates.

Fig. 10: Distribution of cocaine wholesale seizures in the USA, 2004-2006 - y axis: logarithmic scal



Source: US Drug Enforcement Agency, Retrieve Information from Drug Evidence (STRIDE database).

Fig. 11: Distribution of cocaine wholesale seizures in the USA, 2004-2006 - x and y axes: logarithmic scale



Source: US Drug Enforcement Agency, Retrieve Information from Drug Evidence (STRIDE database).

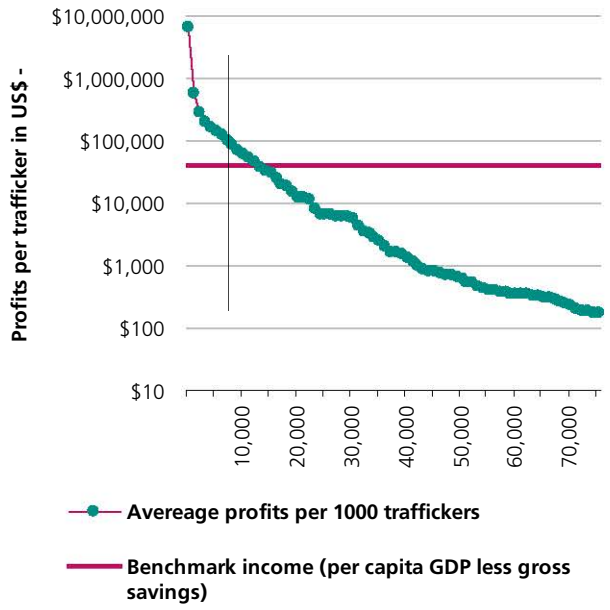
Application of the 'market structure' to total wholesales and number of wholesale traffickers

Wholesales were defined as all transactions amounting to more than 28.4 grams. The 'simple model', dividing the gross wholesale profits (US$8.8 bn) by the number of cocaine wholesalers (76,000) would result in average per capita profits of cocaine wholesalers of US$116,720. Subtracting the threshold income level (US$41,274 for per capita GDP less gross savings) would result in US$75,446 available for laundering per cocaine wholesalers, or US$5.7 bn for the total wholesale market. This would have been equivalent to 65% of the total wholesale profits. This would be an easy calculation. But are such estimates reasonable? Probably not.

As discussed earlier, the data show that the cocaine wholesale seizures follow a power-law structure. Logarithmic scales must be used for the wholesale sector to be able to make the underlying seizure patterns more visible.

Based on the assumption that the seizure structure reflects the underlying market structure, the next challenge was to use the shape of the seizure curve to allocate the profits made at the wholesale level to individual cocaine wholesalers. The total number of cocaine wholesalers in the USA was estimated at around 76,000. Based on such a market structure identified via seizures, the model suggests that a few major players in the market earn a fortune. As a consequence, the model suggests that 90% of the global gross cocaine profits made at the wholesale level are available for money-laundering purposes, far more than the initial results of 65% arrived at via the 'simple model' which did not take the power-law structure of the wholesale market into account. In other words, US$8 billion out of the US$8.8 billion generated in trafficking cocaine from the importing countries to

Fig. 12: Distribution of cocaine wholesale traffickers' income in the USA, 2009



Source: US Drug Enforcement Agency, Retrieve Information from Drug Evidence (STRIDE database).

street sellers in the USA are available for laundering. The model also suggests that a majority of wholesalers were earning less than the GDP per capita adjusted for gross savings. The latter group of traffickers includes a large number of persons who work as mules or part-time traffickers for criminal organizations.

The gross profits considered so far did not take transit profits and seizures into account. Assuming that some of the profits made in shipping cocaine into the United States will never be available for laundering as they were generated by foreign groups, and assuming furthermore that the bulk of the seizures affect the wholesale level (rather than the retail level) and that wholesalers have to bear half of the cost (the other half being borne by the exporters), the gross profits of US cocaine wholesalers would decline to US$3.4 bn. Conducting the same analysis on the adjusted wholesale profits suggest that US$2.9 bn or 83% of the total would be available for laundering.

In any case, the model suggests that the proportions available for laundering at the wholesale level (83%-90%) are substantially higher than at the retail level (51%).

Adding wholesale and retail profits in the USA (some US$35 bn prior to adjustments for seizures and transit profits), the amounts available for laundering (some US$21.2 bn) would be equivalent to around 60% of gross profits generated by cocaine trafficking.

Market structure in other key markets

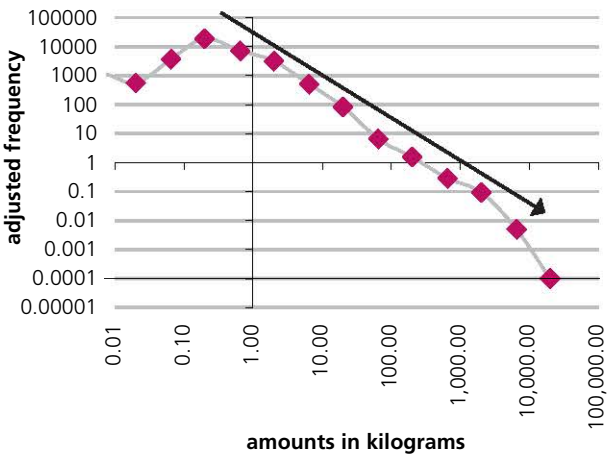
The United States is certainly a key market, accounting for some 35% of global cocaine-related profits. But it is not the only market where huge profits are made and laundered. So, what are the likely proportions laundered in other countries?

Applying similar calculations – based on seizure patterns - to other countries as a proxy for the underlying market structure facilitates the calculation of typical profits per cocaine trafficker at the retail and wholesale levels. Such calculations are, however, very time consuming and have only been undertaken for major markets with gross profits exceeding US$1 billion. Such countries include - in addition to the USA - Colombia, the United Kingdom, Italy, Mexico, Spain, Germany, France, Brazil, Canada, Argentina and Australia. Together, these markets account for 82% of total gross profits or 86% of retail profits. Simplified calculations will be used for the remaining countries.

The profits are only indicative and may change substantially once more (reliable) information becomes available and/or methodologies to generate such estimates are improved.

Applying the 'US model' developed above one to one to other countries is, however, difficult if not impossible. Reported seizure cases – for most other countries – are too small to arrive at any meaningful distribution patterns. This changes only if all other countries are taken together. UNODC in its individual seizure database collected some 25,700 cocaine seizures ('cocaine' and 'cocaine hydrochloride' seizure cases) made in 99 countries worldwide (excluding the United States) over the 2000-2010 period.

Fig. 13: Frequency distribution of cocaine seizures worldwide (excluding USA), 2000-2010 (logarithmic scale)



Source: UNODC, Individual Drugs Seizures Database.

Table 54: Tentative estimates of gross profits related to cocaine trafficking in million US$ (2009)

Countries where gross cocaine profits (retail and wholesale) were estimated to exceed US$1 billion	Year of household survey on cocaine use (basis for calculations)	Wholesale profits (import price to ounce price) A	Adjusted wholesale profits (seizures, transit profits) B	Retail profits C	Total gross profits B + C
USA	2009	8,871	3,441	26,090	29,531
Colombia	2008	9	9,439	48	9,488
UK	2009/10	1,803	1,383	6,948	8,332
Italy	2008	2,197	1,327	3,873	5,200
Mexico	2008	200	3,456	495	3,951
Spain	2009/10	1,619	1,278	1,810	3,089
Germany	2009	918	524	2,197	2,721
France	2005	600	471	1,239	1,710
Brazil	2005	269	479	1,195	1,674
Canada	2009	371	198	1,146	1,344
Argentina	2006	267	309	837	1,146
Australia	2009	585	281	910	1,190
Other countries		4,584	7,653	7,482	15,133
Global		**22,293**	**30,239**	**54,270**	**84,509**
Selected countries in % of global		**79%**	**75%**	**86%**	**82%**

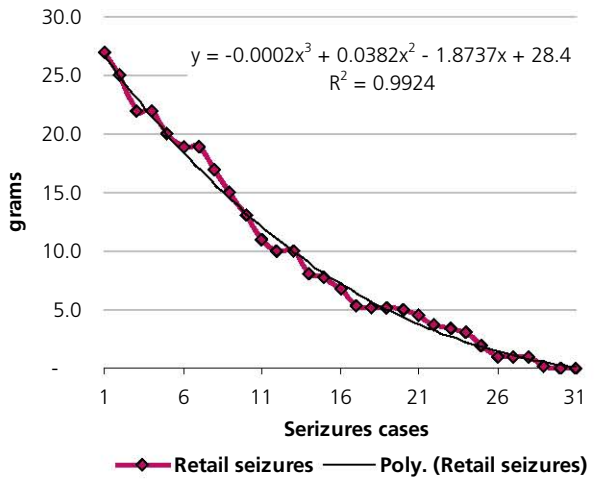
Source: UNODC calculations based on Annual Reports Questionnaire data.

Similar to the data found in the USA, an analysis of global cocaine seizures (excluding those from the US) also indicates that such seizures follow a power-law pattern for amounts exceeding 100 grams.

As a next step, the seizures were again split into 'wholesale seizures' and 'retail seizures'. For the purposes of this report, an ounce was used as a cut-off rate. Seizures of one ounce (28.4 grams) or more were considered 'wholesale seizures'. Seizures of less than an ounce were considered to reflect 'retail seizures'. Thus the US cut-off rate was also used to analyse seizures in other countries.

One problem here is the low number of seizures falling into the category of 'retail seizures' that were reported to UNODC. Many such small seizures are not considered 'significant' by Member States, and are thus not reported. Nonetheless, even the limited number of observations that fell within the defined range showed a somehow similar pattern as the one that was revealed for the US retail market based on more than 30,000 observations over the 2004-2006 period. Though the patterns are similar, the calculation of the Gini coefficients, measuring the degree of inequality in a distribution, suggest that the cocaine market structure at the retail level may be more uneven in the USA than in the world at large.

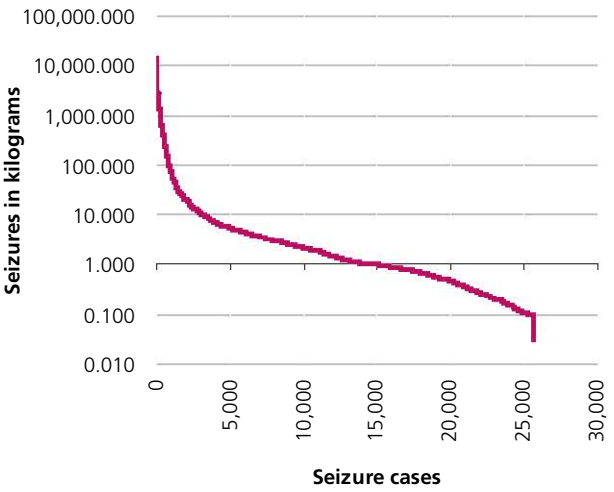
Fig. 14: Distribution of retail cocaine seizures reported to UNODC, 2000-2010



Source: UNODC, Individual Drugs Seizures Database.

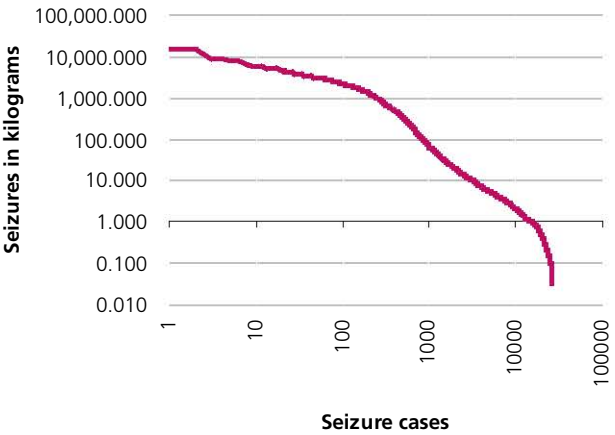
In contrast, a sufficiently large number of wholesale seizures has been reported to UNODC. The organization's individual seizures database contains detailed information on more than 25,000 cocaine wholesale

Fig. 15: Distribution of wholesale cocaine seizures reported to UNODC, 2000-2010, y axis: logarithmic



Source: UNODC, Individual Drugs Seizures Database.

Fig. 16: Distribution of wholesale cocaine seizures reported to UNODC, 2000-2010, y and x axis: logarithmic



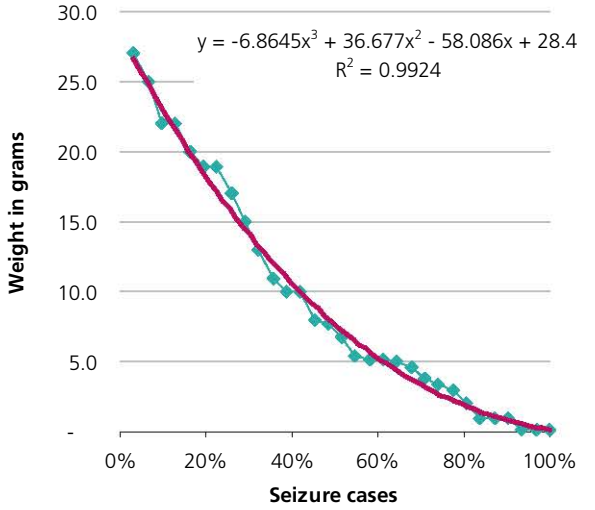
Source: UNODC, Individual Drugs Seizures Database.

seizures over the 2000-2010 period. As mentioned before, wholesale seizures at the global level - like wholesale seizures in the USA - are characterized by a power-law structure, notably within the range of 100 grams to 25 tons.

Applying these seizure patterns to individual countries as a proxy for the underlying market structure facilitates the calculation of typical profits per cocaine trafficker at the retail and wholesale levels.

In order to generalize the results, the observed seizures are shown as percentages rather than absolute numbers. The reported retail seizures were fitted to a 3 binomial regression curve which formed the basis for the subsequent calculations of the distribution at the retail level. This model was then applied to the retail market for individual countries. The key parameters here were the estimated number of retail traffickers, the total retail profits in a country and the calculated cut-off rate or benchmark above which traffickers are estimated to launder money.

Fig. 17: General model applied to calculate retail profits



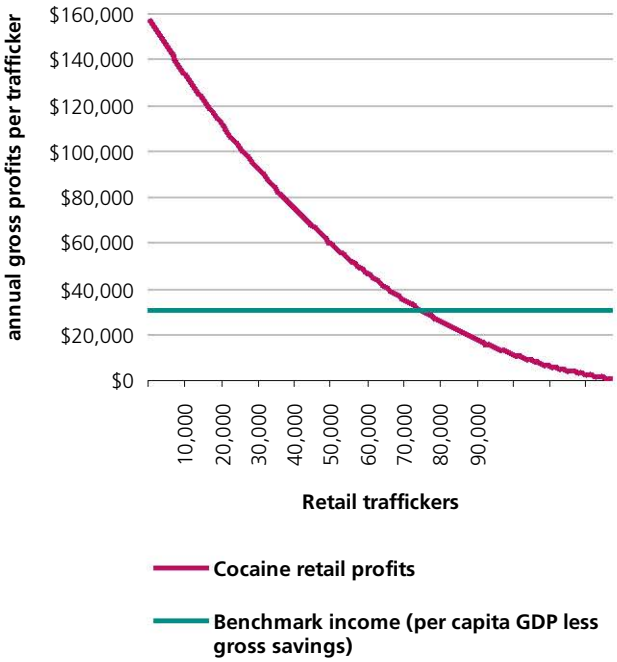
Source: UNODC, Individual Drugs Seizures Database.

The largest cocaine market in Europe is the United Kingdom with retail profits estimated at around US$6.9 billion. As shown earlier, the number of cocaine traffickers in England and Wales was estimated at around 125,000 (6.5 users per 1 dealer) of which 85% or 107,000 were estimated to be cocaine retail traffickers. Extrapolating the results from England and Wales to the UK as a whole, one can estimate that there may be close to 150,000 cocaine traffickers of which 127,000 retail traffickers. Assuming again that money-laundering takes place only above the threshold level of per capita GDP less gross savings ($30,860 per person in 2009) the calculations suggest that out of US$6.9 billion generated in gross profits, US$4 billion or 57% are potentially available for laundering in the UK The simple model would have suggested that just 44% is available for laundering.

In order to calculate the likely amounts of funds laundered at the wholesale level, the global distribution pattern of wholesale seizures (2000-2010) was used. The seizure cases were re-converted into percentages.

Applying this pattern to the UK wholesale market estimates (gross profits of US$1.38 billion) generated by some 24,400 traffickers would show US$1.24 billion

Fig. 18: UK retail market: gross profits per capita and benchmark income - amounts available for laundering, 2009



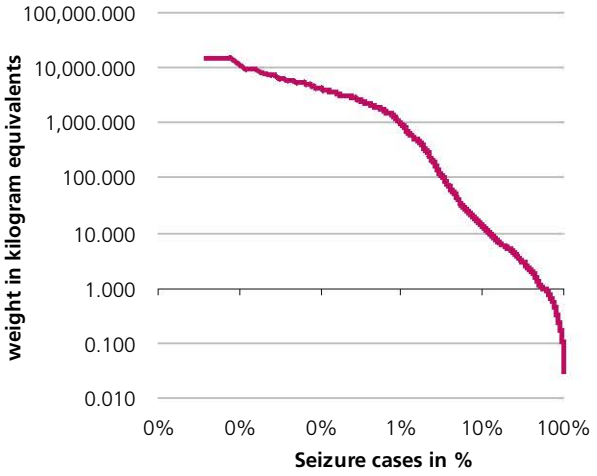
Sources: UNODC, Annual Reports Questionnaire data; UNODC, Individual Drugs Seizures Database; World Bank, World Development Indicators (WDI).

available for money-laundering, or almost 90% of the total.[53]

53 In order to arrive at the results, the percentages of seizure cases were re-defined to mean traffickers (24,400 wholesale traffickers in the UK were redefined to be 100%). Subsequently, the weight equivalents were also shown as a percentage of the total of the reported seizures. The total seizures were 'redefined' as total wholesale profits in the country. The total wholesale profits were then multiplied with the appropriate percentage for each trafficker to arrive at the likely gross profit for each individual cocaine trafficker based on the seizure distribution. An example should help to clarify the approach. For instance, the 50th largest trafficker in the UK was equivalent in the ranking to 0.2% of all cocaine wholesale traffickers (50/24,400 = 0.2%); 0.2% of all seizures (i.e. the 52nd largest seizures out of 25,662 reported seizures) had a weight of 3,048 kg. Expressed as a proportion to total weight (927,663 kg), the 52nd largest seizure accounted for 0.34% of the total. If the total was now considered to be the total wholesale profits (US$1.38 bn), 0.34% of the total would have amounted to US$4.7 million. Thus the 50th largest trafficker in the UK – based on this model – is assumed to have made US$4.7 million in gross profits in 2009, far above the threshold level US$30,860 needed to cover his basic needs.

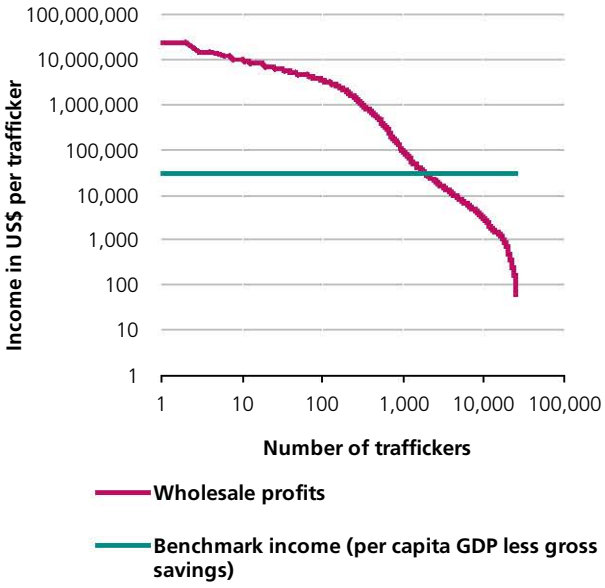
The gross profits distribution was then contrasted with the benchmark income figures (per capita GDP less gross savings). Gross profits exceeding the benchmark figures – reflecting the amounts available for laundering - were calculated and aggregated to give the total amounts available for money laundering (US$1.24 bn in the UK). The model results suggest that more than 1,200 wholesale traffickers earned more than the threshold level in the UK and were thus 'forced' to engage in money-laundering activities. The total of these 'excess funds' amounted to US$1.24 bn. The proportion available for laundering (≈90%) was finally calculated as the amounts available for money-laundering (US$1.24 bn) divided by the total funds generated in the wholesale business (US$1.38 billion).

Fig. 19: Distribution used for wholesale sector (seizures), 2000-2010



Source: UNODC, Annual Reports Questionnaire data.

Fig. 20: Gross profits and benchmark income of wholesale traffickers in the UK



Sources: UNODC, Annual Reports Questionnaire data; UNODC, Individual Drugs Seizures Database; World Bank, World Development Indicators (WDI).

The 'simple' model (gross profits divided by wholesale traffickers (US$56,693) less benchmark income ($30,860) would have resulted in US$25,833 available, on average, for money-laundering per cocaine trafficker, or US$630 million for all wholesalers in the UK, equivalent to 46% of the total gross profits generated.

The same type of calculations was subsequently done for other countries with gross profits exceeding US$1 bn.[54] These calculations suggest that the amounts available for laundering out of retail profits may actually differ quite substantially across countries, ranging among the selected countries from 21% (Canada or Brazil) to 57% (UK). The unweighted average of the results amounted to 40%. The countries reviewed accounted for 86% of global gross retail profits. Assuming that such an unweighted average (40%) would be also typical for other countries, calculations suggest that out of US$54 billion in global cocaine retail profits some US$25 billion may have been actually available for laundering, equivalent to 46% of the global retail cocaine profits.

A regional breakdown of the results of the above calculations suggests that 55% of the funds available for money-laundering linked to global cocaine retail sales are to be found in North America (US$13.8 billion) and a further 35% in West and Central Europe (US$8.7 billion). In other words, 90% of the funds generated out of cocaine retail trafficking and available for subsequent money-laundering activities are concentrated in these two subregions.

A similar approach was subsequently taken to estimate the amounts available for laundering resulting from wholesale trafficking. Countries estimated to have cocaine-related gross profits of more than US$1 billion (retail and wholesale) were investigated. The total gross wholesale profits in these 12 countries were estimated at US$22.6 bn, equivalent to 75% of the global total. While the unweighted average of the simple model results suggested that slightly more than half (53%) of the profits would be available for laundering, the estimates taking the market structure into account (derived from seizure statistics) showed an unweighted average of around 90% (88%-92% confidence interval). The total amounts potentially available for laundering at the global level were estimated at around US$27.7 bn, equivalent to 92% of the global cocaine wholesale profits. The model identified particularly high proportions for Colombia, Spain, Mexico and Brazil, reflecting the involvement of traffickers from these countries not only in domestic sales but also in export and transit activities.

Analysing the regional distribution, the model suggests that above average proportions available for money-laundering out of cocaine wholesale trafficking activities are to be found in South America (94% of gross profits). Below average proportions (87% of gross profits) seem to exist in North America.

Adding retail and wholesale profits, the model results suggest that some US$53 bn out of global gross cocaine profits of US$84 bn are available for laundering (equivalent to 62% of the total). The overall proportions of cocaine related profits that are available for laundering seem to be highest in South America (85%), while in North America and Europe just 57% and 55%, respectively, of the generated profits are available for laundering.

Nonetheless, most funds available for money-laundering out of cocaine trafficking are to be found in North America (US$20 bn or 38% of the total). Though overall profits related to cocaine trafficking are larger in Europe compared to South America, the amounts available for laundering are basically of similar magnitudes in South America (including the Caribbean and Central America) and Europe: around US$15 billion each, or 29% each of the global total. Amounts available for laundering emerging from other parts of the world account for less than US$3 billion or less than 5% of the funds laundered out of the global cocaine trade.

As mentioned before, the proportions of the funds generated at the retail level available for laundering are far smaller (46% of gross profits at the global level) than at the wholesale level (92% of gross profits). This is a reflection of the fact that cocaine trafficking is – globally - far more concentrated at the wholesale level than at the retail level.

The amounts available for laundering at the wholesale level (some US$28 bn in absolute terms) are only slightly larger than the amounts emerging from retail sales (some US$25 bn). This indicates that the cocaine retail sector – notably in the industrialized countries – should not be neglected as a source for money-laundering activities. In fact, in both North America and Europe the largest gross profits – expressed in absolute figures – seem to be generated at the retail level, while the largest gross profits in South America are from the wholesale sector. As a consequence, excess funds generated at the retail level that can be used for money-laundering purposes appear to be – according to the model results – more important in both North America and Europe than the funds generated at the wholesale level.

In contrast, such retail sales play hardly any role for drug traffickers in South America from an economic point of view. This is mainly due to the low cocaine prices in South America. While cocaine consumption is far from low in South America, funds generated out of retail sales are still negligible there.

The same is even more true when it comes to money-laundering based on cocaine retail sales in South America. Less than US$1 bn or less than 4% of global funds from retail sales related to cocaine for money-laundering

54 Calculations for Colombia – another country with total profits exceeding US$1 billion - are not shown in the table. These calculations suggested that hardly any of the income from the retail trade within Colombia is available for laundering. In contrast, most of the wholesale profits are laundered.

Table 55: Tentative estimates of amounts available for laundering out of cocaine retail sales, 2009

Countries where gross cocaine profits (retail and wholesale) were estimated to exceed US$1 billion	Gross retail profits (in million US$)	Proportions laundered at the retail level		Amounts available for laundering (in million US$)
		'Simple model'	Model taking market structure into account	
USA	26,090	0%	51%	13,219
UK	6,948	44%	57%	3,958
Italy	3,873	0%	30%	1,169
Germany	2,197	27%	49%	1,069
Spain	1,810	15%	42%	765
France	1,239	0%	23%	282
Brazil	1,195	5%	21%	255
Canada	1,146	0%	21%	243
Australia	910	28%	49%	443
Argentina	837	17%	43%	361
Mexico	495	40%	55%	274
Unweighted average		*16%*	*40%*	
Confidence interval (95%)			32% - 48%	
Subtotal	46,740			22,038
Other countries	7,530		40% (32% - 48%)	3,020 (2,407 – 3,633)
Global total	**54,270**		**46% (45% - 47%)**	**25,055 (24,445 – 25,671)**

Sources: UNODC calculations based on UNODC, Individual Seizures Database and UNODC, Annual Reports Questionnaire data.

Table 56: Tentative estimates of regional distribution of amounts available for laundering out of cocaine retail sales in 2009, in billion US$

	Gross retail profits (in bn US)	Proportion laundered	Amounts available for laundering (in bn US$)
Europe	20.9	44%	9.1
West and Central Europe	19.7	44%	8.7
South-East Europe	0.8	40%	0.3
East Europe	0.4	40%	0.2
North America	27.7	50%	13.8
South America (incl. Central America and Caribbean)	2.7	32%	0.9
Asia	1.0	40%	0.4
Oceania	1.0	48%	0.5
Africa	0.9	40%	0.4
TOTAL	**54.3**	**46%**	**25.1**

Sources: UNODC calculations based on UNODC, Individual Seizures Database and UNODC, Annual Reports Questionnaire data.

purposes are being generated in South America while South America accounts with US$14 bn for more than 51% of the global funds generated for money-laundering out of wholesale related trafficking activities.

Table 57: Tentative estimates of amounts available for laundering out of cocaine wholesale trafficking, 2009

Countries where gross cocaine profits (retail and wholesale) were estimated to exceed US$1 billion	Gross wholesale profits, adjusted for seizures and transit profits (in million US$)	Proportions laundered at the wholesale level		Amounts available for laundering (in million US$)
		'Simple model'	Model taking market structure into account	
Colombia	9,439	96%	97%	9,146
Mexico*	3,456	89%	92%	3,191
USA	3,441	9%	83%	2,868
UK	1,383	47%	89%	1,237
Italy	1,327	46%	90%	1,188
Spain	1,278	81%	93%	1,190
Germany	524	40%	89%	467
Brazil	479	74%	92%	442
France	471	25%	88%	415
Argentina	309	63%	91%	281
Australia	281	62%	91%	255
Canada	198	0%	85%	168
Unweighted average		53%	90%	
Confidence interval (95%)			88% - 92%	
Subtotal	22,586			20,848
Other countries	7,653		90% (88% - 92%)	6,892 (6,735-7,021)
Global (confidence interval, 95%)	**30,239**		**92% (91%-92%)**	**27,740 (27,583 – 27,869)**

* gross profits made by the Mexican cartels operating in the wholesale and retail trade within the United States are not included in these figures.

Sources: UNODC calculations based on UNODC, Individual Seizures Database and UNODC, Annual Reports Questionnaire data.

Table 58: Tentative estimates of regional distribution of amounts available for laundering out of cocaine wholesale trafficking in 2009, in billion US$

	Gross wholesale profits (in bn US)	Proportion laundered	Amounts available for laundering (in bn US$)
Europe	6.6	90%	5.9
West and Central Europe	6.3	90%	5.7
South-East Europe	0.2	90%	0.2
East Europe	0.1	90%	0.1
North America	7.1	87%	6.2
South America (incl. Central America and Caribbean)	15.1	94%	14.2
Asia	0.5	90%	0.4
Oceania	0.3	91%	0.3
Africa	0.7	90%	0.6
TOTAL	**30.2**	**92%**	**27.7**

Sources: UNODC calculations based on UNODC, Individual Seizures Database and UNODC, Annual Reports Questionnaire data.

Table 59: Tentative estimates of all cocaine-related profits laundered in 2009, in billion US$

	Gross profits* in billion US$			Profits available for laundering, from			Overall proportion laundered ****
	Wholesale	Retail	Total	Wholesale**	Retail***	Total	
Europe	6.6	20.9	27.5	5.9	9.1	15.1	55%
West and Central Europe	6.3	19.7	26.0	5.7	8.7	14.3	55%
South-East Europe	0.2	0.8	1.0	0.2	0.3	0.5	50%
East Europe	0.1	0.4	0.5	0.1	0.2	0.3	51%
North America	7.1	27.7	34.8	6.2	13.8	20.0	57%
South America (incl. Central America and Caribbean)	15.1	2.7	17.8	14.2	0.9	15.1	85%
Asia	0.5	1.0	1.5	0.4	0.4	0.8	55%
Oceania	0.3	1.0	1.3	0.3	0.5	0.8	58%
Africa	0.7	0.9	1.6	0.6	0.4	1.0	62%
TOTAL	**30.2**	**54.3**	**84.5**	**27.7**	**25.1**	**52.8**	**62%**

Sources: UNODC calculations based on UNODC, Individual Seizures Database and UNODC, Annual Reports Questionnaire data.

* As shown in the table "Cocaine-related gross profits in million US$ generated at the global level after adjustments for seizures and transit profits."

** Based on the proportions shown in the table "Tentative estimates of regional distribution of amounts available for laundering out of cocaine wholesale trafficking in 2009, in billion US$."

*** Based on the proportions shown in the table "Tentative estimates of regional distribution of amounts available for laundering out of cocaine retail sales in 2009, in billion US$."

**** 'Total profits available for laundering' / 'Total of gross profits.'

x. Amounts of cocaine money laundered and main destinations of the laundered funds

After having established the likely distribution of cocaine-related profits and the amounts available for money-laundering, the last question concerns the (first) location of the money-laundering activities. In order to arrive at a likely distribution of such funds, a new model ('gravity model') was developed and tested for cocaine-related trafficking profits available for laundering.

The model logic and its underlying assumptions and theories were discussed before in more detail in the methodology section and will only be summarized here. The basic concept of the gravity model is that there are a number of enabling and limiting factors which increase or decrease the likelihood of money-laundering in foreign jurisdictions. In that way, it is a potential threat assessment tool rather than a precise tool for estimating actual illicit money flows.

The enabling factors can be classified into those showing a 'capability' or 'capacity' of operators in a certain country or territory to launder money (reflected, for instance, in the existence of a financial services sector), into factors reflecting 'susceptibility' of countries to money-laundering (reflected, for instance, in the level of secrecy granted to the financial sector or the non-compliance with international anti-money-laundering standards) and cultural factors (such as common languages). Finally, the 'distance' from where the proceeds are generated and where they are laundered, plays a role.

The model generates first a general 'intrinsic attractiveness' of a country to money launderers. This depends on a number of enabling or limiting factors, such as the size of the financial service sector, corruption, bank secrecy, FATF compliance, et cetera. Then, there are certain factors that influence the attractiveness of a potential money-laundering territory for the country where the criminal proceeds have been generated and enter the financial system. Such factors include trade links and common language(s) ('pairwise attractiveness'). The overall attractiveness of a certain country for another country is then calculated as its "intrinsic attractiveness" multiplied with its "pairwise attractiveness" and divided by the distance to the other country. Results emerging from the model are then shown at the subregional level.

The key parameters used in the current model to establish a country's attractiveness for potential money launderers were GDP per capita, the importance of the financial services sector in GDP, foreign direct investment inflows, indices measuring the rule of law, human development, FATF compliance and the extent of the shadow economy, existing trade links, language commonalities and distance (in kilometres as well as in terms of the existence of common borders).

Extensive efforts went into the calibration of the model, that is, into the question regarding the weights to be given to the individual parameters, partly based on research in the field, partly based on cross-checking results with other data sets. The model was created so that additional parameters that may be of relevance could be easily included, if needed.[55]

The exercise, having undergone several rounds of adjustments and fine-tuning, seems to now show results that are plausible. Nonetheless, what is presented here is only a risk-threat assessment, that is, a likelihood distribution of the intermediate destination(s) used for cocaine-related funds laundered worldwide.

Algebra of the Gravity Model

Intrinsic Attractiveness of Country i to Money Launderers = Attractiveness_i

$= \mathbf{GDPperCap_i} * \mathbf{FinancialServicei} * \mathbf{FDInflows_i} * \mathbf{FATFCompliance_i} * \mathbf{\ldots\ldots et\ cetera}$

Specific Attractiveness of Country j to Money Launderers based in Country i = $\text{PairwiseAttractiveness}_{ij}$

$= \mathbf{Tradelinks_{ij}} * \mathbf{Languages_{ij}} * \mathbf{\ldots\ldots etc}$

Affinity of Country j to Moneylaunderers in Country i = Affinity_{ij}

$$= \frac{\mathbf{Attractiveness_i} * \mathbf{PairwiseAttractiveness_{ij}}}{\mathbf{Distance_{ij}}}$$

55 Such additional parameters (for example, banking secrecy, offshore centres, corruption, terrorism, religion and other cultural similarities) were not added to the model at this stage as it was feared that the accuracy of some of the sources used for these additional indicators (collected by individual countries or NGOs) could be questioned by Member States.

Table 60: Weights used for the calculation of the model

Intrinsic attractiveness	
Attractiveness Index Weighting for GDP per capita	0.069
Attractiveness Index Weighting for Financial service trade (% of GDP)	0.598
Attractiveness Index Weighting for FDI inflows per GDP 2009.	-0.194
Attractiveness Index Weighting for Rule of Law (WGI)	0.074
Attractiveness Index Weighting for Human Development (WGI)	-0.067
Attractiveness Index Weighting for FATF Compliance Index	0.098
Attractiveness Index Weighting for Shadow Economy % of GDP	0.009
Specific attractiveness ('pairwise attractiveness')	
Weighting for Trade Links	0.100
Weighting for Language Commonality	0.900
Distance	
Distance Reduction for Common Borders (a figure <1, reflecting ease of trade across common borders)	0.600
Notional Distance for Internal Laundering	0.049
Power for Gravity Model Distance	1.000

In addition, the model provides some answers as to the likely impact that such laundering attempts may have for specific countries or regions (net inflow versus net outflow). The exercise may thus help in understanding the likely magnitudes of such flows and the severity of the problem. But the results should not be mistaken for precise dollar figures. They are simply the best currently available estimates which may change substantially once better information becomes available.

A first overview of the results shown in the table below provides information on:

- the likely gross profits generated out of cocaine trafficking in each subregion (US$84.5 bn at the global level);
- the profits available for laundering, taking the market structure and country-specific benchmark income into account upon which money-laundering is likely to take place (US$52.8 bn at the global level);
- the likely amounts laundered within the same jurisdiction and going to other jurisdictions ('total outflow').

According to the base version of the model (power for gravity model distance = 1) significant amounts of the gross cocaine profits (US$26.6 bn) would have remained within the respective jurisdictions where they were generated. The main 'beneficiaries' of such domestic investment of cocaine-related profits would be countries in North America (US$10.5 bn), followed by countries in West and Central Europe (US$7.2 bn) and countries in South America (close to US$6 bn). Expressed as a proportion of GDP, the amounts locally laundered and invested, however, do not seem to be particularly large at the regional level (0.06% of GDP in North America, 0.04% of GDP in West and Central Europe; 0.2% of GDP in South America).

The other half (US$26.2 bn) would have gone to jurisdictions abroad. The largest outflows would have taken place in countries of the Americas. Countries in North America (US$9.6 billion), South America (US$7.4 billion) and Europe (US$7.4 billion) together account for some US$25 billion in annual outflows; 95% of the global total.

The last column shows the net outflow, taking into account that outflows from countries in the region are partly or fully compensated from inflows from drug traffickers from other regions. Thus, the model results suggest that slightly more funds from cocaine traffickers would actually be entering Europe than leaving it. Europe would thus have a net inflow of some US$0.8 bn, equivalent to 3% of its gross cocaine related profits or 0.004% of GDP.

The inflow of cocaine-related 'dirty money' into North America would not be sufficient to cover the outflow (US$9.6 bn). North America would have a net outflow of US$7.8 billion, equivalent to 22% of the gross profits generated out of cocaine profits or 0.05% of GDP.

According to the model, cocaine-related funds would also be flowing from South America to other regions, notably to the Caribbean. Out of US$16 billion generated in cocaine-related gross profits in South America, some US$13 billion would be potentially available for money-laundering, of which US$7.4 would actually be leaving jurisdictions in South America. Taking inflows to various other South American countries into account,

Table 61: Model results - base version (Power for gravity model distance = 1): Estimates of cocaine-related profits, funds available for laundering and amounts leaving the country and net outflow, in million US$, in 2009

	Gross profits generated out of cocaine trafficking (retail and wholesale)	Profits available for laundering	Profits domestically laundered	Total outflows: Funds leaving the jurisdiction of the respective countries in the region	Net outflows: Funds leaving the respective region taking inflows from other regions into account
Americas*	**52,584**	**35,135**	**17,614**	**17,521**	**4,687**
- North America	34,825	20,022	10,465	9,557	7,822
- South America	16,035	12,895	5,539	7,356	4,744
- Caribbean	1,074	904	544	360	-6,019
- Central America	650	533	285	248	-1,860
Europe*	**27,489**	**15,083**	**7,648**	**7,435**	**-805**
- West and Central Europe	25,964	14,312	7,223	7,089	-188
- South-East Europe	1,018	513	311	202	-489
- East Europe	507	258	114	144	-128
Africa*	**1,615**	**993**	**608**	**385**	**-2,105**
- West and Central Africa	900	628	399	229	-842
- Southern Africa	124	192	123	69	-284
- Eastern Africa	262	146	75	71	-367
- Northern Africa	55	28	12	16	-612
Asia*	**1,516**	**836**	**453**	**383**	**-1690**
East and South-East Asia	854	487	261	226	-540
South Asia	364	195	95	100	-122
Near and Middle East / West Asia	277	142	89	53	-764
Central Asia	22	12	8	4	-264
Oceania	**1,305**	**760**	**257**	**503**	**-85**
GLOBAL	**84,509**	**52,809**	**26,582**	**26,227**	**0**

* The subregional totals do not always add up fully to the regional averages due to rounding errors and the extrapolations used.
Sources: UNODC calculations based on UNODC, FATF, UNDP and UNCTAD.

there would still be a net outflow of US$ 4.7 bn, equivalent to about 29% of the original profits made or almost 0.2% of GDP.

The main destination of the outflows from funds from North America appears to be the Caribbean. The net inflow of cocaine-related funds into the Caribbean would amount to some US$ 6 billion, equivalent to 2.3% of GDP, that is, amounts that are not negligible.

Inflows of cocaine-related profits exceeding US$1 billion are still shown by the model for countries in Central America (US$1.9 bn, equivalent to 1.6% of GDP). The net inflow or outflow for all other regions is shown to be below US$1 billion according to the model.

The subsequent table provides a more detailed breakdown of the flows. It shows, for instance, the distribution of the funds targeting the Caribbean region for laundering purposes. Funds flowing into the Caribbean (totalling US$6.4 billion or 2.4% of GDP) would be coming mainly from North America (US$3.3 billion) and South America (US$2.5 billion). Smaller amounts would also come from West and Central Europe (US$0.2 bn).

The next largest destination area for cocaine-related money flows would be Central America (US$1.9 bn). The total flows into Central America would amount to some US$2.1 bn, equivalent to 1.6% of GDP. The largest inflows here would be again from North America (close to US$1 bn) and South America (US$0.9 bn).

The model also suggests that there would be relatively strong flows – in absolute numbers – from Europe, as well as to Europe. In total US$7.3 billion of cocaine-related funds would be flowing into the financial sector of countries in Europe. However, this would be equivalent to just 0.04% of GDP. The origin of these funds would be mostly from traffickers in Europe (that is, traffickers investing their cocaine-related profits in other European countries), notably from traffickers in West and Central Europe (US$5 bn), followed by money flows from traffickers in North America to Europe (US$1.5 bn) and from South America to Europe (US$0.7 bn). Thus West and Central Europe – despite of total outflows of US$7.1 bn of cocaine-related profits - would still have a net inflow of cocaine-related funds of US$0.2 bn according to this model (Model estimates based on 'power for gravity model distance' factor = 1).

The results are dependent upon the calibration of the model, that is, the weighting of the individual parameters.

One key parameter in this regard is the importance given to distance. If the importance of distance is reduced ('power for gravity distance' < 1), the model shows that more funds will be laundered abroad; if the importance of distance is increased ('power for gravity distance' > 1) then more funds will be laundered within the jurisdiction where the profits were generated.

Table 62: Total outflows depending on the importance given to 'distance'

	Profits available for laundering :	Total outflows			in % of total outflow		
		Power for gravity = 1.3	Power for gravity = 1	Power for gravity = 0.7	Power for gravity = 1.3	Power for gravity = 1	Power for gravity = 0.7
Americas*	35,135	7,376	17,521	28,473	65%	67%	67%
- North America	20,022	3,701	9,557	16,153	33%	36%	38%
- South America	12,895	3,428	7,356	11,237	30%	28%	26%
- Caribbean	904	142	360	665	1%	1%	2%
- Central America	533	105	248	418	1%	1%	1%
Europe*	15,083	3,393	7,435	11,936	30%	28%	28%
- West and Central Europe	14,312	3,248	7,089	11,344	29%	27%	27%
- South-East Europe	513	77	202	378	1%	1%	1%
- East Europe	258	68	144	214	1%	1%	1%
Africa*	993	140	385	745	1%	1%	2%
- West and Central Africa	628	80	229	459	1%	1%	1%
- Southern Africa	192	25	69	140	0%	0%	0%
- Eastern Africa	146	28	71	119	0%	0%	0%
- Northern Africa	28	7	16	27	0%	0%	0%
Asia*	836	153	383	652	1%	1%	2%
East and South-East Asia	487	92	226	383	1%	1%	1%
South Asia	195	39	100	162	0%	0%	0%
Near and Middle East / West Asia	142	20	53	98	0%	0%	0%
Central Asia	12	2	4	9	0%	0%	0%
Oceania	760	261	503	672	2%	2%	2%
GLOBAL	**52,809**	**11,323**	**26,227**	**42,477**	**100%**	**100%**	**100%**
Proportion of outflows		**21%**	**50%**	**80%**			

Increasing the 'power for gravity distance ' to 1.3 would reduce the total amounts of cocaine-related money laundered abroad to US$11.3 bn or 21% of the total profits available for laundering. Lowering the 'power for gravity' to 0.7 would increase the amounts thought to be laundered in foreign jurisdictions to US$42.5 bn or 80% of the gross profits available for laundering. The internal structure of the outflows, expressed as a proportion of total outflows, would change only slightly if the importance given to the distance parameters were increased or reduced.

If a 'power for gravity distance' figure of 0.7 were chosen (instead of '1'), the basic structure of the net outflows would still be similar, with main destinations of the money being the Caribbean and the main outflows coming from North America and South America (see Table). For the European countries, the small surplus of net inflows would, however, turn into a small net outflow.

The gravity model is helpful in determining the relative risk for countries and subregions and helps to maintain internal consistency for the results obtained. But it cannot, for the time being, determine with any degree of certainty whether the use of a 'power for gravity distance' figure of 1 (chosen here as the best estimate) is more or less appropriate than the use of another figure. This would need additional research.

To sum up, it should be noted that a number of new approaches have been tried here to estimate the generation of cocaine profits and an innovative approach has been tested with the creation and application of a 'gravity model' showing the likely distribution of cocaine profits across the financial system. The results shown above – on the whole - seem to be plausible and in line with other findings. Moreover, the use of such a model allows for internal consistency of the results. Nonetheless, more research would still be needed to cross-check several of the detailed results and to adjust the model accordingly. In particular, very little is known about how much money is being laundered within the same jurisdiction and how much is laundered in other jurisdictions. One precondition here would be a better understanding of the behaviour of money launderers. Detailed accounts of the court records of sentenced money launderers and detailed interviews during their prison sentence could be one way forward.

At the same time, work with the gravity model has also shown that a simple mechanistic application of the model in its current form to other crime sectors – without additional knowledge about the operations of the actors in the specific crime market(s) – is potentially problematic as it may lead to misleading results. Experts are still required to lead the process and validate the results obtained, and adjust the model accordingly. In other words, the 'gravity model' created for this exercise is an interesting new approach and a quantitative risk assessment tool, but it is still in its development phase and the results obtained should be treated with caution.

Table 63: Model estimates based on 'power for gravity model distance' factor = 1

		Africa				Americas				Asia				Europe			Oceania		
Regional outflows (in million US$)		East Africa	North Africa	Southern Africa	West and Central Africa	Caribbean	Central America	North America	South America	Central Asia and Trans-caucasia	East and South-East Asia	Near and Middle East / South-West Asia	South Asia	East Europe	South-East Europe	West & Central Europe	Oceania	Total outflow	Net out-flows
Africa	East Africa	23.5	4.1	5.2	6.0	2.4	0.5	0.6	1.2	1.2	3.3	8.0	1.6	0.6	1.4	9.8	1.5	71	-367
	North Africa	1.1	1.7	0.3	1.3	0.5	0.1	0.1	0.2	0.3	0.4	3.1	0.2	0.2	0.6	5.3	0.2	16	-612
	Southern Africa	6.1	1.7	32.5	5.2	2.5	0.5	0.6	1.5	0.8	2.6	3.6	1.1	0.4	1.0	7.1	1.5	69	-284
	West and Central Africa	9.7	9.4	7.2	105.8	12.0	2.2	2.7	6.4	2.8	6.1	11.4	2.3	2.1	4.9	40.6	3.1	229	-842
Americas	Caribbean	3.0	3.0	2.6	8.3	216.1	33.9	17.3	32.0	1.7	4.8	5.1	1.4	1.3	2.5	23.1	4.1	360	-6019
	Central America	2.5	2.2	2.2	6.0	92.4	68.9	11.2	30.0	1.2	4.0	4.0	1.2	0.9	1.7	16.3	4.0	248	-1860
	North America	152.0	155.2	120.8	353.2	3327.6	996.7	1399.5	594.2	86.5	288.2	287.4	84.6	68.0	125.3	1284.5	233.5	9557	7822
	South America	100.3	93.5	94.6	302.1	2499.3	951.5	226.7	1838.3	54.0	135.0	142.1	38.2	40.1	79.7	629.0	131.8	7356	4744
Asia	Central Asia and Tran-scaucasia	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	1.4	0.2	0.7	0.1	0.2	0.2	0.8	0.1	4	-264
	East and South-East Asia	7.0	4.6	4.3	8.2	8.3	2.4	2.9	4.0	7.8	94.6	15.2	10.5	3.1	5.0	31.5	16.8	226	-540
	Near and Middle East /South-West Asia	2.3	5.7	0.8	1.7	1.1	0.2	0.4	0.5	4.4	2.8	17.9	3.2	0.8	2.1	7.7	0.8	53	-764
	South Asia	4.6	2.9	2.4	3.8	3.4	0.7	1.1	1.4	5.1	13.9	22.6	15.1	1.3	2.2	15.6	3.5	100	-122
Europe	East Europe	2.5	3.6	1.4	4.4	3.1	0.8	1.1	1.5	10.5	4.9	8.6	1.6	23.2	9.8	65.2	1.5	144	-128
	South-East Europe	2.9	6.4	1.6	5.5	3.0	0.7	1.0	1.5	4.9	3.4	15.1	1.3	7.0	54.5	91.5	1.3	202	-489
	West & Central Europe	96.2	322.4	57.6	236.7	173.3	40.1	60.3	79.6	77.2	116.7	239.4	42.5	118.4	391.0	4985.4	52.4	7089	-188
Oceania	Oceania	24.0	11.3	19.2	23.0	34.6	9.4	9.0	20.2	8.7	85.6	32.5	17.2	4.4	8.6	63.6	132.2	503	-85
Total inflows		**438**	**628**	**353**	**1071**	**6379**	**2109**	**1735**	**2613**	**268**	**767**	**817**	**222**	**272**	**691**	**7277**	**588**	**26227**	**0**

Table 64: Model estimates based on 'power for gravity model distance' factor of 0.7

		Africa				Americas				Asia				Europe			Oceania		
Regional outflows (in million US$)		East Africa	North Africa	Southern Africa	West and Central Africa	Caribbean	Central America	North America	South America	Central Asia and Trans-caucasia	East and South-East Asia	Near and Middle East / South-West Asia	South Asia	East Europe	South-East Europe	West & Central Europe	Oceania	Total outflow	Net out-flows
Africa	East Africa	24.6	6.4	8.0	11.0	6.3	1.3	1.7	3.2	2.4	7.7	13.7	3.2	1.3	2.8	20.9	4.1	119	119
	North Africa	1.7	2.2	0.7	2.5	1.3	0.3	0.4	0.6	0.6	1.2	4.2	0.5	0.4	1.0	8.6	0.6	27	27
	Southern Africa	12.8	4.5	36.3	12.5	8.6	1.9	2.0	5.0	2.4	8.9	10.2	3.3	1.4	2.9	21.8	5.5	140	140
	West and Central Africa	23.3	20.7	16.8	141.3	33.2	6.6	7.9	18.0	7.7	20.1	28.4	6.8	5.5	12.0	98.9	11.5	459	459
Americas	Caribbean	11.7	10.5	9.8	27.9	291.2	58.5	34.7	65.2	6.3	19.5	19.0	5.7	4.6	8.7	76.1	15.9	665	665
	Central America	8.1	6.6	7.0	17.0	128.1	78.7	20.7	48.5	3.9	13.9	12.9	4.0	2.8	5.3	47.3	12.8	418	418
	North America	410.2	365.5	326.2	827.8	4457.2	1309.1	1464.3	1176.5	215.5	781.0	730.4	230.0	156.8	290.5	2790.8	621.1	16153	16153
	South America	248.5	213.9	221.1	640.7	3040.1	1171.2	417.3	2218.6	141.2	378.7	362.4	104.8	98.8	192.9	1452.4	334.3	11237	11237
Asia	Central Asia and Tran-scaucasia	0.3	0.3	0.2	0.4	0.3	0.1	0.1	0.2	1.8	0.6	1.3	0.2	0.5	0.4	2.0	0.2	9	9
	East and South-East Asia	14.8	9.9	9.9	19.2	20.4	5.7	6.7	10.3	13.4	115.1	29.1	16.5	6.1	10.3	66.2	29.8	383	383
	Near and Middle East /South-West Asia	5.0	9.6	2.3	4.8	3.7	0.9	1.2	1.8	5.7	6.8	25.2	4.6	1.7	3.9	18.3	2.7	98	98
	South Asia	8.7	5.4	5.1	8.2	8.6	1.9	2.6	3.8	6.9	23.0	27.7	15.1	2.4	4.1	30.4	8.0	162	162
Europe	East Europe	5.6	6.5	3.5	9.9	7.8	2.1	2.6	4.1	16.2	11.0	15.2	3.3	22.7	13.7	85.4	4.3	214	214
	South-East Europe	9.0	14.1	5.7	17.0	11.3	3.0	3.5	6.2	10.4	12.4	29.2	4.3	13.0	69.1	163.9	5.6	378	378
	West & Central Europe	276.0	512.7	178.5	591.1	516.7	126.3	165.9	251.4	191.1	385.8	583.4	129.7	220.7	576.7	6435.2	202.6	11344	11344
Oceania	Oceania	34.6	17.9	27.6	36.8	55.5	14.4	14.4	30.4	13.0	106.1	48.7	23.4	6.9	13.8	103.7	124.8	672	672
Total inflows		**1095**	**1207**	**859**	**2368**	**8590**	**2782**	**2146**	**3844**	**639**	**1892**	**1941**	**555**	**546**	**1208**	**11422**	**1384**	**42477**	**42477**

Socio-economic impact of financial flows emerging from drug trafficking and other transnational organized crimes

The estimated US$2.1 trillion of crime proceeds believed to be generated every year by crime, of which US$1.6 trillion are believed to be available for laundering, including crime proceeds of US$0.9 trillion from transnational organized crime of which some US$0.6 trillion are thought to be available for laundering, create a large number of negative socio-economic consequences, depending on the specific predicate crimes.

The main threat emerging from financial flows related to transnational organized crime activities is linked to the ability of such flows to foster the economic viability of the underlying criminal activities, thus contributing to their spread and expansion. This can be compared to the need for oxygen for human beings and most animals: without oxygen, most life on earth would not exist. Similarly, without financial flows emerging from drug trafficking and other transnational organized crime activities, most transnational crime would not take place.[1] In addition, financial flows linked to transnational organized crime have negative socio-economic implications in their own right. Subsequent money-laundering activities may pose potential threats for the financial stability of some of the countries concerned.

The analysis of the socio-economic implications will start with an analysis of the implications of criminal financial flows for the spread of various forms of organized crime, and how such crimes affect society. The socio-economic implications of criminal financial flows invested in the legal economy will be discussed in a subsequent sub-chapter. This will be followed by an analysis of the socio-economic consequences of money-laundering, notably that taking place in foreign jurisdictions.

a) Implications of illicit financial flows contributing to the spread of transnational organized crime

The threats for society emanating from illicit financial flows lie primarily in the underlying criminal activities that such flows promote. These underlying crimes – which would not have been committed without the incentive of forthcoming financial benefits – pose serious socio-economic threats to societies across the globe.

1 Reference Group Meeting, January 2011.

The actual dangers of these flows for society depend much on the nature of the underlying criminal activities. The socio-economic impact of the actual amounts generated by transnational organized crime is less significant than the underlying criminal activities.

i. Financial flows resulting from trafficking in drugs

An analysis of criminal cases in the Netherlands (1999) suggested that criminals used, on average, 7% of their total criminal income for consumption and lifestyle, 57% for 'conventional investment' (property, bank accounts, fixed interest assets and securities), 23% for 'irregular business' activities (legal or illegal) and 9% for hoarding money, mainly for subsequent reinvestment into illegal activities. In this context, the tendency of drug dealers to hoard money for subsequent reinvestment into the drug business (77% of all drug-related cases showed indications of some hoarding) was more pronounced than the general tendency of criminals to hoard money for reinvestment into criminal activities (54% of all cases).[2] This suggests that the overall proportion of money used by drug traffickers for reinvestment into their 'business sector' is higher than for criminals in general. In other words, income from drug trafficking seems to promote drug trafficking stronger than income from other crimes fosters other crimes.

… resulting in health costs

Trafficking in illegal drugs – prompted by expectations of significant financial benefits - contributes, first of all, to serious health problems worldwide. Transnational organized crime links producers with consumers of illegal drugs. A significant number of people worldwide suffer from the negative health consequences of drug consumption. According to WHO data, some 200,000 people per year die from drug abuse. More than 11 million disability-adjusted life-years are lost every year due to consumption of drugs (opiates, cocaine and amphetamines), equivalent to some 19 years per 100 drug users,

2 J. R. Meloen, H. Landman, J de Miranda,.van Eekelen and S. van Soest, *Buit en Besteding, Een empirisch onderzoek naar de omvang, de kenmerken en de besteding van misdaadgeld*, Den Haag: Reed Business Information, 2003, p. 246, quoted in Brigitte Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 126.

far more than for tobacco (5 years per 100 users) or for alcohol (2 years per 100 users).[3] For the United States alone, there were some 31,400 direct drug-induced deaths in 2007, up from 19,100 in 1999. This was higher than the number of deaths due to homicides (18,400) or deaths due to firearms (31,200, including accidents with firearms) or direct alcohol-induced deaths (23,200) in 2007.[4] Russian figures suggest that some 30,000 people died from heroin abuse in 2009.[5] There were more than 7,000 drug overdose deaths in the EU in 2007[6] though this figure would rise further if all drug-related deaths were included.

… and overall high socio-economic costs related to drug abuse

The huge financial flows generated via drug trafficking to consumers also put a significant financial burden on to the drug users. The users can often only pay for their consumption by committing various forms of acquisitive crime. Data for Australia show for instance that 0.1% of the general population aged 14 years or older used heroin in the previous month.[7] Drug tests among adult detainees across the country[8] – in contrast – revealed that opiate traces in urine samples was found for 11% of the tested detainees in 2008,[9] suggesting that the proportion of heroin use among detainees is more than 100 times larger than among the general population.

Similarly, in the USA, about 1% of the male population (aged 12 years and above) consumed cocaine in the previous month[10] while, at the same time, almost 29% of males arrested (mostly related to various forms of acquisitive crime) in 2008 were found to have consumed cocaine (based on urine tests conducted among arrestees in 10 US cities).[11] A previous study – based on data for 2002 – suggested that 30% of the burglary cases in the USA, 29.6% of the larceny cases, 27.2% of the robbery cases and 6.8% of the motor vehicle thefts were attributable to drug abuse, as well as 15.8% of the homicides, 5.1% of the assaults and 2.4% of the rapes in the country.[12]

A study on the overall economic costs related to drug abuse in the United States arrived at a figure of more than US$180 billion (or US$650 per capita) for the year 2002, equivalent to 1.7% of the US gross domestic product (GDP) in that year.[13] The economic costs related to drug abuse in the USA alone were thus higher than the GDP of 172 countries and territories in 2002 (out of 198 countries and territories for which the World Bank provided data), and similar in magnitude to the total GDP of countries such as Saudi Arabia, Norway or Denmark.[14]

Expressed as a percentage of GDP, the economic losses due to drug abuse were calculated to have been even higher in the United Kingdom (1.8% of GDP in 2000), though in absolute numbers they were lower (£12 billion or US$18 bn, about US$450 per capita).[15] These figures were significantly higher than a decade earlier. An investigation commissioned by the European Community identified the costs of drug abuse to be some $3.2 billion for the UK in 1988,[16] equivalent to 0.4% of GDP or about $60 per capita. A study for the year 2003/2004, however, demonstrated far higher costs related to drug abuse in the new millennium. 'Class A drugs' (cocaine, heroin, ecstasy, LSD et cetera) were found to cost £15.4 bn (US$26 bn) for England and Wales for the fiscal year 2003/2004,[17] equivalent to 1.8% of GDP. A subsequent study on the social and economic costs of drug abuse in Scotland showed a figure of £3.5 bn for the year 2006, equivalent to some 3.8% of GDP.[18] Almost 96% of these costs were caused

3 World Health Organisation, *World Health Report 2002*, Geneva 2003.

4 ONDCP, *Fact Sheet – Consequences of Illicit Drug Use in America*, December 2010.

5 Victor Ivanov (Federal Drug Control Agency) quoted in *BBC News*, "Russia blames Nato for heroin surge from Afghanistan" , 27 February 2010.

6 EMCDDA, *Statistical Bulletin 2010*, Lisbon 2010.

7 Australian Institute of Health and Welfare, *2007 National Drug Strategy Household Survey – Detailed Findings,* December 2008.

8 Locations for the tested detainees were: Adelaide, Alice Springs, Bankstown, Brisbane, Darwin, East Perth, Footscray, Parramatta and Southport.

9 Australian Institute of Criminology, *Drug use monitoring in Australia: 2008 annual report on drug use among police detainees*, Canberra 2010.

10 SAMHSA, 2008 National *Survey on Drug Use & Health, Volume 1. Summary of National Findings*, Office of Applied Studies, NSDUH Series H-38A, HHS Publication No. SMA 10-4856 Findings. Rockville, MD, USA.

11 ONDCP, Arrestee Drug Abuse Monitoring Program – ADAM II, *2008 Annual Report*, April 2009.

12 Study quoted in Office of National Drug Control Policy (ONDCP), *The Economic Costs of Drug Abuse in the United States, 1992-2002*, Washington D.C., December 2004.

13 Office of National Drug Control Policy (ONDCP), *The Economic Costs of Drug Abuse in the United States, 1992-2002*, Washington D.C., December 2004, p. 64.

14 World Bank, *Global Development Indicators*, Washington, February 2011.

15 C. Godfrey, G. Eaton, C. McDougall, and A. Culyer, *The Economic and social costs of class A drug use in England and Wales, 2000*. Home Office, London 2002, quoted in National Drug Control Policy (ONDCP), *The Economic Costs of Drug Abuse in the United States, 1992-2002*, Washington D.C., December 2004.

16 Commission of the European Communities, *The Social and Economic Costs of Drug Abuse in the United Kingdom and the Netherlands,* London, 1990, p. 2.

17 Loma Gordon, Louise Tinsley, Christine Godfrey, Steve Parrott, "The economic and social costs of Class A drug use in England and Wales, 2003/04", in Home Office, "Measuring different aspects of problem drug use: methodological development", 2nd edition, *Home Office Online Report* 16/06, London 2006, pp. 41-45.

18 Jane Case, Gordon Hay, Christine Godfrey, Steve Parrott, Assessing the Scale and Impact of Illicit Drug Markets in Scotland, Glasgow,

Table 65: Economic costs of drug abuse, expressed as a percentage of GDP in selected countries

Country	Year	as a percentage of GDP
Scotland	2006	1.9%* (3.8%)**
England and Wales	2003/2004	1.8%
United States	2002	1.7%
Australia	1998	1.0%
Canada	2002	0.7%
Costa Rica	2003	0.5%
Germany	1992	0.4%
El Salvador	2004	0.3%
Spain	1997	0.2%
Chile	2003	0.2%
France	2000	0.2%
Mexico	2003	0.1%
Unweighted average		**0.7%**
Overall average (weighted by GDP)		**1.2%**

* Productivity losses ('costs to the economy'), criminal justice costs, health and social care costs;
** including 'wider costs to society' such as the emotional and physical pain endured by the families of drug users that lost their lives and the 'victim costs' for the crimes committed by drug users (assaults, thefts, frauds etc).

Sources: J. Case, G. Hay, C. Godfrey and S. Parrott, *Assessing the Scale and Impact of Illicit Drug Markets in Scotland*, Glasgow, October 2009; L. Gordon, L. Tinsley, C. Godfrey and S. Parrott, "The economic and social costs of Class A drug use in England and Wales, 2003/04", in Home Office, *Measuring different aspects of problem drug use: methodological development*, 2nd edition, Home Office Online Report 16/06, London 2006, pp. 41-45; Office of National Drug Control Policy (ONDCP), *The Economic Costs of Drug Abuse in the United States, 1992-2002*, Washington D.C., December 2004; D. Collins and H. Lapsley, Counting the Cost: Estimates of the Social Costs of Drug Abuse in Australia, 1998-9, Report for the Commonwealth Department of Health and Ageing, Canberra, 2002; K-H. Hartwig and I. Pies, *Rationale Drogenpolitik in der Demokratie*, J.C.B. Mohr Verlag, Tübingen, 1995; CCSA-CCLAT (J. Rehm, D. Baliunas, S. Brochu, B. Fischer, W. Gnam, J. Patra, S. Popova, A. Sarnocinska-Hart and B. Taylor in collaboration with E. Adlaf, M. Recel and E. Single), *The costs of Substance Abuse in Canada 2002*, March 2006; A. Garcia-Altes, J. Ma Olle, F. Antonanzas and J. Colom, "The social cost of illegal drug consumption in Spain," *Addiction*, No. 97, pp. 1145-1153, Society for the Study of Addiction to Alcohol and Other Drugs, 2002; P. Kopp, P. Fonoglio and V. Parel, "Le coût social de l'alcool, du tabac et des drogues illicites en 2000", *adsp* ('Acualité et dossier en santé publique'), No. 55, June 2006; Inter-American Drug Abuse Control Commission, Program to Estimate the Social and Economic Costs of Drugs in the Americas, "A summary of Results from the Pilot Study in Six countries in Latin America and the Caribbean", Washington 2007.

by problem drug users. These data, however, also included estimates for the 'emotional pain' experienced by the families of drug users who died as a result of their drug use[19] as well as estimates for various costs to victims of crime emerging from assaults, stealing, fraud and forgeries related to drug abuse. Excluding such 'wider costs to society,' the drug abuse-related costs still amount to more than £1.7 bn or 1.9% of GDP.

Calculations for other countries showed lower figures. For Australia,[20] for instance, the costs amounted to around 1% of GDP in 2002,[21] up from a figure equivalent to 0.4% of GDP in 1992,[22] for Germany, they amounted to some 0.4% of GDP[23] and for Canada, the costs were 0.2% of GDP in 1992,[24] rising to 0.7% in 2002.[25] Calculations for France resulted in a figure of €2.8 bn for the year 2000, equivalent to 0.18% of GDP, up from a figure of French francs 13.3 bn (€2.0 bn) or 0.16% of GDP in 1997.[26] Estimates for Spain for 1997

October 2009. Accessable at http://www.scotland.gov.uk/Publications/2009/10/06103906/0.

19 EMCDDA, Annual Report 2010: *The state of the drugs problem in Europe* (Chapter on 'Social Costs of Drug Use'), Lisbon 2010, pp. 28-29.

20 D. Collins and H. Lapsley, H., *Counting the Cost: Estimates of the Social Costs of Drug Abuse in Australia, 1998-9*. Report for the Commonwealth Department of Health and Ageing, Canberra 2002.

21 E. Robson Single, L., X. Xie, J Rehm, "The Economic Costs of Alcohol, Tobacco, and Illicit Drugs in Canada," 1992, *Addiction* 93: 983-998.

22 David. J. Collins and Helen M. Lapsley, "The social costs of drug abuse in Australia in 1998 and 1992", *National Drug Strategy*, Report prepared for the Commonwealth Department of Human Services and Health, Feb. 1996.

23 Karl-Hans Hartwig, Inge Pies, *Rationale Drogenpolitik in der Demokratie*, (J.C.B. Mohr Verlag), Tübingen, 1995.

24 E. Robson Single, L., X. Xie,, J Rehm,. The Economic Costs of Alcohol, Tobacco, and Illicit Drugs in Canada, 1992, Addiction 93: 983-998.

25 CCSA-CCLAT (J. Rehm, D. Baliunas, S. Brochu, B. Fischer, W. Gnam, J. Patra, S. Popova, A. Sarnocinska-Hart, B. Taylor In collaboration with E. Adlaf, M. Recel, E. Single), *The costs of Substance Abuse in Canada 2002*, March 2006

26 Observatoire francais des drogues et des toxicomanies (Pierre Kopp and Philippe Fenoglio), » Le coût social des drogues licites (alcool et tabac) et illicites en France », OFDT, Étude No. 22, Paris 2000.

suggested that drug abuse cost the Spanish economy "at least 0.2% of GDP".[27] A number of economic costs estimates of drug abuse were also undertaken for countries in Latin America by CICAD. These estimates showed cost estimates ranging from 0.1% of GDP in Mexico in 2003 to figures equivalent to 0.22% of GDP in Chile (2003), 0.27% of GDP in El Salvador (2004) and 0.5% of GDP in Costa Rica (2003).[28]

Though direct comparability – for data and methodological reasons – of the various estimates may be limited,[29] they still provide some ideas of the likely orders of magnitude of such costs, ranging from 0.1% to 1.9% of GDP. The unweighted average of these estimates amounts to some 0.7% of GDP. If this proportion were applied to global GDP, the economic costs related to drug abuse would have amounted to some US$400 bn at the global level in 2009. This seems to be a relatively conservative estimate. If the national proportions of the twelve countries for which data is available were applied to the respective national GDP in 2009, the resulting total economic costs related to drug abuse would reach almost US$320 bn, equivalent to 1.2% of the GDP in these twelve countries. Global economic costs is expected to be substantially higher than the total in the twelve countries. Applying a proportion of 1.2% to the global GDP (based on World Bank data from 176 countries)[30] yields a figure close to US$700 billion. This is likely to be an upper-end estimate. Most of the countries for which no data is available are developing countries and most of them are likely to have low economic costs of drug abuse,[31] though there are also a number of exceptions (notably transit countries and countries close to drug producers). Against this background, it seems likely that global economic costs related to drug abuse lie somewhere between US$400 billion and 700 billion per year. The actual figures are probably closer to the lower end of this range. Assuming that the missing industrialized countries had economic costs related to drug abuse of around 0.9% of GDP (unweighted average of the seven industrialized countries for which data is available[32]) and that the missing developing countries had costs of around 0.3% of GDP (unweighted average of the four developing countries), the global economic costs of drug abuse could amount to some US$460 billion, which is at the lower end of the above-mentioned range (US$400 bn to US$700 bn). This is equivalent to some 0.8% of global GDP in 2009 (range: 0.7% to 1.2%).

The calculations of the 'economic costs of drug abuse' have been based – in most cases – on a 'cost of illness' (COI) approach[33] and do not include a number of crime-related costs linked to drug abuse. Drug related robberies, burglaries or larceny (stealing of goods) to purchase drugs are – according to this concept – simple transfers in ownership that do not affect overall GDP (except for damages caused in the process). Therefore, they have not been considered in these calculations (except for the calculations done for the UK).

Though this is correct from a purely methodological point of view, the application of the COI approach falls short of what the general public would associate with 'drug-related costs'. Assuming for the USA, for instance, that around a fifth[34] of the total illicit drug purchases (total: US$64 bn)[35] were financed out of criminal activities and that stolen goods often can only be sold by drug addicts at prices far below the prevailing market prices, the overall costs related to drug abuse would rise from more than US$180 bn in 2002 to more than US$200 billion. Total costs related to drug abuse – which is linked to the financial flows emerging from transnational organized crime - may thus have amounted to some 2% of GDP in the USA in 2002. This would still be a conservative estimate. Calculations for Scotland suggest that taking 'wider costs to society' into account (i.e. all crime-related costs and emotional costs linked to the pain suffered by family members due to the death of drug using children, partners or parents), the socio-economic estimates may double.

Even using the lower published figure of US$181 bn for the USA - which excludes the acquisitive crime-related

27 Anna Garcia-Altes, Josep Ma Olle, Fernando Antonanzas and Joan Colom, "The social cost of illegal drug consumption in Spain", *Addiction, No. 97, pp. 1145-1153, Society for the Study of Addiction to Alcohol and Other Drugs, 2002.* http://onlinelibrary.wiley.com/doi/10.1046/j.1360-0443.2002.00170.x/pdf

28 The Inter-American Drug Abuse Control Commission's Program to Estimate the Social and Economic Costs of Drugs in the Americas (Cost Program), *A Summary of Results from the Pilot Study in Six Countries in Latin America and the Caribbean*, Washington 2007 (http://www.issdp.org/conferences/oslo2007/Marya_L.pdf).

29 A recent evaluation on studies estimating the economic cost of drug abuse by RAND concluded: "It is not possible to simply draw on the independent efforts being undertaken within particular nations, as such efforts – while significant and highly valuable to the nations conducting them – will not reflect the need for conformity in measurement that is necessary to enable cross-country comparisons. Thus, the ability to systematically compare the cost of drug use across nations may remain out of our reach for a few more decades." RAND, Issues *in estimating the economic cost of drug abuse in consuming nations*, Report 3, prepared for the European Commission , 2009, Santa Monica, California, USA.

30 World Bank, *World Development Indicators* 2010.

31 This can be deduced from still lower prevalence rates of drug abuse as well lower opportunity costs as per capita income of persons working in developing countries is much lower than in developed countries.

32 'England and Wales' and 'Scotland' were considered to be one country (United Kingdom).

33 Canadian Centre on Substance Abuse (CCSA), *International Guidelines for Estimating the Costs of Substance Abuse,* 2001.

34 This would be equivalent to the proportion of people in state prisons reporting to have financed their drug habit out of various criminal activities.

35 ONDCP, *What America's Users Spend on Illegal Drugs*, December 2001, p. 3.

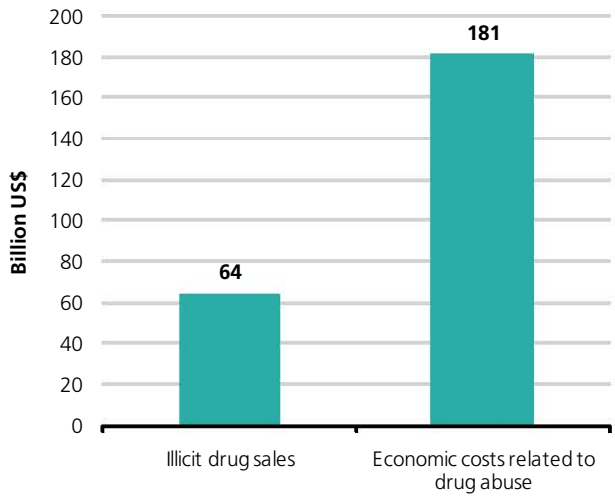
costs – and comparing this figure with the overall amounts spent by drug users for the purchase of their illicit substances (around US$64 billion, of which US$35 bn spent on cocaine and US$10 bn on heroin),[36] data indicate that the economic costs prompted by drug abuse were around 3 times as high as the drug-related sales figures, or 3 times the gross drug-related profits of organized crime (as just 1% of the drug sales actually goes to farmers in the Andean region or Afghanistan). The data also suggest that the 'benefits' generated for organized crime by the drug trade are far smaller than the drug-related 'economic costs' which have to be largely borne by the general public. The 'net results' of the drug business are thus clearly negative.

Estimates for the UK show similar patterns. Estimates suggest that the economic and social costs related to drug abuse (which include costs related to acquisitive crime) are 3½ times larger than the illicit drug retail sales, again indicating that the 'profits' generated by organized crime are far lower than the costs generated for the public at large.

Most of the economic costs in the USA related to drug abuse – based on the COI approach – were due to productivity losses (US$129 bn in 2002 or 71% of the total), mainly resulting from the inability of drug users to work productively during their times of incarceration, due either to their careers as drug dealers and criminals, drug abuse-related illnesses or premature death. Health care costs accounted for around US$16 bn or 9% of the total, mostly related to treatment demand. Most of the remaining costs were related to incarceration costs (9%), police work (5%) and other drug supply control efforts (3%). These costs would not have been incurred if criminal groups had not supplied the general public with drugs in the first place.

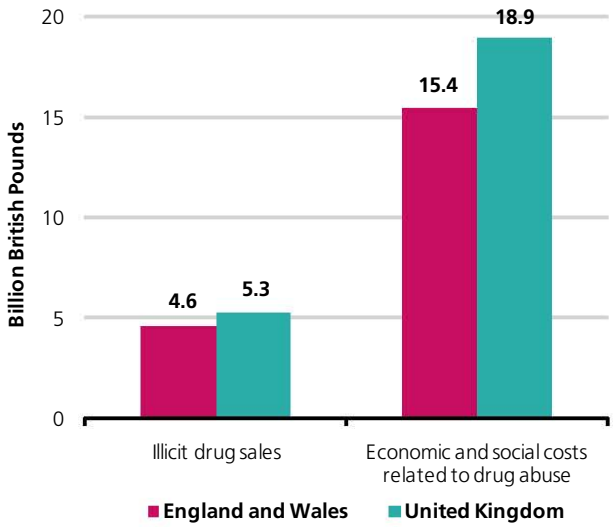
Expressed in constant 2002 dollars, the drug abuse-related costs based on the cost of illness approach rose from US$138 bn in 1992 to US$181 bn in 2002; a real rise of 31% over that period.[37] This rise is remarkable as the purely drug-related expenditures for drug users declined from US$88 bn in 1992 to US$64 bn in 2000 (in constant 2000 US dollars), equivalent to a decline of

Fig. 21: Illicit drug sales (2000) and economic costs related to drug abuse (2002) in the USA



Sources: Office of National Drug Control Policy (ONDCP), *The Economic Costs of Drug Abuse in the United States*, 1992-2002, Washington D.C., December 2004 and ONDCP, *What America's Users Spend on Illegal Drugs*, December 2001.

Fig. 22: Illicit drug sales (2003/2004) in the United Kingdom and economic and social costs related to drug abuse - based on estimates for England & Wales (2003/2004) and Scotland (2006) in billion £



Sources: S. Pudney, C. Badillo, M. Bryan, J. Burton, G. Conti and M. Iacovou, *Estimating the size of the UK illicit drug market*, Institute for Social and Economic Research, University of Essex; L. Gordon, L. Tinsley, C. Godfrey and S. Parrot," The economic and social costs of Class A drug use in England and Wales, 2003/04" in Home Office, *Measuring different aspects of problem drug use: methodological developments*, Home Office Online Report 16/06, London 2006; J. Case, G. Hay, C. Godfrey and S. Parrott, *Assessing the Scale and Impact of Illicit Drug Markets in Scotland*, Glasgow, October 2009.

36 ONDCP, *What America's Users Spend on Illegal Drugs*, December 2001, p. 3.

37 Office of National Drug Control Policy (ONDCP), *The Economic Costs of Drug Abuse in the United States, 1992-2002*, Washington D.C., December 2004, p. 64.

Table 66: Total costs related to drug abuse in the USA in billion US$ (2002)

	in billion US$ (2002)		in % of all drug related costs		in % of GDP
PRODUCTIVITY LOSSES					
Premature death	24.6		13.6%		
Drug abuse-related illness	33.5		18.5%		
Institutionalization/hospitalization	2.0		1.1%		
Productivity loss of victims of crime	1.8		1.0%		
Incarceration	39.1		21.6%		
Crime careers	27.6		15.3%		
Subtotal		**128.6**		**71%**	**1.2%**
HEALTH COSTS					
Treatment, ambulatory care and special disease cost	8.6		4.8%		
HIV/AIDS	3.8		2.1%		
Prevention	1.4		0.7%		
Research	1.0		0.5%		
Other (insurance administration, training, crime victim health care cost)	1.2		0.6%		
Subtotal		**15.8**		**9%**	**0.2%**
OTHER COSTS					
State and local police protection	9.8		5.4%		
State and local legal adjudication	2.3		1.3%		
Federal, state and local corrections	16.9		9.4%		
Federal spending to reduce supply	6.2		3.4%		
Private legal defence	0.6		0.4%		
Property damage for victims	0.2		0.1%		
Social welfare	0.2		0.1%		
Subtotal		**36.4**		**20%**	**0.3%**
TOTAL DRUG-RELATED COSTS		**180.9**	**100.0%**	**100.0%**	**1.7%**

Source: Office of National Drug Control Policy (ONDCP), *The Economic Costs of Drug Abuse in the United States*, 1992-2002, Washington D.C., December 2004.

27%,[38] with no significant changes reported over the subsequent two years. In other words, a decline in the overall drug sales figures - and thus in the drug related financial flows for organized crime - went hand in hand with rapidly growing drug abuse-related costs in the USA. This shows that drug abuse, once established, tends to develop dynamics of its own.

Economic and social cost calculations of drug abuse (class A drugs) for England and Wales (total: £15.4 bn or US$26.1 bn in the financial year 2003/2004) – based on a different approach – also reveal a different breakdown. According to these calculations, 90% of the drug-related cost are crime-related, 6% are related to drug death and only 3% are health-related. Drug consumption-related activities prompting acquisitive crime, notably fraud, burglary, robbery and shop-lifting, account for the bulk of the drug-related economic cost (86.5% of the total). 'Problematic drug users' ('drug addicts') were responsible for 99% of the total drug use-related cost though they only account for a small proportion of the total number of drug users.

… and problems of drug trafficking-related violence

An even bigger problem than the large cost of acquisitive crime – notably for many drug producing and -transit countries – has been the emergence of organized crime groups that use lethal violence as a tool to defend or increase their market shares. In fact drug trafficking goes hand in hand with illegal gun-carrying in many countries. The increased presence of guns also enhances a culture of violence among gangs – or against the authorities, which has an impact on members of the local community who have to live with the enhanced threat of violence.[39] This happened – inter alia – in Colombia in the 1980s and the early 1990s when the main drug

38 ONDCP, *What America's Users Spend on Illegal Drugs*, December 2001, p. 3.

39 RDO, Mexican Homicides Database, 2011.

Table 67: Economic and social costs of Class A drug use in England and Wales (2003/2004)

	Million British pounds	million US$	in % of total economic cost		in % of GDP
DRUG-RELATED CRIME					
Fraud	4,866	8,239	31.6%		
Burglary	4,070	6,892	26.4%		
Robbery	2,467	4,177	16.0%		
Shoplifting	1,917	3,246	12.4%		
Drug arrests	535	906	3.5%		
Subtotal	**13,855**	**23,460**		**90.0%**	**1.6%**
DRUG-RELATED DEATHS	923	1,563		6.0%	0.1%
DRUG-RELATED HEALTH COSTS					
Inpatient care	198	335	1.3%		
Inpatient mental health	88	149	0.6%		
Accident and emergency (A&E)	81	137	0.5%		
Community mental health	61	103	0.4%		
Primary care GP visits	32	54	0.2%		
Neonatal effects	3	5	0.0%		
Infectious diseases	25	42	0.2%		
Subtotal	**488**	**826**		**3.2%**	**0.1%**
DRUG-RELATED SOCIAL CARE	69	117		0.4%	0.0%
Other	65	110		0.4%	0.0%
TOTAL	**15,400**	**26,076**		**100.0%**	**1.8%**

Sources: L. Gordon, L. Tinsley, C. Godfrey and S. Parrot, "The economic and social costs of Class A drug use in England and Wales, 2003/04" in Home Office, *Measuring different aspects of problem drug use: methodological developments*, Home Office Online Report 16/06, London 2006.

cartel of that country tried to infiltrate the political system and attempted to impose its will on to the rest of society. As a consequence, the number of homicides reported in Colombia rose from some 22 per 100,000 inhabitants in 1970 and 33 per 100,000 in 1980 to 86 per 100,000 in 1992 (close to 30,000 people) before gradually falling to 36 persons per 100,000 inhabitants by 2008 as the Government re-established its authority against organized crime.[40] Similarly, the Mexican drug cartels responded with ever more violence to attempts by the federal authorities to counter their activities. Thus, the number of homicides in Mexico rose from some 2,800 cases in 2007 to more than 15,200 cases in 2010, or more than 30,000 homicides since the beginning of the Government's decision in late 2006 to actively confront the operations of the drug cartels.[41] Drug-related violence is also a serious challenge in Brazil. Almost 30,000 homicides were reported annually in the new millennium, with a high proportion linked to illicit drug trafficking.[42] Even larger numbers of people have been losing their lives in the hostilities in Afghanistan which are – to some extent – financed by the Taliban from the opium and heroin trade from Afghanistan to neighbouring countries.

… and corruption

Available data show that there is a correlation between drug trafficking and corruption, or, more generally speaking, weak 'rule of law'. The most successful criminal organizations are usually those that are able to make use of corruption (supported by violence and systematic intimidation) to weaken official controls and law enforcement. That is why cities, countries or other geographical areas exposed to intense drug trafficking activities often have a high incidence of corruption (and violence). In some instances, criminal organizations also manage to buy the protection of public officials so that they can undermine the activities of competing criminal organizations and establish a near-monopoly over illicit drug markets.[43]

40 UNODC, The Globalization of Crime, *A Transnational Organized Crime Threat Assessment*, June 2010.

41 RDO, Mexican Homicides Database, 2011.

42 International Narcotics Control Board (INCB), *Report of the International Narcotics Control Board for 2003*, Chapter I: Drugs, Crime and Violence: the Microlevel Impact, pp. 1–11.

43 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2010, United Nations pub-

Thus, the main drug producing countries are also confronted with high levels of corruption, notably the two main opium producing countries, Afghanistan and Myanmar, ranking 176 out of 178 countries assessed in 2010 according to Transparency International.[44]

In general, the countries surrounding the drug producing countries also suffer from relatively high levels of corruption, and the same applies to several drug transit countries.

Thus, the very mechanisms to reduce the illicit drug trade can be hindered or neutralized by corruption. In some countries, drug-related corruption has even been detected among high-level officials, including heads of drug law enforcement agencies.

Corruption also helped the internationally operating drug cartels to grow and operate effectively out of Mexico, increasingly challenging the state's authority. Against this background, the Government of Mexico launched 'Operation Clean-up' in 2008, aimed at purging the top ranks of the police of drug cartel influence. This resulted in the arrests and convictions of both the interim commissioner of the federal police and the acting head of the division of drug control operations.[45]

ii. Financial flows emanating from smuggling of migrants and trafficking in persons

The financial flows generated out of smuggling of migrants or trafficking in persons are – at the global level – estimated to be substantially lower than the financial flows generated out of illicit drug trafficking. Past estimates suggested that there could be, in economic terms, a 10:1 ratio in terms of the importance of drug trafficking (more than US$320 bn)[46] versus trafficking in human beings (some US$32 bn).[47]

Moreover, the socio-economic impact is less clear when it comes to smuggling of migrants or trafficking in persons.

The maintenance of smuggling networks is clearly negative. There are ongoing reports of violence suffered by victims of smuggling or trafficking activities. There are also reports of corruption linked to such activities.

Nonetheless, the violence and corruption created by such activities are still more localized and overall less severe for the societies concerned than what is true for drug trafficking. The victims of violence are, in general, the persons trafficked or smuggled and corruption tends to be limited to lower-level police and customs officers, but in general it does not reach higher levels in the enforcement apparatus.

The countries of origin are, of course, losing human resources due to smuggling or trafficking, which can result in a 'brain drain,' thus reducing the economic prospects of the countries concerned.[48]

However, such human resources are often underemployed in the countries of origin. In fact, the main underlying problem leading to smuggling and trafficking in persons are the poor socio-economic prospects for large sections of the population in many developing countries. If the political and living conditions could be improved in the countries concerned and the mid-term prospects were to become reasonably good, the problem of smuggling and trafficking in persons would gradually fade away.

From a purely economic perspective, the smuggled migrants or the trafficked persons may – even in cases of clear exploitation (sexual exploitation or forced labour) – generate larger financial incomes in their destination countries than in their countries of origin. This will enable victims to assist their relatives in their countries of origin, thus raising private consumption and, to a lesser extent, private investment there.

The 'advantages' for the countries receiving illegal migrants are mixed. In contrast to legal immigration, where recipient countries can match vacancies with needed skills and integration can take place, illegal immigration can disturb the labour market and the overall social fabric and can lead to unfair competition.

Some companies in the recipient countries will benefit from such unfair competition while others – generally those playing by the rules – will lose. In the end, this may be to the detriment of the local population, including legal immigrants.

lication, Sales No. E.11.XI.1, ISBN: 978-92-1-148258-4, ISSN: 0257-3717 New York 2011, p 3.

44 Transparency International, *Corruption Perceptions Index*, October 2010.

45 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2010, United Nations publication, Sales No. E.11.XI.1, ISBN: 978-92-1-148258-4, ISSN: 0257-3717 New York 2011, p 4.

46 UNODC, *2005 World Drug Report*, Volume 1: Analysis, Chapter: 2: Estimating the value of illicit drug markets), Vienna 2005, pp. 123-143.

47 Patrick Belser, *Forced Labor and Human Trafficking: Estimating the Profits,* International Labour Organization/Cornell University, Working Paper 42, March 2005, p. 17.

48 Michel Beine, Fréderic Docquier, Hillel Rapoport, "Brain Drain and Human Capital Formation in Developing Countries: Winners and Losers", *The Economic Journal*, Vol. 118, Issue 525, April 2008, pp. 631-652.

While smuggled people working below minimum wages may increase the profits and/or the competitiveness of those individuals or companies

exploiting them, most industrialized countries already suffer from unemployment.

The cost of unemployment has to be borne by the general public. Unemployment insurance funds are fed by both employees and employers in many countries. Increasing unemployment means having to increase such contributions, which in turn may reduce the competitiveness of companies. This can lead to further cuts in the workforce.

Other problems are linked to the increasing difficulties faced by illegal immigrants to access the legal economy[49] which may prompt them to look for income opportunities in the various illicit sectors.

An increase of illegal immigration, notably if taking place in parallel with rising levels of unemployment and crime associated with foreigners, may contribute to or strengthen existing xenophobia and racism[50] and potentially lead to social unrest, with immigrants and asylum seekers often being the first victims.[51]

Sexual exploitation – which accounts for the bulk of the persons trafficked - constitutes primarily a problem for the persons concerned. Violence is mostly used against the victims of such exploitation, to make them submissive.

Sexual exploitation may also entail a health problem, as well as a moral problem, for society at large. Some of the victims, who often operate without protection and control by the authorities, are forced to engage in unprotected sex practices, thus raising the risks of being infected with HIV and other sexually transmitted diseases.

This may force other sex workers to follow this example in order to stay in business.

It may also help explain, partly, why – at times when the trafficking of persons into the EU increased, the overall numbers of new HIV infections in the EU-27 countries also increased, from 13,800 new infections in 2000 to 26,000 new infections in 2009 (5.8 per 100,000 people).[52] Data show that the increases were linked to sharply increasing homo- and heterosexual infections over the 2000-2009 period while new infections from injecting drug use showed a decline.[53]

Even if trafficking victims try to escape exploitation, they may still find it difficult to find a job where they earn a decent income and are treated with respect. Their previous jobs in combination with traditional moral attitudes often makes it difficult for them to return to their countries of origin.

The large potential profit for traffickers keeps this business going and expanding, and some initial victims have become themselves engaged in trafficking in persons activities later.

iii. Financial flows emanating from the smuggling of counterfeit medicines

The huge funds to be generated out of smuggling activities also fuel the counterfeit medicines business. If the frequently quoted (including by the World Health Organization, WHO)[54] estimate of a global market for counterfeit medicines of some US$75 bn for 2010[55] were correct, the size of these activities – in economic terms – would be more than twice as large as the income generated from trafficking in persons[56] and equivalent

49 C. Fijnaut and L. Paoli, *Organised crime in Europe: concepts, patterns, and control policies in the European Union and Beyond*, Springer, Dordrecht, the Netherlands, 2004, p. 613

50 In fact, there are indications that an increase in illegal immigration went hand in hand with an increase of xenophobia in Europe in recent years (A. Kohut and R. Wike, Xenophobia on the Continent, *The National Interest,* November-December 2008; (http://fra.europa.eu/fraWebsite/attachments/AR_2010-conf-edition_en.pdf), V. Pop, "Economic crisis fuelling racism in Europe, report warns" *EUObserver*, 27.5.2010. Accessable at http://euobserver.com/9/30149.

51 The European Union Agency for Fundamental Rights reported that in 9 of the 12 Member States that collected criminal justice data on racist crime experienced an upward trend in recorded racist crime over the 2007-2008 period. Overall recorded racist crime cases clearly increased in the twelve EU countries, for which data is available, over the 2000-2008 period, with increases reported in 11 out of 12 countries. Rather high proportions of Roma (10%) and Africans (9%) from both North Africa and Sub-Saharan Africa reported to have been assaulted or threatened over the past twelve months in Europe – a far higher proportion than people from the respective majority populations. (European Union Agency for Fundamental Rights, *Annual Report 2010*, Vienna 2010.)

52 European Centre for Disease Prevention and Control and World Health Organization, *Surveillance Report HIV/AIDS surveillance in Europe 2009,* ISBN 978-92-9193-228-3, Stockholm 2010.

53 European Centre for the Epidemiological Monitoring of AIDS (WHO and UNAIDS Collaborating Centre on AIDS), HIV/AIDS Surveillance in Europe, EuroHIV Surveillance in Europe, End-year report 2003, 2004, No. 70 and European Centre for Disease Prevention and Control and World Health Organization, *Surveillance Report HIV/AIDS surveillance in Europe 2009,* ISBN 978-92-9193-228-3, Stockholm 2010.

54 World Health Organisation, *Fact Sheet, Counterfeit medicines,* Fact sheet No. 275, revised November 2006. Accessable at http://web.archive.org/web/20080724031944/http://www.who.int/mediacentre/factsheets/fs275/en/

55 Up from US$35 bn in 2004. Pacific Research Institute (PRI) and Center for Medicines in the Public Interest (CMPI*), 21st Century Health Care Terrorism: The Perils of International Drug Counterfeiting*. Sept. 2005.

56 United Nations Interregional Crime and Justice Research Institute, Emerging Crimes – Trafficking in Human Beings. Accessable at http://www.unicri.it/emerging_crimes/human_trafficking/

to almost a quarter of global illicit drug sales.[57] The size of the global counterfeit medicine market would then have amounted to some 9% of the global pharmaceutical market in 2010.[58]

As the WHO highlights, counterfeit medicines are nowadays found everywhere in the world.[59] Nonetheless, some geographic concentrations can be identified. The analysis of incidents (more than 2,000 cases in 2009) of identified counterfeit medicines suggest that 43% of incidents occurred in Asia, followed by Latin America (28%).[60] The number of reported incidents more than doubled between 2004 and 2009.[61]

According to previous WHO estimates, the counterfeit medicines market ranges from around 1% of sales in the developed countries to more than 10% in developing countries. Many countries in Africa and parts of Asia and Latin America have areas where more than 30% of the medicines on sale are counterfeit. Overall, a reasonable range for developing countries – according to WHO – is between 10% and 30%. Many of the former Soviet republics have a proportion of counterfeit medicines which is above 20% of market value. Medicines purchased over the Internet from sites that conceal their physical address were found to sell counterfeits in over 50% of the cases,[62] and such Internet sales are rapidly increasing.

The socio-economic impact of these revenues appears to be, at first sight, less problematic for society at large than the illicit drug-related trafficking income. Violence related to counterfeit medicine smuggling is not significant and the same applies to corruption at high levels. The ability of such activities to contribute to a weakening of the state is also limited. The problems are mainly concentrated in the area of public health.

The socio-economic impact of counterfeit medicine smuggling is linked to losses (or foregone profits) suffered by legal pharmaceutical companies. As many of these companies tend to be large and rich, the general understanding of the risks associated with such smuggling is often limited. This does not mean, however, that such activities are risk-free. Once the amounts of counterfeit medicines found on the market exceed certain thresholds, there is a risk that heavy investment into research for new medicaments will not be profitable anymore. Then, humanity as a whole could suffer from counterfeit medicines. This is partly true already today as priority is often not given to research medicaments needed in developing countries. This is due to the lack of reasonable expectations of economic profits, and to the widespread smuggling of counterfeit medicines in these countries.

More immediate dangers are linked to the substandard quality of some of the counterfeit medicaments, as highlighted by the WHO. This has immediate negative health impacts on the persons using such medicines, affecting ever larger sections of the population in developing countries of Africa, Asia and partly also the Americas. It could be argued that many ordinary people in some of these countries could not afford to purchase legal medicines, given their low levels of purchasing power and the lack of properly working social security systems. Low levels of active ingredients may be better than no medicaments at all. However, this is not necessarily true. Diluted and mixed counterfeit medicines can be harmful and dangerous. The ingredients range from inactive, ineffective preparations to random mixtures of harmful toxic substances. Counterfeit medicines can result in treatment failure or even death. Eliminating them is a considerable public health challenge.[63]

Moreover, there are indications that poor quality medicaments, notably in the area of antibiotics, may assist in the development of antibiotics-resistant bacteria, endangering the lives of millions of people who are no longer protected from serious diseases. The WHO also warns that counterfeit medicines containing insufficient active ingredients contribute to increased resistance in the case of antimalarials, which may lead to large numbers of deaths. Half of the world's population is considered at risk from malaria, mainly in developing countries. Each year, there are almost 250 million cases, causing 860,000 deaths. Approximately 85% of these deaths are among children, and most of them occur in Africa.[64] A WHO study in seven African countries found that between 20% and 90% of anti-malarials (often counterfeit medicines) failed basic quality tests.[65] The emergence of

57 UNODC, *2005 World Drug Report*, Volume 1: Analysis, Chapter: 2: Estimating the value of illicit drug markets), Vienna 2005, pp. 123-143.

58 "IMS Health Forecasts Global Pharmaceutical Market Growth of 5-7 Percent in 2011, Reaching $880 Billion", WorldPharmaNews, 20 December 2010.

59 World Health Organisation, *Fact Sheet, Counterfeit medicines,* Fact sheet No. 275, revised January 2010. Accessable at http://www.who.int/mediacentre/factsheets/fs275/en/index.html

60 Pharmaceutical Security Institute – Counterfeit Situation – Geographic Distribution. Accessable at http://www.psi-inc.org/counterfeitSituation.cfm.

61 Pharmaceutical Security Institute – Counterfeit Situation – Incident Trends. Accessable at http://www.psi-inc.org/incidentTrends.cfm.

62 World Health Organization, *Fact Sheet, Counterfeit medicines,* Fact sheet No. 275, revised November 2006. Accessable at http://web.archive.org/web/20080724031944/http://www.who.int/mediacentre/factsheets/fs275/en/.

63 World Health Organization, *Fact Sheet, Counterfeit medicines,* Fact sheet No. 275, revised January 2010. Accessable at http://www.who.int/mediacentre/factsheets/fs275/en/index.html.

64 World Health Organization, *WHO releases new malaria guidelines for treatment and procurement of medicines.* Accessable at http://www.who.int/mediacentre/news/releases/2010/malaria_20100308/en/.

65 World Health Organization quoted in Sanofi-Aventis, *Drug Counter-*

antimicrobial resistance due to inappropriate or irrational use of antimicrobial medicines, prompted – inter alia - by counterfeit medicines, may also be problematic. About 440,000 new cases of multidrug-resistant tuberculosis (MDR-TB) emerge annually, causing at least 150,000 deaths worldwide. Extensively drug-resistant tuberculosis (XDR-TB) has been reported in 64 countries to date.[66]

b) Implications of investment of criminal financial flows in the licit sector

The most negative impact of criminal financial flows from the activities of transnational organized crime stems from their capacity to perpetuate and expand criminal ventures by financing them. However, even when such funds enter the licit economy, they remain potentially problematic. Given the overall size of these criminal funds – with estimates now around US$2 trillion (see chapter on 'previous results') – their socio-economic impact is significant, notably for some of the smaller countries in the developing world.

Some of the main socio-economic effects of such criminal financial flows, as discussed in the literature,[67] include:

- Distortions in the resource allocation from high-yielding investments to investments that run a low risk of detection;
- Distortions of prices, notably in the real estate sector;
- Distortions of consumption and impact on imports;
- Distortion of exports and potential problems with investment and economic growth;
- Unfair competition; risks of crowding out licit activities and negative impact on direct foreign investment;
- Corruption;
- Risks of real sector volatility;
- Strengthening of skewed income and wealth distributions;
- Distortion of economic statistics and thus potential errors in economic policy decision- making;
- Undermining the credibility of legal institutions.

i. Distortions in the resource allocation

One of the clearest differences between investment based on licit sources and investment based on criminal funds affects the decision-making parameters of how to invest these funds. While a 'normal investor' will direct his or her investment into a venture that will yield the highest possible return based on his or her willingness to take economic risks, the predominant consideration for an investor of criminal funds is to obtain the strongest possible guarantee that the criminal origin of the investment will not be detected. This leads to investment decisions that focus on concealment, while accepting low rates of return.[68] A sub-optimal resource allocation is the consequence. Criminal funds thus have a negative impact on economic growth by diverting resources to less productive activities.[69]

In other words, money will be directed away from sound investments towards low quality ones, which in the end will generate relatively little future-oriented economic activity. Criminal finance encourages investment in non-productive sectors.[70] Thus criminals often invest their criminal proceeds in real estate, as well as in sectors that are familiar to them such as bars, restaurants, prostitution, cars and transport companies.[71] This has also been confirmed in a study on organized crime in Europe (2004).[72] However, the statement that organized crime groups are ready to accept low rates of return has to be qualified. By investing in hotels, restaurants, night clubs and so on, the organized crime groups often create an infrastructure for other illegal activities, such as installing illegal slot machines or selling drugs. Similarly, investment in transport companies helps them to infiltrate this sector and plays a key role in the transportation of drugs by sea, air and road.[73]

feiting. Accessable at http://ec.europa.eu/internal_market/indprop/docs/conf2008/wilfried_roge_en.pdf.

66 World Health Organization, *Antimicrobial resistance, Fact sheet No. 194*, February 2011. Accessable at http://www.who.int/mediacentre/factsheets/fs194/en/index.html.

67 Detailed elaborations of such impacts, as found in the scientific literature, can be found in United Nations International Drug Control Programme (UNDCP), "Economic and Social Consequences of Drug Abuse and Illicit Trafficking", *UNDCP Technical Serices,* Vienna 2007, No. 6; International Narcotics Control Board (INCB), *Report of the International Narcotics control Board for 2002*, Sales No. E.03.XI.1, New York 2002, Chapter 1 (Illicit drugs and economic development), pp. 1-10; B. Unger, *The Scale and Impacts of Money Laundering*, pp. 109-182, in D. Masciandaro, E. Takáts and B. Unger, *Black Finance: The Economics of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007.

68 B.L. Bartlett, "The negative effects of money laundering on economic development", *Platypus Magazine* (77), 2002, pp. 18-23.

69 World Bank, *Reference Guide to Anti-Money Laundering and Combating the Financing of Terrorism*, Washington 2006, p. II-8.

70 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2002, Sales No. E.03.XI.1, New York 2002, p. 5.

71 E.R. Kleemans, M.E.I. Brienen and H.G. van de Bunt (eds) (2002), *Georganiseerde criminaliteit in Nederland, tweede rapportage op basis van de WODC – monitor*, Ministerie van Justitie, Wetenschappelijk Onderzoek – en Documentatiecentrum, quoted in Brigittte Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, pp. 109-182.

72 C. Fijnaut and L. Paoli, *Organised crime in Europe: concepts, patterns, and control policies in the European Union and Beyond* Springer, Dordrecht, the Netherlands, 2004.

73 C. Fijnaut and L. Paoli, *Organised crime in Europe: concepts, patterns, and control policies in the European Union and Beyond* Springer, Dor-

A study in the Netherlands (1999) revealed that around 80% of the criminal income was 'invested'; 57% of the total went into 'conventional investment' (real estate, banking, securities) and 23% was directly invested into various business activities, mostly 'coffee shops' (where cannabis is sold), shops, hotels and brothels. The data also confirmed that the higher the criminal income, the lower the proportion used for consumption, and the higher the proportion of the criminal funds going into investment. More than half of the criminal funds used for 'conventional investment' were invested into real estate and more than 40% into fixed interest-bearing assets,[74] thus underlining the rather conservative investment strategies of criminals in the licit sector. Similarly, the cartels in Colombia in the 1990s were reported to have concentrated their investments in real estate and in the construction sector. Once the construction boom drew to a close, the city of Medellín suffered an economic decline and high unemployment because little alternative productive investment had been made.[75] In West Africa, in recent years, significant amounts of criminal money seems to have been invested in the construction of casinos. Recent examples of arms and drug dealers in some of the western Balkan countries revealed major investments in large-scale construction, ranging from apartment houses, shopping malls and business centres to yacht ports, officially financed by foreign banks, though with criminal funds – parked in offshore centres – serving as the guarantee for repayment of the loans.[76] Reports from countries such as Canada or the United States, where significant parts of the receipts of illicit drug trafficking and from other organized crime activities are reinvested, indicate that drug money is often channeled to small, cash rich businesses which have no need to issue large numbers of official invoices.[77] In the Caribbean (and a number of other regions), reports – going back more than a decade - suggest that organized crime groups even funded or bought whole banks in order to facilitate money-laundering activities.[78]

ii. Distortions of prices

One problem, frequently highlighted in the scientific literature, is the tendency of illicit money flows to distort market prices. This seems to be particularly pronounced in the real estate sector. This sector is very attractive for investment because it tends to be non-transparent, that is, the 'objective value' is difficult to asses (which helps in the money-laundering process) and – at the same time – it is considered a rather 'safe investment'.[79] In a 1999 Dutch study on the spending patterns of criminals, data showed, for instance, that in 56% of all criminal cases, the persons or groups involved invested some of their criminal proceeds into immovable property, ranging from apartments to villas.[80]

The basic underlying problem – from an economic point of view - is that the large sums of criminal proceeds tend to be concentrated among a limited number of organized crime groups which then invest these funds in a limited number of economic sectors, notably in real estate. This can lead to massive increases in real estate prices, thus pricing people who rely on legal sources out of the market.

iii. Distortions of consumption patterns and impact on imports

Another problem of criminal funds are related to the differences in consumption patterns of persons relying on licit income versus those relying on illicit income. Criminal finance encourages conspicuous consumption (expensive cars, yachts, electronic equipment and clothing, usually imported) at the expense of long-term investment.[81]

In fact, the Dutch study on the use of criminal finance (1999) found high expenditure on luxury cars, jewellery, boats and planes: 79% of criminals used some of their

drecht, the Netherlands, 2004.

74 J. R. Meloen, H. Landman, J de Miranda,.van Eekelen and S. van Soest, "Buit en Besteding, Een empirisch onderzoek naar de omvang, de kenmerken en de besteding van misdaadgeld," Den Haag: Reed Business Information, 2003, quoted in Brigittte Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, pp. 124-126.

75 L. Tullis, "Illegal drugs in nine countries-socioeconomic and political consequences", report prepared for UNRISD and the United Nations University, published as *Unintended Consequences; Illegal Drugs and Drug Policies in Nine Countries*, Boulder, Colorado, USA, Lynne Rienner, 1995, p. 145.

76 Austrian Press Agency, *Hypo zahlte 100 Millionen Euro an Mafia-Boss*, 24 August 2010; "Carinthian capers – The Austrian bank at the centre of a growing web of scandal", *The Economist,* 9 September 2010.

77 UNDCP, "Economic and Social Consequences of Drug Abuse and Illicit Trafficking", *UNDCP Technical Serices,* No. 6, p. 28.

78 D. Farah, "Russian Crime Finds Haven in Caribbean", *The Washington Post*, October 7, 1996.

79 H. Nelen, 'Criminaliteit en onroerend goed', Presentation held at the seminar *Zicht op misdaad en onroerend goed*, 15 December 2004, Centre for Information and Research on Organised Crime, Amsterdam, Vrije Universiteit, quoted in quoted in B. Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, pp. 130-131.

80 J. R. Meloen, H. Landman, J de Miranda,.van Eekelen and S. van Soest, "Buit en Besteding, Een empirisch onderzoek naar de omvang, de kenmerken en de besteding van misdaadgeld", Den Haag: Reed Business Information, 2003, quoted in Brigittte Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 130.

81 International Narcotics Control Board (INCB), *Report of the International Narcotics Control Board for 2002*, Sales No. E.03.XI.1, New York 2002, p. 5.

criminal income to purchase luxury vehicles, 37% purchased jewellery, music instruments and art, 33% bought planes or boats and 29% had a luxurious lifestyle.[82] In developing countries, these conspicuous consumption patterns result in high levels of imports. This can also affect the foreign trade balance and thus the current account balance and may raise the country's risk in the eyes of the international rating agencies and thus the interest rates at which countries obtain loans from foreign banks. This can, in turn, impact negatively on overall economic growth. While the import ratio of goods and services in low-income countries amounted to 27 % of GDP on average at the beginning of the new millennium (34% of GDP in 2009)[83] the items usually purchased by drug trafficking groups in the main drug producing countries resulted – according to INCB estimates – in expenditures on imported goods of up to 80% of total expenditure.[84]

Organized crime groups often spend money on weapons. Such purchases not only prevent alternative spending on capital equipment, but also contribute to the spread of fear and violence, making the overall business environment more unfavourable.

iv. Distortion of exports and potential problems with investment and economic growth

In case of 'export-oriented' organized crime (such as drug trafficking with final destination in other countries), the economic impact for the societies concerned may appear positive in the short run. Additional foreign exchange may enter the local economy. Any money entering the economy tends to have, at least initially, a positive economic impact. Some of the money will be spent, thus creating new employment opportunities. Some of the money will be invested, thus creating even larger employment opportunities in the medium term, and some of the money will be saved, thus enabling financial institutes to grant credits and loans to the business sector and individuals which in return will act as a stimulus to the local economy.

As reported by the INCB, the economic multipliers from drug exports can be expected to be far lower (around 1.55) than from licit exports (2.45).[85] This is a result of a higher propensity for drug traffickers to live luxurious lifestyles, and to invest their illicit funds less productively into the economy. Nonetheless, the net result – in the short term at least - will be positive from a purely economic point of view.[86]

The mid- to long-term consequences, however, tend to be negative. One possible mechanism is the danger of a revaluation of the exchange rate linked to the inflows of illicit funds. This phenomenon – known and discussed in the literature as 'Dutch Disease'[87] – tends to reduce the competitiveness of legally produced goods and services at the local level. The legal exports (notably of manufactured goods) will be replaced by illegal exports – linked to organized crime. In other words, legitimate exports will be systematically crowded out by illicit drug exports. Overvalued exchange rates also pose problems for domestic industry producing for the local market because domestic production will be increasingly substituted by imports. Thus, overvalued exchange rates can ruin entire economic sectors, which, once they cease to exist, may be difficult to re-establish.[88]

As illegal exports do not show up in official export statistics, the officially calculated foreign trade balance will deteriorate. International rating agencies will use this information to downgrade the credit risk of the countries concerned. This implies higher interest rates on loans taken out abroad, and thus higher costs of conducting business in the countries concerned, leading to overall lower economic growth rates.

Such effects will only be noticed once certain thresholds are exceeded. Thus, smaller countries, characterized by small domestic economies, will be far more vulnerable to such effects than larger countries with much larger legal economies. Irrespective of the scenario described above, large-scale operations of organized crime in a country usually go hand in hand with large-scale corrup-

82 J. R. Meloen, H. Landman, J de Miranda,.van Eekelen and S. van Soest, "Buit en Besteding, Een empirisch onderzoek naar de omvang, de kenmerken en de besteding van misdaadgeld", Den Haag: Reed Business Information, 2003, quoted in B. Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, pp. 124-126.

83 World Bank, *World Development Indicators 2010*, Washington 2010.

84 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2002, Sales No. E.03.XI.1, New York 2002, p. 5.

85 The multiplier, assuming a savings ratio of 20 per cent and an import ratio of 26 per cent, was calculated as follows: 1 ÷ (1-(0.8 x 0.74)) = 2.45.

86 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2002, Sales No. E.03.XI.1,New York 2002, p. 3.

87 The 'Dutch disease' is a concept in economics that explains the relationship between an increase in the exploitation of natural resources and a decline in the manufacturing sector. An increase in revenues from natural resources (including production of illicit drugs) will make a given nation's currency stronger compared to that of other nations, resulting in the nation's other exports becoming more expensive for other countries to buy, making the manufacturing sector less competitive. The term was apparently first coined by *The Economist* in an article in 1977, describing the decline of the manufacturing sector in the Netherlands following the discovery of a large natural gas field in 1959.

88 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2002, Sales No. E.03.XI.1,New York 2002, p. 6.

tion as well as violence and intimidation. These phenomena deter investment activities by the legal sector, including direct foreign investment, and thus deter economic growth.

Has there been any empirical evidence of financial inflows from transnational organized crime having had a negative consequence for economic growth? Such 'evidence' is difficult to establish in a scientific way, but there are certainly some interesting correlations.

It can be noticed, for instance, that in the Andean region, the increase of coca bush cultivation in the Plurinational State of Bolivia and Peru in the 1980s and in Colombia in the 1990s did not lead to an overall increase in economic growth. Though coca bush cultivation increased drastically in Colombia in the second half of the 1990s, economic growth lost momentum and even turned negative.[89] Despite falling coca leaf production in the Plurinational State of Bolivia and Peru in the late 1990s, economic growth accelerated in these countries throughout most of the decade, exceeding the average for Latin American countries. Notably in the period 1998-1999, when coca leaf production headed towards a low, economic growth in both the Plurinational State of Bolivia and Peru remained above the Latin American average. In parallel, economic growth declined in Colombia, in spite of increased coca bush cultivation. Over the 2000-2009 period, in contrast, Colombia showed a massive decline in the area under coca leaf cultivation (-58%).[90] Over the same period, economic growth amounted to 3.9% per year, up from 0.4% over the 1995-99 period, when the area under coca leaf production in Colombia more than tripled.[91]

Trends in South-West Asia showed similar patterns. Though reliable data on Afghanistan's economic development in the 1980s and the 1990s do not exist, economic growth was undoubtedly negative between 1980 and 2000, despite the fact that Afghanistan engaged in large-scale illicit opium poppy cultivation as of the beginning of the 1980s. Overall living standards clearly fell in the 1980s and the 1990s. The massive increase in opium production, which turned Afghanistan into the world's largest producer of illicit opiates in the early 1990s, helped fuel civil wars, but clearly failed to contribute to the country's overall social and economic development. Similarly, the strong declines in Afghan opium production between 2007 and 2010 (-56%) did not go hand in hand with any significant decline in overall economic activity in that country. Instead, according to preliminary estimates, it ran in parallel to a significant increase in the country's GDP (35% over the 2007-2010 period).[92] Similarly, the Islamic Republic of Iran and Pakistan, which reduced or completely eliminated opium poppy production in the late 1980s, recorded positive economic growth rates in both the 1980s and the 1990s. In the Islamic Republic of Iran, the economic growth rates rebounded in the 1990s, without any recourse to illicit opium production. Pakistan, which reported the strongest declines in opium production in the early 1980s, actually had the strongest economic growth rate (6.3 % annually) in South-West Asia, exceeding growth at the global level (3.4 %).[93]

A similar pattern of economic development was also observed in South-East Asia. In the 1980s, illicit opium production in Myanmar increased tenfold, but at the same time, the country had the lowest GDP growth rate in the region. When opium production declined by one third in the 1990s, GDP growth increased to the levels reported in neighbouring countries. If the clandestine sector, based on illicit opium production, had provided a basis for economic development, Myanmar would not have had the lowest per capita income in the region, based on purchasing power parities.[94] In contrast, Thailand was the first country in the region to drastically curtail illicit opium production (from 146 tons in the period 1965-1966 to less than 60 tons in 1982, 6 tons in 2000[95] and negligible levels in 2010). As the levels of illicit opium production in Thailand fell in the 1980s, its GDP growth rate exceeded those of neighbouring countries, and today Thailand is one of the most developed countries in the region. Similarly, data for both the Lao People's Democratic Republic and Viet Nam showed higher GDP growth rates in the 1990s than in the 1980s. The increase in the GDP growth rate in both countries took place while opium production declined there in the 1990s.[96]

Similarly, there was increased illicit production of cannabis and opium in Lebanon, notably in the Bekaa valley, in the 1980s, fuelled by the civil war, the breakdown of state institutions and efforts by the various militias to use the illicit drug trade to finance their

89 World Bank, *World Development Indicators 2001,* Washington, D.C., 2002; United Nations International Drug Control Programme, *Global Illicit Drug Trends 2002,* United Nations publication, Sales No. E.02.XI.9, Vienna 2002.

90 UNODC*, 2010 World Drug Report*, Vienna 2010, p. 162.

91 World Bank, *World Development Indicators & Global Development Finance*, 15 December 2010.

92 World Bank, *Afghanistan Economic Update*, May 2011, p.17.

93 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2002, Sales No. E.03.XI.1, New York 2002, p. 4.

94 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2002, Sales No. E.03.XI.1, New York 2002, p. 4.

95 Ronald D. Renard, *Opium Reduction in Thailand 1970- 2000: a Thirty-Year Journey,* Chiang Mai, Silkworm Books, Bangkok 2002.

96 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2002, Sales No. E.03.XI.1, New York 2002, p. 4.

activities.[97] Though there are no reliable estimates of economic growth in the country in the 1980s, it can be assumed that the destruction of production capacity resulted in negative growth. In the 1990s, the authorities succeeded in implementing a ban on illicit drug production.[98] At the time of the enforcement of the ban on illicit drug production in Lebanon, GDP grew by 7.7 per cent annually; a growth rate that was clearly above the world average (2.5 % per year) and the average for the Middle East and North Africa (3.0 % per year).[99]

There is, of course, no proof that increased illicit drug production, and thus a stronger involvement of organized crime, is necessarily linked to a decline in overall economic activity. The involvement of organized crime is only one of many different factors that determine economic development. Economic decline and poor growth are often the result of overall situations of instability, which, in turn, may lead to increased illicit crop cultivation, drug trafficking and a stronger role for organized crime because of a country's weak governmental and administrative capacity. Good governance, in contrast, tends to have a positive impact on growth.

The most obvious explanation for the apparent negative correlation between illicit drug production and economic development is that engaging in such illicit activities has been, in many parts of the world, a reaction to deteriorating economic conditions. That was the case with the expansion of illicit coca production and illicit opium poppy cultivation in the Andean region and in Asia in the 1980s. Such a defensive reaction does not address the underlying social tensions and development problems in a society. Indeed, it may perpetuate them; eventually, it may itself become the key impediment to development as the emergence of a large illicit sector with the involvement of organized crime can result in the destabilization of the state, the political system, the economy and civil society.[100]

97 US Department of State, *International Narcotics Control Strategy Report*, Washington 2000.

98 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2002, Sales No. E.03.XI.1, New York 2002, p. 4.

99 World Bank, *World Development Indicators 2001,* Washington, D.C., 2002.

100 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2002, Sales No. E.03.XI.1, New York 2002, p. 5.

v. Unfair competition

Organized crime can infiltrate or acquire control of large sectors of the economy through investment.[101] A consequence of sizable illicit funds in the legal sector is the ability of enterprises financed out of illegal income to undercut current market prices.[102]

At first sight, this may appear positive for customers and create short-term welfare gains. It creates, however, the risk (often in combination with the use of violence) that enterprises financed by criminal money will crowd out existing legal enterprises. Local merchants and businesses may find that they cannot compete with front companies organized to launder and conceal illicit funds. Such front companies may offer their goods and services at below-market rates or even at a loss because their primary objective is to launder money. Such companies do not need to compete properly in the marketplace and do not have to make any profits for their owners.[103] If criminals acquire and operate businesses and use additional criminal funds to subsidize them, this provides them with a clear competitive advantage over legitimate ventures to the point where they will drive them out of business.[104] In other words, illicitly funded enterprises create unfair competition and can bankrupt legitimate competition. In such cases, low prices do not reflect efficiency. Instead, they may force more efficient, legitimate companies out of business, leaving entire sectors in the hands of unlawful enterprises.[105]

Once certain thresholds are reached, such criminal enterprises may also act as deterrents for investment activities, including direct foreign investment. Such situations are particularly problematic as new competitors are deterred from entering the market.[106] This will negatively affect overall economic growth. The mid- and long-term consequences are thus clearly negative.

101 Financial Action Task Force, "Money Laundering FAQ". Accessable at http://www.fatf-gafi.org/document/29/0,3746,en_32250379_32235720_33659613_1_1_1_1,00.html#Wheredoesmoneylaunderingoccur.

102 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2002, Sales No. E.03.XI.1, New York 2002, p. 5.

103 World Bank, "Topic: Anti-Money Laundering", Washington D.C., 2011. Accessable at http://web.worldbank.org/WBSITE/EXTERNAL/WBI/WBIPROGRAMS/PSGLP/0,,contentMDK:20292990~menuPK:461615~pagePK:64156158~piPK:64152884~theSitePK:461606,00.html.

104 D. Masciandaro, E. Takáts and B. Unger, *Black Finance: The Economics of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 157.

105 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2002, Sales No. E.03.XI.1, New York 2002, p. 6.

106 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2002, Sales No. E.03.XI.1, New York 2002, p. 6.

vi. Corruption

A further consequence of the existence of large criminal financial flows in a country, even if legally invested, are the attempts by criminal groups to use their financial power to corrupt the authorities[107] and to gain additional advantages for their 'legal' enterprises. Once criminals have infiltrated a particular sector of the economy, they will further bribe public officials in order to gain control of even larger sectors of the economy.[108] Once established, they will drive out legitimate business competitors and introduce a parasitic, anti-competitive approach to business. Thus an additional risk is created, namely that such enterprises, sourced by criminal money, will eventually crowd out existing legal enterprises.[109]

In parallel, the criminal organizations will also use their funds to engage in corruption to protect their criminal activities. Since criminal organizations must mitigate the risk of detection and prosecution, they tend to use the proceeds of their illegal activities to corrupt law enforcement, justice and other officials, to obstruct justice and to enable them to operate without interference. [110]

Data show that corruption levels tend to be high in poor countries with high levels of organized crime (such as Somalia, Afghanistan and Myanmar) and smaller in the more developed countries, which have good governance structures and where the criminal funds – expressed as a proportion of the size of the total economy – tend to play a smaller role. This effect can also be seen in some developed countries that suffer from the presence of strong organized crime groups (such as Italy).

While there appears to be a clear negative correlation between GDP per capita and corruption, a causality relationship is more difficult to establish. Activities of transnational organized crime, including the funds generated from drug trafficking, seem to play a key role. Trafficking and corruption seem to be mutually reinforcing, that is, corruption fosters trafficking by transnational organized criminals and trafficking activities increase corruption.

vii. Risks of real sector volatility

Another negative aspect of investment derived from criminal funds is the lack of continuity. Much of the investment actually depends on the continuity of the illicit operations. Because of their illegality, the criminal flows may be suddenly disrupted and related investments may disappear due to law enforcement actions and prosecution.[111] As a consequence, several crime-dependent regions, such as those depending on illicit drug production, trafficking, piracy, unlawful exploitation of natural resources et cetera have undergone steep boom and bust cycles.

This has applied, in particular to the limited number of sectors that are often targets for criminal money, such as construction and real estate. Once the real estate boom draws to a close – for example, as the supporting criminal activities are curtailed – the bubble can burst and prompt a general economic decline.[112] This has been observed at the local level in various countries at certain periods in time. There are – at least so far – no reports that they would have affected the national economy of any country. However, the subprime mortgage crisis in the USA (2007) showed that problems in the property sector can spill over to the national economy and – through new instruments such as mortgage-backed securities – even prompt a global recession (2008/2009).

viii. Strengthening of skewed income and wealth distributions

The emergence of huge criminal money flows tends to result in more pronounced uneven income and wealth distributions.[113] This may – at first sight – appear to be counter-intuitive, as criminals are often perceived to come from the poorer sections of society. However, once criminal organizations are formed, they tend to generate large amounts of money quickly. Subsequently, more money will be concentrated in just a few hands, and existing uneven income distributions may become even more marked.

This was true, for instance, in several of the Andean countries, when drug-related income flourished. The emergence of the drug business went hand in hand with a consolidation, partly even increase, of already skewed income and wealth distributions.

107 Financial Action Task Force, "Money Laundering FAQ". Accessable at http://www.fatf-gafi.org/document/29/0,3746,en_32250379_32235720_33659613_1_1_1_1,00.html#Wheredoesmoneylaunderingoccur.

108 P. Alldridge, 'The Moral Limits of the Crime of Money Laundering', *Buffalo Criminal Law Review*, 2002, No. 5 (1), pp. 279–319.

109 D. Masciandaro, E. Takáts and B. Unger, *Black Finance: The Economics of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 96 and p. 178.

110 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2010, United Nations publication, Sales No. E.11.XI.1, New York 2011, p 3.

111 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2002, Sales No. E.03.XI.1, New York 2002, p. 6.

112 UNDCP, "Economic and Social Consequences of Drug Abuse and Illicit Trafficking", *UNDCP Technical Serices,* No. 6, p. 28.

113 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2002, Sales No. E.03.XI.1, New York 2002, p. 5.

At the same time, skewed income distributions also seem to act as an incentive for criminal activities. In other words, if large sections of society – notably young men – do not perceive to have any realistic chance to get a decent income through hard work, while observing that a few people in society live an extremely luxurious lifestyle without any hard work, they may become tempted to engage in criminal activities. Such patterns are exacerbated by high levels of unemployment, migration and related problems.

Thus, income inequalities can be seen as causes for a rapid expansion of organized crime activities, though the establishment of an illicit sector is likely to further accentuate already existing income inequalities. This is particularly problematic because income inequality is at the heart of various social problems faced by many countries, including illicit drug production and trafficking, thus forming a vicious circle. In other words, unequal income in itself is apparently an important factor affecting the readiness of people to participate in the illicit drug industry, while the existence of an illicit drug industry fosters unequal income distribution.[114]

In fact, World Bank data show that several of the main drug producing or trafficking countries are also characterized by uneven levels of income distribution.

Similarly, UNDP data reveal high levels of income inequality (with Gini coefficients of more than 50) for several drug producing or transiting countries.

For comparison, the average Gini coefficient of income distribution at the global level is 41. It is also 41 in the USA, 31 in the EU and 25 in Japan. The illicit drug sector in the USA – and thus organized crime supplying these substances – is far more prominent than in the EU, and the illicit drug sector in Japan is smaller than in the USA and appears to also be smaller than in the EU. Even within the EU, countries with relatively higher levels of income inequality such as Italy, the UK or Spain (with Gini coefficients ranging from 35-37) are also the European countries with relatively stronger illicit drug sectors and transnational organized crime groups benefiting from this, while the illicit drug sectors are more limited in countries characterized by low income inequalities (with Gini coefficients ranging from 22-25).[115]

ix. Distortion of economic statistics and thus potential errors in economic policy decision-making

Another potential problem linked to the existence of a large illicit sector in an economy is a strong likelihood that economic data and statistics will no longer accurately reflect reality. Criminal finance can distort economic data and thus macroeconomic analysis and policy-making.[116]

The potential problem of low credit ratings due to – on paper – large foreign trade and current account deficits has already been discussed. In addition, macroeconomic management can be negatively affected. Macroeconomic management is generally difficult, but with huge criminal funds circulating in the economy, it becomes even more so. Macroeconomic management is particularly challenging when there is a need for economic policy changes, such as austerity measures to curb inflation. In such situations, a large illicit sector may counteract government action, either by preventing a predicted outcome from materializing, prolonging the time frame for macroeconomic stabilization or prompting the government to take measures that are too drastic, thus creating unemployment and social unrest.

The reaction to inflationary pressure, for instance, often results in the introduction of more severe monetary policies, leading to a decline in the money supply and increased interest rates. However, such policies will only prove successful if the economy reacts in a predictable way to the changes. But when large amounts of illicit funds are available in an economy, and criminally financed entities can take over some of the lending functions, either internally (that is, within the enterprises belonging to the organized crime group) or externally (that is, granting loans to other businesses), the economy may continue to overheat, showing marked inflation, despite a restrictive monetary policy. This may prompt authorities to take even more drastic monetary and other restrictive economic measures. In the process, legitimate businesses, without access to illicit funds, may be squeezed out of the market due to high interest rates, and new legitimate investments may not take place.[117]

114 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2002, Sales No. E.03.XI.1, New York 2002, p. 6. World Bank, *World Development Indicators 2010*, Washington 2010.

115 UNDP, *Human Development Report 2010, The Real Wealth of Nations: Pathways to Human Development*, New York 2010, pp. 152-155.

116 P. J. Quirk, *Macroeconomic Implications of Money Laundering*, International Monetary Fund Working Paper 96/66, Washington D.C., June 1996.

117 International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2002, Sales No. E.03.XI.1, New York 2002, p. 6. World Bank, *World Development Indicators 2010*, Washington 2010.

x. Undermining the credibility of legal institutions

A key problem of many of the effects discussed so far is their impact on the credibility of the legal institutions in a country. If the income and wealth disparities are large and increasing, unemployment is rising due to strong sector volatilities, erroneous macroeconomic decision-making because of inaccurate underlying economic data, various distortions in the allocation of resources due to unfair competition, and when society is confronted with widespread corruption at all levels – prompted by the existence of a relatively large and expanding criminal sector – the authority of the legal institutions and the state as such will suffer as well. This will also happen, as pointed out by Tanzi, if criminal elements are able to generate sufficient capital to corrupt the political process, for instance by financing election campaigns that result in the installation of 'more friendly administrations'.[118] In other words, the funds generated by criminal organizations provide them with economic and potentially even political power and can weaken the social fabric, collective ethical standards and ultimately the democratic institutions of society.[119]

Investment into the economy, however, depends to a significant extent on the credibility of state institutions. Legal investors – both domestic and foreign - will not risk their money if they cannot trust the authorities. Without investment, economic growth will be seriously jeopardized. Moreover, many ordinary citizens will ask themselves whether it is really worthwhile and still appropriate to play by the rules. This can have a negative impact on overall tax morality in a country, which leaves the authorities with a limited number of choices: either reduce government services and thus risk the future of the country, or increase existing tax rates, thus further raising the incentives to evade taxes, and creating a potentially vicious circle.

c) Implications of laundering criminal financial flows, including in foreign jurisdictions

So far, the discussion centred on the impact of criminal flows for the underlying criminal activities, followed by an analysis of major impacts once the flows enter the licit sector. A remaining question concerns the impact of the criminal funds on the financial sector,[120] notably if such funds are laundered abroad and are not flowing back to the 'originating countries.'

The proportions of the proceeds of crime that are laundered via the financial system differ from country to country. One can assume that they will be higher in the more developed countries where cash transactions are less prominent while lower proportions may be expected in some developing countries. Nonetheless, the overall proportions seem to be substantial. Based on a study of criminal cases in the Netherlands in the late 1990s, Unger calculated that some 80% of the total crime proceeds were laundered.[121] Another study from the Netherlands arrived at proportions ranging from 71% to 75% of total crime proceeds. These calculations included income from a number of crime activities which are domestic rather than transnational in nature, such as burglaries or theft, for which the proportions going into money-laundering appear to be small.[122]

Available research suggests that the immediate impact for the recipient countries of criminal funds – at least in the short run – is positive. This applies in particular to so-called transfer countries of criminal money, that is, countries through which the money flows.[123]

If larger geographical areas are analysed as a unity, the opposite is true. Empirical research undertaken by Quirk in 18 industrialized countries found that increases in money-laundering activities were associated with reductions in overall annual economic growth rates.[124] Similarly, research undertaken by Unger in 17 OECD countries of West Europe and North America suggests that overall money-laundering dampens economic growth. Each US$1 billion increase of money-laundering in the 17 OECD countries tends to reduce overall economic growth by 0.03 to 0.06 percentage points in these countries.

However, Unger's study also showed that if money-laundering was separated from the predicate crime – for

118 V. Tanzi, " Macroeconomic Implications of Money Laundering", in E.U. Savona, *Responding to Money Laundering, International Perspectives*, Harwood Academic Publishers, Amsterdam, 1997, pp. 91-104.

119 Financial Action Task Force, "Money Laundering FAQ". Accessable at http://www.fatf-gafi.org/document/29/0,3746,en_32250379_32235720_33659613_1_1_1_1,00.html#Wheredoesmoneylaunderingoccur.

120 For a discussion on the financial instruments used for laundering proceeds of crime and possible indications for persons working in the financial sector to detect money-laundering attempts see UNODC, *Risk of Money Laundering through Financial Instruments,* Bogota 2010.

121 B. Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 124.

122 M. Smekens, M. and M Verbruggen (2004), *De Illegale Economie in Nederland*, Centraal Bureau voor de Statistiek, 20 September 2004; van der Heide, W. and A.Th.J. Eggen, *Criminaliteit en rechtshandhaving 2001*, WODC: 211 Onderzoek en Beleid. Centraal Bureau voor de Statistiek, Meppel: BOOM Juridische Uitgevers, Den Haag quoted in B. Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 66.

123 B. Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 150.

124 P.J. Quirk, "Money Laundering: Muddying the Macroeconomy", *Finance & Development,* No. 34 (1), 1997, pp. 4-9.

instance by only looking at the recipient countries and assuming that such laundering activities would not lead to other crimes in the recipient countries – the money-laundering-related coefficients turn positive, resulting in an expected economic growth of between 0.06 and 0.14 percentage points of GDP for each US$1 billion laundered.[125] In other words, money-laundering itself does not dampen economic growth; the crime that it is intermingled with does.[126]

How can this be explained? If money is wired from the country where the underlying criminal activities are taking place to a transfer country, additional value added is created in financial services, without such countries having to bear the costs of crime.[127] Such criminal funds invested abroad will assist in expanding the financial services sector in the recipient countries. They will help create income for individuals, for the companies concerned as well as for the recipient state in terms of higher tax income. There are also indications that in some countries the interest rates – partly due to the inflow of such money – may have been lower than they would otherwise have been.[128] This assists domestic trade and industry to get improved access to finance, which may help them invest and generate economic wealth.

In fact, many of the offshore centres in Europe, North America, the Caribbean, South-East Asia and even in Sub-Saharan Africa which may attract funds emerging from various criminal activities, have been doing economically well. This applies not only to countries or jurisdictions in the developed world, but also to many of the small international financial centres in developing regions.[129] This may also explain why a number of other countries, including some small island countries in Oceania, have been trying to copy this 'recipe for success.'

i. Problems to generate sustainable economic growth

Bartlett notes that over the past decade, dozens of offshore financial centres (OFCs) have been created as part of developing countries' efforts to develop their domestic economies. However, he also points out that studies on the effectiveness of establishing offshore financial centres (OFC) as an economic development strategy have failed to show that "notional" OFCs – unless based on sound rules and regulations - contribute significantly to the surrounding economy. "Notional" OFCs are defined as OFCs that provide minimal financial services and are to be distinguished from "functional" OFCs, which provide a wide-range of value-added financial services. Thus, "notional" OFCs do not form a sound basis for sustained economic growth. In fact, economic growth was shown to depend on sound domestic financial institutions.[130]

Disregarding the true origin of criminal funds cannot and should not be a 'recipe for success.' It is also a moral obligation not to accept illicit funds. While every country has the right to introduce policies aiming at improving the well-being of its citizens, this cannot be done by inflicting misery on others. There is a clear need for international rules, which must be adhered to by as many players as possible.

But even from a purely economic point of view it remains questionable whether a 'free rider' approach is an effective response in the long run. A number of arguments have been put forward which raise doubts whether a strategy based on ignoring international rules and standards in the fight against money-laundering will provide positive results for the countries concerned.

ii. Volatility in the financial sector with macro-economic implications

Financial centres depending on tainted money may find themselves exposed to high levels of *volatility*. This can affect the financial institutions concerned. Financial institutions that accept illegal funds cannot rely on those funds as a stable deposit base. Large amounts of laundered funds are likely to be suddenly wired to other financial markets as part of the laundering process, threatening the institution's liquidity and solvency. A financial institution's reputation and integrity can be irrevocably harmed if involved in money-laundering.[131] Bartlett provides a case study of a run on a bank in the Balkan region, sparked by various economic actors following reports that this bank was heavily involved in major money-laundering operations.[132]

125 B. Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 155.

126 J. Ferwerda and S.Z. Bosma, *The effect of money laundering on economic growth,* Paper for Onderzoekskeuzevak Economie von de Publieke Sector, Utrecht School of Economics, Utrecht 2006.

127 B. Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 150.

128 The argument holds more for closed economies than for open economies. (B. Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 140).

129 P. R. Land and G. M. Milesi-Ferretti, "International Monetary Fund, Cross-Border Investment in Small International Financial Centers*", IMF Working Paper*, WP/10/38, Washington D.C., February 2010 and Tax Justice Network, "IMF: trillions lost offshore", March 15, 2010; l E.J. Fagan, "IMF: Trillions of Undeclared Funds Offshore", *Task Force, Financial Integrity & Economic Development*, March 15, 2010.

130 B. L. Bartlett, *The negative Effects of Money Laundering on Economic Development,* (Report for the Asian Development Bank), May 2002, pp. 29-33.

131 World Bank, "Topic: Anti-Money Laundering", Washington D.C., 2011. Accessable at http://web.worldbank.org/WBSITE/EXTERNAL/WBI/WBIPROGRAMS/PSGLP/0,,contentMDK:20299290~menuPK:461615~pagePK:64156158~piPK:64152884~theSitePK:461606,00.html.

132 B. L. Bartlett, *The negative Effects of Money Laundering on Economic*

Money-laundering, however, can also lead – at a much higher level - to volatility in exchange rates and interest rates due to unanticipated in- and outflows of capital.[133] Such volatility of both exchange rates and interest rates tends to be negative for overall economic growth. Periods of a sharp surge in financial activity, followed by an equally sharp decline will result in severe macroeconomic instability. This tends to be further aggravated as local authorities, in general, will not be in a position to introduce offsetting monetary or exchange rate measures in a timely manner.[134]

Moreover, the initial inflow of funds can lead to either an appreciation of the exchange rate or an increase in the monetary base. An increase in the exchange rate may entail a reduction in exports and an increase in imports, and thus a deterioration of the foreign trade balance, which can jeopardize whole sectors of the economy. An increase in the monetary base, on the other hand, can lead to rising prices, which may translate into higher wages and a reduction of the international competitiveness of the licit economy.[135]

iii. Limited ability to maintain the separation between predicate crimes and money-laundering

Secondly, the question remains whether money-laundering and predicate crimes can always be properly geographically *separated*. Even if organized crime groups decide not to undertake their primary criminal activities (for example, drug trafficking) in the countries where they have their money invested, it would be unrealistic to assume that they would not engage in other criminal activities, such as corruption. In fact, a number of authors have argued that money-laundering can lead to spillover mechanisms from criminal money to crime. Because of the possibility of money-laundering in the financial sector, reinvestment of the money in illegal activities in the licit sector can be the consequence.[136] A model, first elaborated by Masciandaro, and later refined by Unger, suggests that the amounts of money laundered tends to lead to additional crime proceeds of between 6% and 10% of the original crime proceeds. Thus, a 'free-rider' attitude can backfire.[137]

In fact, there is a risk that financial institutions – and eventually even whole financial centres - will become corrupt or even controlled by criminal interest. Small developing countries are particularly vulnerable in this regard.[138]

iv. Reputation of the financial centres

Thirdly, and probably more importantly, the "reputation" of a financial sector[139] plays an increasingly important role for legal investors. A reputation for integrity is one of the most valued assets by investors. Various forms of financial system abuse may compromise the reputation of financial institutions and jurisdictions, undermine investors' trust in them, and, therefore, weaken the financial system.[140]

In general, investors do not want to see their names associated with investments in financial centres that have a questionable reputation. Once the reputation of a financial centre is in jeopardy, there is a risk that legal investors will withdraw their funds. In other words, illegal transactions can contaminate legal ones.[141] Thus, financial sectors have a self-interest in not being associated with tainted money. The growing number of financial centres that have signed relevant international instruments and adopted at least basic financial control mechanisms to avoid the inflow of criminal finance in recent years is an indication.

v. Risk of legal sanctions

Fourthly, lax anti-money-laundering enforcement measures can prompt legal sanctions by important trade and investment partners. This can more than offset the potential benefits from following a free-rider strategy. Such sanctions – for example, banning dollar transac-

Development, Report for the Asian Development Bank, May 2002, p. 11.

133 V. Tanzi, 'Money Laundering and the International Financial System', *IMF Working Paper*, International Monetary Fund, No. 96/55, Washington D.C. 1996; McDonell, R., 'Money Laundering Methodologies and International and Regional Counter-Measures', Presented at: Gambling, Technology and Society: Regulatory Challenges for the 21st Century, Rex Hotel, Sydney, 7–8 May, 1998; J. Boorman, and S. Ingves 'Financial System Abuse, Financial Crime and Money Laundering', IMF Background Paper, Washington D.C. 2001; Financial Action Task Force, *Money Laundering FAQ*, Washington D.C, 2011, Accessable at http://www.fatf-gafi.org/document/29/0,3746,en_32250379_32235720_33659613_1_1_1_1,00.html.

134 B. L. Bartlett, *The negative Effects of Money Laundering on Economic Development,* Report for the Asian Development Bank, May 2002.

135 V. Tanzi, 'Money Laundering and the International Financial System', *IMF Working Paper*, International Monetary Fund, No. 96/55, Washington D.C. 1996.

136 D. Masciandaro, "Money Laundering: The Economics of Regulation", *European Journal of Law and Economics,* No. 7, 1999, pp. 225-240.

137 B. Unger, *The Scale and Impacts of Money Laundering*, Cheltenham (UK), Edward Elgar Publishing Company, 2007, p. 169.

138 B. L. Bartlett, *The negative Effects of Money Laundering on Economic Development,* Report for the Asian Development Bank, May 2002.

139 B. L. Bartlett, *The negative Effects of Money Laundering on Economic Development,* Report for the Asian Development Bank, May 2002, p. 9.

140 International Monetary Fund, *Financial System Abuse, Financial Crime and Money Laundering*, IMF Background Paper, Washington D.C. 2001.

141 This argument was already found in the literature more than a decade ago. P.J. Quirk, "Money Laundering: Muddying the Macroeconomy," *Finance & Development,* No. 34 (1), 1997, pp. 4-9.

tions with countries concerned - can be damaging for financial centres that do not want to adhere to international rules and regulations.[142] Thus, incentives are created for financial centres to forego possible short-term benefits.

In order to guarantee the application of uniform, objective criteria, the Financial Action Task Force (FATF) engaged in an initiative on 'non-cooperative countries and territories' (NCCTs). Using 25 criteria, the FATF researched the potential weaknesses of international financial centres which enabled it to identify those where the regulations and practices significantly infringed the fight against money-laundering and international cooperation. Based on these findings, the FATF established a list of countries and territories with important flaws in their anti-money-laundering instruments or a lack of willingness to cooperate in combating money-laundering. Published first in 2000, this list was periodically updated. The FATF requested that the identified countries and territories adapt their systems to internationally recognized standards. The mere threat of appearing on this list of 'non-cooperative countries and territories' prompted many countries and territories to improve their systems, so that they could be removed from the list.[143] In 2006, the FATF adopted a new surveillance process - the International Co-operation Review Group (ICRG) – to identify, examine and engage with vulnerable jurisdictions that are failing to implement effective AML/CFT systems. This replaced the NCCT process. In 2009, the ICRG procedures were amended, and the FATF now publishes a list of countries with strategic AML/CTF deficiencies after every FATF meeting.

vi. Key role of global anti-money-laundering efforts – enabling the authorities to follow the money trail

Finally, one should not forget the key role of any anti-money-laundering legislation: enabling state authorities to follow the money trail in order to detect underlying criminal activities and to dismantle the groups involved. This remains the main reason for the implementation of anti-money-laundering measures. The operations of criminal organizations are potentially vulnerable to detection via the money trail and there are good reasons for the authorities to exploit these vulnerabilities.

Any such system, however, will only work if there are no loopholes. Thus, there is a need for comprehensive, all-inclusive participation in international money-laundering efforts at the global level. Otherwise, the system will be only as strong as its weakest link and will be exploited by organized crime.

Though it is important to be aware of the various socio-economic consequences, economic considerations alone cannot and should not be decisive factors for enacting or implementing appropriate legislation or regulation. The key objective has to remain the fight against organized crime in all its dimensions. Anti-money-laundering legislation and measures form an integral part of this endeavour.

The subsequent chapter will give an overview of existing instruments at the international level to fight organized crime and related money-laundering activities. The discussion will show that most of the necessary instruments to fight organized crime and related money-laundering activities exist already. Yet, the existing 'success' rate of identifying criminal capital flows is limited, to say the least. Based on all available estimates, less than 1% of the total amounts that are being laundered are detected. Data collected by the US State Department suggest that some US$3.1 billion were seized in connection with money-laundering activities in 38 countries out of 62 countries analysed (2010 or latest year available); more than 80% of this was seized in North America.[144] This would be equivalent to some 0.2% of the best estimate of the extent of money-laundering at the global level. In comparison, more than 20% of the globally produced illicit opiates are being seized and more than 40% of the cocaine.[145] Are money-launderers really so much smarter than drug traffickers, or is there something wrong with the existing control system? The problem appears not to be a lack of international instruments (as will be shown in the next chapter), but shortcomings in the implementation of existing instruments in a number of jurisdictions.

142 B. L. Bartlett, *The negative Effects of Money Laundering on Economic Development,* Report for the Asian Development Bank, May 2002, p. 9.

143 PolyReg, *FATF Sanctions*, February 2011. Accessable at http://www.polyreg.ch/e/sanktionslisten/fatf.html.

144 US Department of State, *International Narcotics Control Strategy Report* 2010 and 2011; Department of Justice Assets Forfeiture Fund for fiscal year 2010; Department of Treasury Assets Forfeiture Fund for fiscal year 2010.

145 UNODC, *World Drug Report 2010*, Vienna 2010.

Existing international legal instruments to tackle the problem

a) Overview

A number of legal instruments have developed over the last few decades dealing with various aspects of organized crime at the international level. Key elements in all these instruments consist of measures aiming at fostering international cooperation and harmonizing the approaches taken.

The by far longest history of legal instruments to deal with specific aspects of organized crime has been related to international drug control. Since the beginning of the 20th century, a number of conventions have been developed, signed and ratified, dealing with various aspects the drug problem. This process started with the 1909 Opium Conference in Shanghai and the *1912 Hague International Opium Convention*. It became a truly international instrument after World War I, as countries signing the peace treaties *de-facto* also ratified the drug convention. The organized crime aspect related to drug trafficking was implicitly present from the start and was particularly highlighted in the *1936 Geneva Convention for the Suppression of the Illicit Traffic in Dangerous Drugs*.

The currently valid drug conventions are the:

- *Single Convention on Narcotic Drugs, 1961 as amended by the 1972 Protocol Amending the Single Convention on Narcotics Drugs, 1961*
- *Convention on Psychotropic Substances, 1971*
- *United Nations Convention against Illicit Traffic in Narcotics Drugs and Psychotropic Substances, 1988*

Transnational organized crime covers, of course, a much broader field than drug trafficking, even though the latter – given the financial dimensions and its links to violence and corruption – continues to play a key role within the area of organized crime.

A new momentum to expand the scope of cooperation at the global level was gained by the *Millennium Declaration*[1] adopted by the Heads of State meeting at the United Nations in September 2000 which reaffirmed the need for more decisive measures to guarantee and strengthen the rule of law. The Declaration, *inter alia,* made it clear that (para 6) "*men and women have the right to live their lives and raise their children … free from … fear of violence, oppression or injustice*" and in para 9 the Heads of State and Government resolved "*to intensify our efforts to fight transnational crime in all its dimensions, including trafficking as well as smuggling in human beings and money laundering*". Taking all of this into account, a special convention was signed a few months later in December 2000 to promote international cooperation in preventing and combating transnational organized crime. This became known as the

- *United Nations Convention against Transnational Organized Crime (TOC), 2000* (also known as the Palermo Convention)
  This convention also contains two Protocols:
  - *Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children, supplementing the United Nations Convention against Transnational Organized Crime*
  - *Protocol against the Smuggling of Migrants by Land, Sea and Air, supplementing the United Nations Convention against Transnational Organized Crime*

  In line with the above approach, Member States subsequently also agreed on a further
  - *Protocol against the Illicit Manufacturing of and Trafficking in Firearms, their Parts and Components and Ammunition (adopted by General Assembly resolution 55/255 of 31 May 2001).*

In addition to the TOC convention, a special convention was drafted, signed and ratified a few years later, dealing with the specific problems related to corruption, the

- *United Nations Convention against Corruption, 2003*

A special convention focussing exclusively on money-laundering does not exist. However, most of the above mentioned conventions do not only deal with drug trafficking, corruption and other areas of organized crime but they also demand the contracting parties to criminalize activities undertaken to hide or launder the proceeds related to such predicative crimes and foresee measures to confiscate such proceeds. This reflects the fact that illicit financial flows have been understood to

1 *United Nations Millenium Declaration*, Resolution adopted by the General Assembly (A/55/L.2). Accessable at http://www.un.org/millennium/declaration/ares552e.htm.

be highly detrimental for society at large, *de-facto* providing criminals with strong incentives to undertake such crimes as long as they do not have to fear to lose the crime related proceeds again. Moreover, illicit financial flows can result large-scale corruption, disturbances of competition, violence and economic equilibria and can contribute towards a weakening of the state, thus jeopardizing the rule of law.

Against this background a number of stipulations in Conventions as well as Resolutions and Action Plans, passed by the international community and by selected groups of countries have been geared towards effectively fighting illicit financial flows and money-laundering at the national, regional and international levels. The most important instruments containing specific stipulations against money-laundering include the:

- *United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988*
- *FATF recommendations*
- *1998 Political Declaration* and the related Action Plan ("Countering Money-Laundering")
- *United Nations Convention against Transnational Organized Crime, 2000*
- *United Nations Convention against Corruption, 2003*
- *2009 Political Declaration and Plan of Action on International Cooperation towards an Integrated and Balanced Strategy to counter the World Drug Problem*
- 2010 *Salvador Declaration on Comprehensive Strategies for Global Challenges: Crime Prevention and Criminal Justice Systems and Their Development in a Changing World*

The most relevant stipulations in these legal instruments will be discussed below.

b) Most relevant stipulations in international legal instruments

i. United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988

The first major international agreement in this field was the *United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988* (also known as the 1988 Vienna Convention). The at the time almost revolutionary stipulations against money-laundering were introduced against the background of a rapidly rising economic power of internationally operating drug cartels as of the late 1980s. Given their financial power, they started to corrupt whole regions and intimidated the general public by means of violence.

The key Articles of the 1988 Vienna Convention with regard to money-laundering can be summarized as follows:

- The Convention obliges parties to make drug-related money-laundering activities a criminal offence (Art. 3 – for text, see Annex).
- The Convention foresees to confiscate such proceeds (Art. 5 – see Annex). The Convention also invited member states to remit parts of such funds to 'intergovernmental bodies specializing in the fight against illicit traffic in and abuse of narcotic drugs and psychotropic substances'.
- Money-laundering also became an extraditable offence at the international level, though such extraditions remained subject to a number of preconditions, such as the existence of bilateral extradition treaties. If a country had restrictions in extraditing nationals, the Convention foresaw that such a county should consider to judge its national(s) according to the law of the requesting Party (Art. 6).
- Mutual legal assistance also extends to the fight against such illegal capital flows (Art.7 – see Annex).
- The Convention also made it clear that bank secrecy cannot be used as an excuse for not acting.

The 1988 Vienna Convention is today almost universally adhered to (184 States Parties as of July 2010) and has formed for many countries the basis for their anti-money-laundering legislation.

ii. FATF Recommendations

The Financial Action Task Force (FATF) on Money Laundering was established by the G-7 countries in 1989. This inter-governmental body was intended to become an international policy-making body in the fight against money-laundering and was created to generate the necessary political will to bring about legislative and regulatory reforms to counter the abuse of the financial system by criminals.

In 1990, the FATF promulgated its initial "Forty Recommendations" which provided a general anti-money-laundering (AML) framework, starting with the ratification and implementation of the 1988 Vienna Convention while extending anti-money-laundering from drug trafficking to all serious offences.

Key provisions are:

- Recommendation 1 sets out that money-laundering activities related to offences that are punishable by a minimum penalty of more than six months and a

maximum penalty of more than one year's imprisonment constitute serious offences. Money-laundering related to such offences has to be criminalized.

- Recommendation 3 asks countries to take appropriate legislative measures to enable their competent authorities to confiscate property laundered as well as proceeds from money-laundering or predicate offences.
- Recommendations 4 lays down that secrecy laws should not inhibit implementation of the FATF Recommendations and Recommendation 5 asks financial institutions not to keep anonymous accounts or accounts with fictitious names and that they should apply due diligence, including identifying and verifying the identify of their customers, notably when establishing business relations and carrying out transactions above designated thresholds.
- Recommendations 10 specifies that financial institutions should maintain for at least five years all necessary records.
- Recommendation 13 lays down that financial institutions have to report suspicious transactions to the appropriate Financial Intelligence Unit (FIU).
- Recommendations 15 sets out that financial institutions have to develop appropriate programmes against money-laundering, including internal policies, screening procedures and employee training programs.
- Recommendation 18 makes it clear that countries should not approve the establishment or continued operation of shell banks and that other financial institutions should refuse to enter into relationship with such shell banks with foreign financial institutions permitting their accounts to be used by such shell banks.
- Recommendation 19 asks countries to 'consider the feasibility' of reporting all currency transactions above a fixed amount to a national central agency.
- Recommendation 26 asks for the establishment of Financial Intelligence units (FIU).
- Recommendations 36-39 deal with the need to reduce restrictions for money-laundering related mutual legal assistance, enable confiscations and extraditions. Thus countries should not deny legal assistance on the grounds that national laws require financial institution to maintain secrecy or confidentiality.

The Forty Recommendations were revised in 1996 and again in 2003, eventually also covering the non-banking sector, including various other financial sectors, such as insurance, and a number of 'gatekeeper' professions such as real estate agents, dealers in precious metals, accountants, lawyers and notaries. In addition, the FATF adopted 8 Special Recommendations on Terrorist Financing in October 2001. These were supplemented by another Recommendation in October 2004. In 2009 the FATF again initiated a review of some of its recommendations. The review is scheduled to be finalized in early 2012.

The FATF Recommendations were a clear step forward in providing a sufficiently detailed framework for legal action. Even though membership in the FATF more than doubled over the years - from originally 16 to the current 36[2] in addition to 8 FATF Style Regional Bodies (FSRBs)[3] and various international organizations[4] which are now either associate members or FATF observers - one key problem for the FATF in the initial years was to gain international acceptance of these Recommendations beyond the participating FATF states.

This changed with the *1998 Political Declaration* and the adopted '*Measures to enhance international cooperation to counter the world drug problem*" which included in section D, measures for "*Countering Money Laundering*" passed by the UN General Assembly in June 1998. The FATF recommendations were identified as "*the standard*" by which "*the measures against money-laundering*" adopted by individual States "*should be judged*" (see below).

Similarly, in 2005 the *UN Security Council* in its resolution 1617 strongly urged "*all Member States to implement the comprehensive international standards embodied in the Financial Action Task Force (FATF) Forty Recommendations on Money Laundering and the FATF Nine Special Recommendation on Terrorist Financing*".

This was repeated a year later by the *UN General Assembly* (20 Sept. 2006) in its resolution 60/288. In the Annex 'Plan of Action' to this resolution the Member States of the United Nations resolved in §10 "*To encour-*

2 FATF, About the FATF, http://www.fatf-gafi.org/pages/0,3417,en_32250379_32236836_1_1_1_1_1,00.html

3 There are currently 8 FATF Style Regional Bodies (FSTBs) which implement and monitor the FATF standards. They include the Asia/Pacific Group on Money Laundering (APG), Caribbean Financial Action Task Force (CFATF), Eurasian Group (EAG), Eastern and Southern Africa Anti-Money Laundering Group (ESAAMLG), the Council of Europe Committee of Experts on the Evaluation of Anti-Money Laundering Measures and the Financing of Terrorism (MONEYVAL) - formely PC-R-EV, the Financial Action Task Force on Money Laundering in South America (GAFISUD), Inter Governmental Action Group against Money Laundering in West Africa (GIABA) and the Middle East and North Africa Financial Action Task Force (MENAFATF).

4 They include, *inter alia,* UNODC, Interpol, the World Customs Organisation, the World Bank, the International Monetary Fund, the Egmont Group of Financial Intelligence Units, the Basel Committee on Banking Supervision or the Group of International Finance Centre Supervisors; (FATF, "Member Countries and Observers FAQ"). Accessable at http://www.fatf-gafi.org/document/5/0,3746,en_32250379_32236869_34310917_1_1_1_1,00.html.

age States to implement the comprehensive international standards embodied in the Financial Action Task Force (FATF) Forty Recommendations on Money Laundering and the FATF Nine Special Recommendation on Terrorist Financing, recognizing that States may require assistance in implementing them".

Finally, the *2009 Political Declaration* reaffirmed the 1998 Political Declaration and the related action plans and in §51 urged Member States to *"foster international cooperation by implementing the provisions against money-laundering contained in all relevant international and multilateral instruments, such as the 1988 Convention, the Organized Crime Convention and the Convention against Corruption and.. the Financial Action Task Force Recommendations on Money Laundering…..".*

iii. 1998 Political Declaration and the related Action Plan ("Countering Money-Laundering")

The obligations resulting from the 1988 Convention were further detailed in the *1998 Political Declaration*[5] and the related Action Plan ("Countering Money-Laundering"), passed unanimously by the UN General Assembly at its twentieth Special Session on the World Drug Problem, held 8-10 June 1998.

This foresaw, inter alia, the

"*Establishment of an effective financial and regulatory regime to deny criminals and their illicit funds access to national and international financial systems, thus preserving the integrity of financial systems worldwide…*" including,

> *(i) Customer identification and verification requirements applying the principle of "know your customer", in order to have available for competent authorities the necessary information on the identity of clients and the financial movements that they carry out;*
>
> *(ii) Financial record-keeping;*
>
> *(iii) Mandatory reporting of suspicious activity;*
>
> *(iv) Removal of bank secrecy impediments to efforts directed at preventing, investigating and punishing money-laundering; …*

Additionally, in the preamble to the Action Plan, reference was made to a United Nations Commission on Narcotic Drugs (CND) resolution which *de facto* elevated the status of the 40 recommendations of the Financial Action Task Force (FATF) as the global standard in the fight against money-laundering.[6] The far more detailed FATF recommendations were thus *de facto* introduced through the back-door into the international system as the standards for fighting money-laundering.

iv. United Nations Convention against Transnational Organized Crime, 2000

In the subsequent *United Nations Convention against Transnational Organized Crime* (TOC Convention),[7] passed in December 2000, the criminalization of money-laundering was extended from drug-related money-laundering activities to all forms of money-laundering derived from proceeds of crime, notably serious crime (Article 6). This was an important step ahead, although this convention does not have – as yet – the same adherence level (163 States Parties as of September 2011) as the 1988 Convention. The content of the TOC Convention gets more complicated if the predicate offence was committed in another country. Offences committed outside the jurisdiction of a State Party only constitute a predicate offence for subsequent money-laundering if: (a) it was a criminal offence in the foreign jurisdiction, and (b) it was a criminal offence under the domestic law of the State Party implementing the convention (Art. 6, para 2, (c)). Tax evasion, for instance, may be a criminal offence in one jurisdiction and an administrative offence in another. Thus, money-laundering linked to tax evasion is not necessarily covered by the TOC Convention, in contrast to money-laundering linked to all kinds of 'serious crime', that is, offences entailing maximum prison sentences of at least four years (Art. 2).

The '*Measures to combat money-laundering*' are summarized in Article 7, which basically repeats existing anti-money-laundering techniques, including customer identification, record keeping, reporting of suspicious transactions, et cetera. A new element was the obligation for countries to establish 'financial intelligence units' to serve as national centres for the collection, analysis and dissemination of information regarding potential money-laundering and the implementation of *"measures to detect and monitor the movement of cash and appropriate negotiable instruments across their borders".*

5 In the preamble of the 1998 Political Declaration Member States promised to "… *make special efforts against the laundering of money linked to drug trafficking …*".

6 Recalling Commission on Narcotic Drugs resolution 39/5 of 24 April 1996 in which the Commission noted that "the forty recommendations of the Financial Action Task Force established by the heads of State or Government of the seven major industrialized countries and the President of the European Commission remained the standard by which the measures against money-laundering adopted by concerned States should be judged."

7 UNODC, *United Nations Convention against Transnational Organized Crime and the Protocols thereto*, New York, 2004.

v. United Nations Convention against Corruption, 2003

The issue of money-laundering was also taken up in the *United Nations Convention against Corruption, 2003,* and are summarized in Article 14 "Measures to prevent money-laundering", in Article 52 "Prevention and detection of transfers of proceeds of crime" and Article 54 "Mechanisms for recovery of property through international cooperation in confiscation". The basic idea here is to prevent money-laundering related to corruption though the actual measures foreseen in dealing with the problem of money-laundering, are not limited to corruption related money-laundering but to all types of transfers related to the illicit acquisition of personal wealth. Thus, in the preamble the convention speaks of the need to '*prevent, detect and deter in a more effective manner international transfers of illicitly acquired assets and to strengthen international cooperation in asset recovery.* The underlying '*proceeds of crime*' are defined in Article. 2 as "*any property derived from or obtained, directly or indirectly, through the commission of an offence*". While providing a good summary of necessary measures to prevent and fight money-laundering, the convention, does not really include many significant new elements for the fight against money-laundering, which would go beyond those laid down in the Convention against Transnational Organized Crime. Perhaps the most important new element is found in Article 14, para 4 in which the FATF recommendations are *de-facto* brought up to the international level, not only for drug related money-laundering (as was already the case in the 1998 Political Declaration and the related Action Plans), but for money-laundering in general. Article 14, para 4 makes it explicit that '*In establishing a domestic regulatory and supervisory regime under the terms of this article … States Parties are called upon to use as a guideline the relevant initiatives of regional, interregional and multilateral organizations against money-laundering".*

vi. 2009 Political Declaration and Plan of Action on International Cooperation towards an Integrated and Balanced Strategy to counter the World Drug Problem

Despite of all of these efforts, Member States recognized in the *2009 Political Declaration and Plan of Action on International Cooperation towards an Integrated and Balanced Strategy to counter the World Drug Problem,*[8] adopted at the High-Level Segment of the 52nd session of the CND, 12 March 2009, that (Art. 29) "illicit crop cultivation and illicit drug production, manufacturing, distribution and trafficking have been increasingly consolidated into a criminally organized industry generating enormous amounts of money, laundered through the financial and non-financial sectors…". They thus committed themselves to "strengthening the effective and comprehensive implementation of regimes for countering money-laundering and to improving international cooperation, including judicial cooperation, in order to prevent, detect and prosecute such crimes, dismantle criminal organizations and confiscate their illicit proceeds…". Member States decided "to establish 2019 as a target date for States to eliminate or reduce significantly and measurably:… money-laundering related to illicit drugs".

Part III, subheading E of the Plan of Action was dedicated to measures 'countering money-laundering'. At the outset it was stated that (Art. 50) "The laundering of money derived from illicit drug trafficking and other serious crimes continues to be a global problem that threatens the security and stability of financial institutions and systems, undermines economic prosperity and weakens governance systems."

Countries committed themselves (Art. 51) to strengthen existing legislative frameworks, inter alia, by

> "(i) Widening the scope of predicate crimes for money-laundering to include all serious crimes, giving due consideration to crimes related to the misuse of new technologies, cyberspace and electronic money transfer systems and to transnational cash smuggling….
>
> (iii) Promoting the use of internationally accepted asset-sharing procedures in international confiscation cases, such as the Model Bilateral Agreement on the Sharing of Confiscated Proceeds of Crime or Property, adopted by the Economic and Social Council in its resolution 2005/14…; and
>
> (vii) Making money-laundering an extraditable offence…"

as well as by " Establishing new or strengthening existing financial and regulatory regimes for banks and non-bank financial institutions, including natural and legal persons providing formal or informal financial services…" and by the ".., establishment of dedicated financial intelligence units to serve as national centres for the collection, analysis and dissemination of suspicious transaction reports …". (for details, see Annex).

The importance of the *2009 Political Declaration and Plan of Action* with regard to measures against money-laundering is that it also applies to UN Member States that have not – as yet – signed and ratified the TOC Convention.

8 UNODC, *Political Declaration and Plan of Action on International Cooperation towards an Integrated and Balanced Strategy to Counter The World Drug Problem,* High-level segment, Commission on Narcotic Drugs, Vienna, 11-12 March 2009.

vii. 2010 Salvador Declaration on Comprehensive Strategies for Global Challenges: Crime Prevention and Criminal Justice Systems and Their Development in a Changing World

The importance of actions against money-laundering was also highlighted in the 2010 *Salvador Declaration on Comprehensive Strategies for Global Challenges: Crime Prevention and Criminal Justice Systems and Their Development in a Changing World* (April 2010). This Declaration, adopted by the 12th UN Congress on Crime Prevention and Criminal Justice (Salvador, Brazil, 12-19 April 2010) emphasized (Art. 22) the need for the adoption of effective measures to implement the provisions on preventing, prosecuting and punishing money-laundering contained in the United Nations Convention against Transnational Organized Crime and the United Nations Convention against Corruption and encouraged Member States to develop strategies to combat money-laundering based on the provisions of these two Conventions. In Article 23 it goes a step further and encourages "Member States to consider developing strategies or policies to combat illicit financial flows and to curb the harmful effects of uncooperative jurisdictions and territories in tax matters". In Article 24 the Declaration recognized the '*need to deny criminals and criminal organizations the proceeds of their crimes*' and called on Member States to '*adopt effective mechanisms for the seizure, restraint and confiscation of proceeds of crime and to strengthen international cooperation to ensure effective and prompt asset recovery*'.

The issue of illicit financial flows has been emerging in recent years as a phenomenon of global importance that cannot be ignored. At the same time, research in this area is still limited, scattered, based on a large number of assumptions (as opposed to empirical findings) with most results not directly comparable once rigorous scientific criteria are applied. As one expert correctly observed, estimates of the proceeds of crime and of the subsequent volumes of laundered money are still not much more than indicative of the orders of magnitude involved. But they confirm that money-laundering is of sufficient scale to merit policy attention.

Keeping these caveats in mind, the study aims at providing some answers concerning the likely amounts of illicit funds generated, and the extent to which they are being laundered at the global level. In addition, efforts were made to identify the magnitude of profits generated by a selected illicit crime activity – trafficking in cocaine – and how these crime proceeds are distributed across jurisdictions. It is hoped that the approach used, starting with the analysis of one concrete criminal market, will further stimulate research in these areas. The study also examined the socio-economic impact of illicit financial flows and provided an overview of existing international legal instruments to tackle these flows.

Extent of financial flows

The overall best estimates of criminal proceeds are close to 3.6% of GDP or US$2.1 trillion in 2009. The best estimates of the amounts laundered are close to 2.7% of GDP or US$1.6 trillion in 2009. The best estimates of the amounts laundered fall well within the IMF's original 'consensus range' of 2%-5% of GDP, though the data also suggest that the best estimates are situated towards the lower end of the range. If tax- and customs-related money-laundering activities were included, results would move towards the upper end of the IMF consensus range, or – depending on the extrapolation models applied – slightly beyond. On the other hand, if only transnational organized crime related proceeds were considered, the available estimates for laundering would fall to levels around 1% of GDP, and thus below the IMF consensus range.

Selected criminal sector – trafficking in cocaine

Previous research suggested that drug trafficking was responsible – in economic terms – for the largest profits of transnationally operating crime groups. (According to GFI, drugs even accounted for half of total income of transnational organized crime). Within the area of drugs, the cocaine market appears to be the single largest market (retail sales of US$85 bn in 2009) dominated by transnationally operating crime groups.

The study established a number of models to analyse illicit financial flows and their geographic distribution and applied them to trafficking in cocaine. Steps in this calculation were to establish the size of the market, to deal with the problem of transit profits and to analyse the extent to which excess money would be available for laundering. The last step was the development of a gravity model to allocate the flows according to a number of parameters representing the 'capabilities' and 'susceptibility' of countries to money laundering, as well enabling factors such as culture (language), lack of distance and trade relations – all of which may increase the risks of countries to be targeted by money laundering operators. A number of innovative approaches were explored in this analysis.

Summary of estimates of criminal proceeds and amounts laundered at the global level

	Reference year / period	Criminal proceeds		Amounts laundered		
		Best estimate	Range	Best estimate	Range	
As % of GDP		**3.6%**	(2.3%-5.5%)	**2.7%**	(2.1%-4.0%)	
In trillion US$	2009	**2.1**	(1.4-3.2)	**1.6**	(1.2-2.3)	
Memo: IMF 'consensus range' (as % of GDP)	1998			3.5%	2.0%	5.0%

Although the cocaine market has been studied for years, the analysis still revealed a number of knowledge gaps:

- Little is still known about per capita consumption, purity-adjusted prices or on the number of drug dealers in a given country. As far higher proportions of funds generated at the wholesale level are being laundered than at the retail level, a clear distinction between retail and wholesale profits is crucial. A problem in this context is that the calculation of prices at the wholesale level (defined as prices at the kilogram level), and the retail level (defined as prices at the gram level) is not sufficient for the calculation of retail and wholesale profits. One intermediate measure would be still needed such as prices at the 'ounce level' (or something similar), reflecting the quantities typically bought by retailers from the wholesalers.
- A further challenge is that very little is known about drug dealers' distribution in terms of income levels. This is crucial for estimating the extent to which drug dealers earn an income in excess of their living costs.
- Another challenge has been the allocation of drug transit profits. In addition to the model applied in this study, based on the analysis of seizure statistics, UNODC has also started to experiment with more complex route-finder models which may turn out to be more appropriate in the future for appropriately allocating such transit profits across countries.
- More research would be also needed to test the results of the 'gravity model' which estimates the likely flows of money for laundering purposes to the various jurisdictions. This model is rather demanding, requiring, for instance, profit estimates for each country in the world.

Despite of these challenges, the analysis of available data was sufficient to highlight a few key characteristics of the global cocaine market, the profits generated and the likely amounts laundered:

- The calculations suggested that the global cocaine market is worth at the retail level some US$85 billion (range: US$75-US$100 bn).
- Gross profits amount to some US$84 billion.
- Taking seizures and transit profits into account, calculations show that the bulk of these profits (retail and wholesale) are generated in North America (US$ 35 billion), in 'West and Central Europe' (26 billion) and in 'South America, Central America and the Caribbean' (US$18 bn).
- The model suggested that the proportion available for laundering reaches 92% of global profits at the wholesale level and 46% of global profits at the retail level. The rest would be consumed by the drug traffickers themselves. Overall around 62% of gross cocaine profits would be available for laundering, which was in line with previous estimates provided in the literature suggesting that between 60% and 80% of drug funds are subsequently being laundered.
- Given the calculated profits (US$84 bn) and the calculated proportions available for laundering the model claims that almost US$53 billion of cocaine related profits would have been laundered in 2009.
- Significant amounts of the cocaine profits (about half or US$27 bn) appear to have remained within the respective jurisdictions where they were generated - according to the model results.
- The main 'beneficiaries' of such domestic investment of cocaine related profits would have been countries in North America (US$10 bn), followed by countries in West and Central Europe (US$7 bn) and countries in South America (US$5½ bn).
- The other half (US27 bn) would have been 'invested' abroad.
- Most of this 'investment' originated again from countries in North America (US$ 10 bn), countries in West and Central Europe (more than US$7 bn) as well as countries in South America (more than US$7 bn), together accounting of 95% of such cocaine profits related investment abroad.
- The main destination regions of such investment abroad would have been countries in the Caribbean (US$6 bn), getting their funds mainly from countries in North America (US$3.3 bn), countries in South America (US$2.5 bn) and, to a lesser extent, from traffickers in West and Central Europe (US$0.2 bn).
- The model results suggested that no region was spared by cocaine trafficking and the laundering of cocaine related money.

Socio-economic impact

The study also examined the potential socio-economic impact of the some US$2 trillion of crime proceeds that are generated every year. First of all, these criminal flows help existing crime to flourish and expand, with a large number of negative socio-economic consequences, depending on the specific predicate crimes. Second, the funds generated – even when invested in the legal sector – will entail a number of negative micro- and macro-economic consequences. Third, there is an additional set of problems when such funds are laundered in foreign jurisdictions and invested abroad.

Implications of money flows for the underlying predicate crime

The negative socio-economic impact arising from illicit flows generating further criminal activity is most apparent when it comes to drugs. There tends to be a signifi-

cant 're-investment' of illicit funds into drug trafficking operations which have major negative implications for society at large. If goods are stolen, the gains by the criminals involved will be, overall, equivalent to the losses of the victim (or of his or her insurance company). From an economic perspective, such crime can be seen as a 'transfer,' which should not affect the overall economy significantly.

The situation with regard to drugs is, however, quite different. The gains of the criminal groups can be linked to the expenditure of the drug users. Up to this point, one person's losses can be seen as equivalent to another person's gains. However, the 'losses' of the drug users go far beyond their expenditure on drugs. Large socio-economic costs are linked to drug consumption. While the crime proceeds of organized crime resulting from drugs were estimated at around 0.6% of GDP at the global level in 2009, the overall average estimate of the costs associated with illicit drug use (based on data from 12 countries in North America, Europe, South America and Oceania) amounted to 1.2% of GDP, or US$700 billion if extrapolated to the global level. Thus, available data suggest that these costs were in fact twice as high as the income for organized crime. This indicates a net loss for society, and not simply some kind of 'transfers' from some individuals to organized crime. For the USA and the UK, where estimates of both the size of the domestic drug market and the costs linked to drug abuse are available, data suggest that these costs are three times as high as the drug sale figures (USA: economic costs of drug abuse: US$181 bn; drug sales US$64 bn in 2000/2002; UK: economic costs: £18.9 bn versus drug sales: £5.3 bn in 2003/2004 for England and Wales and 2006 for Scotland). Data for the US suggest that some 70% of the cost were related to productivity losses, including from premature death and drug abuse-related illnesses. Data for England and Wales, which also include drug-related crime, show that some 90% of the total cost was actually crime-related. Other problems – at the global level – include health problems, trafficking-related violence and corruption.

Implications of investment of criminal financial flows in the legal economy

The implications of the investment of crime-related funds in the legal sector are mainly related to the risks of:

- Distortions in the resource allocation from high-yielding investments to investments that run a low risk of detection
- Distortion of prices, notably in the real estate sector
- Distortion of consumption and impact on imports
- Distortion of exports and potential problems with investment and economic growth
- Unfair competition; risks of crowding out licit activities and negative impact on direct foreign investment
- Corruption
- Risks of real sector volatility
- Strengthening of skewed income and wealth distributions
- Distortion of economic statistics and thus potential errors in economic policy decision taking
- Undermining the credibility of legal institutions

One of the clearest differences between investment based on licit sources and that based on criminal funds affects the decision-making parameters of how to invest these funds. While a 'normal investor' will direct his or her investment into a venture that will yield the highest possible return based on his willingness to take economic risks, the predominant parameter for an investor of criminal funds is a strong guarantee that the criminal origin of the investment will not be detected. This leads to investment decisions that focus on concealment, while accepting low rates of return. A sub-optimal resource allocation is the consequence. Criminal funds thus have a negative effect on economic growth by diverting resources to less productive activities. Criminal finance encourages conspicuous consumption at the expense of long-term investment. The purchase of weapons is also not productive for society at large. If invested, a study in the Netherlands revealed that criminal income went in particular into real estate, into normal bank accounts, or into various 'business activities', mostly 'coffee shops' (where cannabis is sold), normal shops, hotels and brothels. None of this is particularly productive from a wider economic perspective. Similarly, the cartels in Colombia in the 1990s were reported to have concentrated their investment mainly in real estate and in the construction sector.

Another potential danger, notably for smaller economies, is a revaluation of the exchange rate linked to the inflows of illicit funds. This phenomenon – known in the literature as 'Dutch Disease' - tends to reduce the competitiveness of legally produced goods and services. Legal exports (notably of manufactured goods) will be replaced by illegal exports. Overvalued exchange rates also pose problems for domestic industry producing for the local market because domestic production will be increasingly substituted by imports. Thus, overvalued exchange rates can ruin entire economic sectors, which, once they cease to exist, may be difficult to re-establish.

In some cases, organized crime can also infiltrate or acquire control of large sectors of the economy through investment. A subsequent consequence of large amounts of illicit funds in the legal sector is the ability of such enterprises to undercut current market prices. This may

initially appear positive for customers and create some short-term welfare gains. It creates, however, the risk that such enterprises will crowd out existing legal ones.

Another consequence of the existence of large criminal finance, even if legally invested, is that criminal groups will attempt to use their financial power to corrupt the authorities and gain additional advantages for their 'legal' enterprises, thus driving out legitimate business competitors.

There is also a risk that huge criminal money flows will result in a more uneven income and wealth distribution. World Bank data, for instance, show that several of the main drug producing or trafficking countries are characterized by highly uneven levels of income distribution. Once criminal organizations are formed, they tend to expand quickly. Subsequently, more money is concentrated in a few hands, and existing uneven income distributions may become more marked. At the same time, income inequality can be also seen as one cause for the expansion of organized crime as is increases the readiness of some people (mostly young unemployed males) to participate in the illicit sectors of the economy.

Another potential problem linked to the existence of a huge illicit sector in an economy is a strong likelihood that economic data and statistics will not reflect reality any longer. Criminal finance can distort economic data and thus macroeconomic analysis and policymaking. Macroeconomic management is particularly difficult when there is a need for economic policy changes, such as austerity measures to curb inflation. In such situations, a huge illicit sector may counteract government action, either by preventing a predicted outcome from materializing, prolonging the time frame for macroeconomic stabilization or prompting the Government to take measures that are too drastic, thus creating unemployment and social unrest. In the process, legitimate business, which does not have access to illicit funds, may be squeezed out of the market.

A further problem is that the credibility of legal institutions may suffer. If income and wealth disparities are very large and increasing, unemployment is rising due to strong sector volatilities, if inadequate macro-economic decisions are made because of inaccurate underlying economic data and/or various distortions in the allocation of resources, due to unfair competition, and if society is confronted with widespread corruption – prompted by the existence of a large and expanding criminal sector - the credibility and authority of the state will suffer as well. An additional problem arises from the possibility of organized crime groups generating sufficient capital to corrupt the political process, for instance by financing election campaigns to install more 'friendly' administrations. In other words, the funds generated by criminal organizations may provide them with enough economic and even political power to weaken the social fabric, collective ethical standards, and ultimately, the democratic institutions of society.

Implications of laundering criminal financial flows, including in foreign jurisdictions

Finally, there are a number of socio-economic implications linked to the laundering of the financial flows. Research undertaken in industrialized countries repeatedly found that increases in money-laundering activities were associated with reductions in overall annual economic growth rates. One study, for instance, found that each US$1 billion laundered reduced overall economic growth by 0.04-0.06 percentage points in the 17 researched OECD countries.

The issue becomes more complicated once laundering affects foreign jurisdictions. The net impact of money-laundering activities for the 'originating countries,' where the underlying crimes have been committed, tends to worsen once the crime proceeds leave the country. Assuming that trafficking profits originated primarily from drugs sold to the local population, such profits were actually siphoning off purchasing power from the country concerned. If these funds were re-invested in the local economy, at least some of the initial losses in purchasing power could be offset. When they are used for money-laundering purposes and subsequent investment abroad, the country concerned will suffer the full financial loss.

The situation looks – at first sight - different for the recipient countries of such funds. Available research suggests that the immediate impact for these countries is not necessarily negative. A study showed that if money-laundering was separated from the predicate crime the money-laundering-related coefficients turned positive. However, studies on the effectiveness of establishing offshore financial centres (OFC) as an economic development strategy failed to show that notional offshore financial centers – unless based on sound rules and regulations - contribute to the surrounding economy. They could not provide a basis for sustained economic growth. Thus, even from a purely economic point of view - and disregarding all moral arguments - it remains questionable whether a 'free rider' strategy can be effective in the long run.

Arguments in this context relate, inter alia, to the likelihood of increased volatility in the financial sector with negative macro-economic implications. The volatility may relate to the swift reactions by criminal groups to shift the location of their laundered funds, which – once certain levels are surpassed - can threaten a financial institution's liquidity and solvency. Moreover, there is a risk that banks or even whole jurisdictions may lose their

reputation and integrity if involved in large-scale money-laundering operations. This can lead to the withdrawal of funds from licit investors and – as experienced in a few cases - may even lead to the bankruptcy of the institutions concerned.

Against this background, financial centres have developed a self-interest of not being associated with 'tainted money' and have signed relevant international instruments to avoid the inflow of such criminal finance. Whether money-laundering and predicate crimes can remain properly separated geographically over longer periods of time is also questionable. Research has suggested that the amounts of money laundered tend to prompt additional crime proceeds of between 6% and 10% of the original crime proceeds. Even if the predicate crime will not take place in the money-laundering jurisdiction, it is likely that criminal groups would use their financial power, at least for corruption, which will impact negatively on the jurisdictions concerned. Finally, non-cooperating jurisdictions run a risk of legal sanctions. Such sanctions (for example, banning dollar transactions with countries concerned) can more than offset potential short-term gains from following a free-rider strategy and can be damaging for the financial centres concerned.

Key role of global anti-money-laundering efforts – enabling the authorities to follow the money trail and seize the proceeds of illicit activities

The key role of anti-money-laundering legislation is to enable authorities to follow the money-trail in order to detect underlying criminal activities and to dismantle the groups involved. This remains the main reason for implementing anti-money-laundering measures, irrespective of all other considerations. The operations of criminal organizations are potentially vulnerable to detection via the money trail, and there are good reasons for the authorities to exploit these vulnerabilities.

Such a system will only work well if there are no loopholes. Thus, there is a clear need for universal participation in international money-laundering efforts at the global level, and a high degree of transparency. Otherwise the system will remain only as strong as its weakest link and will be exploited by organized crime.

While most of the necessary instruments to fight organized crime and related money-laundering activities already exist at the international level, the current 'success rate' of identifying criminal capital flows is limited. Based on all available estimates, less than 1% of the total amounts that are being laundered are seized.

Data collected by the US State Department suggest that some US$3.1 billion were seized in connection with money-laundering activities in 38 countries out of 62 countries analysed (2010 or latest year available), more than 80% of this was seized in North America. This would be equivalent to some 0.2% of the best estimate of the extent of money-laundering at the global level. In comparison, more than 20% of the globally produced illicit opiates are being seized and more than 40% of the cocaine. The question that arises is whether money-launderers really are so much smarter than drug traffickers, or whether there is something wrong with the existing control system? The problem does not seem to be a lack of international instruments – as illustrated in this report – but, more likely, shortcomings in the implementation of existing instruments.

ANNEX: Text of relevant sections of international legal instruments

- United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988

Article 3:

"*Each Party shall adopt such measures as may be necessary to establish as criminal offences under its domestic law, when committed intentionally …*

(b) (i) The conversion or transfer of property, knowing that such property is derived from any offence or offences established in accordance with subparagraph (a) [i.e. drug related offences] …, or from an act of participation in such offence or offences, for the purpose of concealing or disguising the illicit origin of the property or of assisting any person who is involved in the commission of such an offence or offences to evade the legal consequences of his actions;

(ii) The concealment or disguise of the true nature, source, location, disposition, movement, rights with respect to, or ownership of property, knowing that such property is derived from an offence or offences established in accordance with subparagraph (a) of this paragraph or from an act of participation in such an offence or offences:

(c) …(i) The acquisition, possession or use of property, knowing, at the time of receipt, that such property was derived from an offence or offences established in accordance with subparagraph (a) of this paragraph or from an act of participation in such offence or offences;…".

Article 5: CONFISCATION

compels Parties to:

1. *adopt such measures as may be necessary to enable confiscation of:*

   (a) Proceeds derived from offences established in accordance with article 3, paragraph I, or property the value of which corresponds to that of such proceeds;

2. *adopt such measures as may be necessary to enable its competent authorities to identify, trace, and freeze or seize proceeds, property, instrumentalities or any other things referred to in paragraph 1 of this article, for the purpose of eventual confiscation.*

Article 6: EXTRADITION

1. *This article shall apply to the offences established by the Parties in accordance with article 3, paragraph 1* [Note: this includes money-laundering; see above].
2. *Each of the offences to which this article applies shall be deemed to be included as an extraditable offence in any extradition treaty existing between Parties. The Parties undertake to include such offences as extraditable offences in every extradition treaty to be concluded between them.*
3. *If a Party which makes extradition conditional on the existence of a treaty receives a request for extradition from another Party with which it has no extradition treaty, it may consider this Convention as the legal basis for extradition in respect of any offence to which this article applies. The Parties which require detailed legislation in order to use this Convention as a legal basis for extradition shall consider enacting such legislation as may be necessary.*
4. *The Parties which do not make extradition conditional on the existence of a treaty shall recognize offences to which this article applies as extraditable offences between themselves.*
5. *Extradition shall be subject to the conditions provided for by the law of the requested Party or by applicable extradition treaties, including the grounds upon which the requested Party may refuse extradition.*
6. *In considering requests received pursuant to this article, the requested State may refuse to comply with such requests where there are substantial grounds leading its judicial or other competent authorities to believe that compliance would facilitate the prosecution or punishment of any person on account of his race, religion, nationality or political opinions, or would cause prejudice for any of those reasons to any person affected by the request.*
7. *The Parties shall endeavour to expedite extradition procedures and to simplify evidentiary requirements relating thereto in respect of any offence to which this article applies.*

Article 7 on MUTUAL LEGAL ASSISTANCE,

compels Parties to:

1. " *afford one another… the widest measure of mutual legal assistance in investigations, prosecutions and judicial proceedings in relation to criminal offences established in accordance with article 3…"* **[Note: this includes money-laundering; see above]. including by**

2. (f) Providing originals or certified copies of relevant documents and records, including bank, financial, corporate or business records;
   (g) Identifying or tracing proceeds … for evidentiary purposes "
   and it is made explicit that

5. "*A Party shall not decline to render mutual legal assistance under this article on the ground of bank secrecy".*

- Political Declaration and Action Plan against Money Laundering adopted at the Twentieth Special Session of the United Nations General Assembly devoted to "countering the world drug problem together

Resolution S-20/4 D Countering Money-Laundering

The General Assembly,

Recognizing that the problem of laundering of money derived from illicit trafficking in narcotic drugs and psychotropic substances, as well as from other serious crimes, has expanded internationally to become such a global threat to the integrity, reliability and stability of financial and trade systems and even government structures as to require countermeasures by the international community as a whole in order to deny safe havens to criminals and their illicit proceeds,

Recalling the provisions of the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988, according to which all parties to the Convention are required to establish money-laundering as a punishable offence and to adopt the measures necessary to enable the authorities to identify, trace and freeze or seize the proceeds of illicit drug trafficking,

Recalling Commission on Narcotic Drugs resolution 5 (XXXIX) of 24 April 1996,(21) in which the Commission noted that the forty recommendations of the Financial Action Task Force established by the heads of State or Government of the seven major industrialized countries and the President of the European Commission remained the standard by which the measures against money-laundering adopted by concerned States should be judged, as well as Economic and Social Council resolution 1997/40 of 21 July 1997, in which the Council took note with satisfaction of the document entitled "Anti-drug strategy in the hemisphere", approved by the Inter-American Drug Abuse Control Commission of the Organization of American States at its twentieth regular session, held at Buenos Aires in October 1996 and signed at Montevideo in December 1996, and urged the international community to take due account of the anti-drug strategy in the hemisphere as a significant contribution to the strengthening of the Global Programme of Action adopted by the General Assembly at its seventeenth special session,(22)

Recognizing the political will expressed by the international community, especially as reflected in such initiatives as the Convention on Laundering, Search, Seizure and Confiscation of the Proceeds from Crime, adopted in 1990 by the Committee of Ministers of the Council of Europe, the Ministerial Communiqué of the Summit of the Americas Conference Concerning the Laundering of Proceeds and Instrumentalities of Crime, held at Buenos Aires in December 1995, and by such bodies as the Inter-American Drug Abuse Control Commission of the Organization of American States, the Asia/Pacific Group on Money Laundering, the Caribbean Financial Action Task Force, the Offshore Group of Banking Supervisors and the Commonwealth, all of which are well-recognized multilateral initiatives aimed at combating money-laundering and constitute legal or policy frameworks within which concerned States are defining and adopting measures against money-laundering,

Aware that the proceeds of illicit drug-trafficking and other illicit activities, which are laundered through banks and other financial institutions, constitute an obstacle to the implementation of policies designed to liberalize financial markets in order to attract legitimate investment, in that they distort those markets,

Emphasizing that there is a need to harmonize national legislation with a view to ensuring appropriate coordination of policies for combating money-laundering, without prejudice to the action each State is undertaking within its own jurisdiction to combat this form of criminality,

Recognizing the need to promote and develop effective mechanisms for the pursuit, freezing, seizure and confiscation of property obtained through or derived from illicit activities, so as to avoid its use by criminals,

Recognizing that only through international cooperation and the establishment of bilateral and multilateral information networks such as the Egmont Group, which will enable States to exchange information between competent authorities, will it be possible to combat effectively the problem of money-laundering,

Emphasizing the enormous efforts of a number of States to draw up and apply domestic legislation that identifies the activity of money-laundering as a criminal offence,

Realizing the importance of progress being made by all States in conforming to the relevant recommendations and the need for States to participate actively in international and regional initiatives designed to promote and strengthen the implementation of effective measures against money-laundering,

1. *Strongly condemns the laundering of money derived from illicit drug trafficking and other serious crimes, as well as the use of the financial systems of States for that purpose;*

2. *Urges all States to implement the provisions against money-laundering that are contained in the United Nations Convention against Illicit Trafficking in Narcotic Drugs and Psychotropic Substances of 1988 and the other relevant international instruments on money-laundering, in accordance with fundamental constitutional principles, by applying the following principles:*

   (a) Establishment of a legislative framework to crimi-

nalize the laundering of money derived from serious crimes in order to provide for the prevention, detection, investigation and prosecution of the crime of money-laundering through, inter alia:

(i) Identification, freezing, seizure and confiscation of the proceeds of crime;

(ii) International cooperation; and mutual legal assistance in cases involving money-laundering;

(iii) Inclusion of the crime of money-laundering in mutual legal assistance agreements for the purpose of ensuring judicial assistance in investigations, court cases or judicial proceedings relating to that crime;

(b) Establishment of an effective financial and regulatory regime to deny criminals and their illicit funds access to national and international financial systems, thus preserving the integrity of financial systems worldwide and ensuring compliance with laws and other regulations against money-laundering through:

(i) Customer identification and verification requirements applying the principle of "know your customer", in order to have available for competent authorities the necessary information on the identity of clients and the financial movements that they carry out;

(ii) Financial record-keeping;

(iii) Mandatory reporting of suspicious activity;

(iv) Removal of bank secrecy impediments to efforts directed at preventing, investigating and punishing money-laundering;

(v) Other relevant measures;

(c) Implementation of law enforcement measures to provide tools for, inter alia:

(i) Effective detection, investigation, prosecution and conviction of criminals engaging in money-laundering activity;

(ii) Extradition procedures;

(iii) Information-sharing mechanisms;

3. *Calls upon the United Nations Office for Drug Control and Crime Prevention to continue to work, within the framework of its global programme against money-laundering, with relevant multilateral and regional institutions, organizations or bodies engaged in activities against money-laundering and drug trafficking and with international financial institutions to give effect to the above principles by providing training, advice and technical assistance to States upon request and where appropriate.*

- United Nations Convention against Transnational Organized Crime, 2000

Article 6. Criminalization of the laundering of proceeds of crime

1. *Each State Party shall adopt, in accordance with fundamental principles of its domestic law, such legislative and other measures as may be necessary to establish as criminal offences, when committed intentionally:*

(a) (i) The conversion or transfer of property, knowing that such property is the proceeds of crime, for the purpose of concealing or disguising the illicit origin of the property or of helping any person who is involved in the commission of the predicate offence to evade the legal consequences of his or her action;

(ii) The concealment or disguise of the true nature, source, location, disposition, movement or ownership of or rights with respect to property, knowing that such property is the proceeds of crime;

(b) Subject to the basic concepts of its legal system:

(i) The acquisition, possession or use of property, knowing, at the time of receipt, that such property is the proceeds of crime;

(ii) Participation in, association with or conspiracy to commit, attempts to commit and aiding, abetting, facilitating and counselling the commission of any of the offences established in accordance with this article.

2. *For purposes of implementing or applying paragraph 1 of this article:*

(a) Each State Party shall seek to apply paragraph 1 of this article to the widest range of predicate offences;

(b) Each State Party shall include as predicate offences all serious crime as defined in article 2 of this Convention [i.e. offences punishable by a maximum prison sentence of at least 4 years] *and the offences established in accordance with articles 5* [participation in organized crime group], 8 [corruption] *and 23* [obstruction of justice] *of this Convention. In the case of States Parties whose legislation sets out a list of specific predicate offences, they shall, at a minimum, include in such list a comprehensive range of offences associated with organized criminal groups;*

(c) For the purposes of subparagraph (b), predicate offences shall include offences committed both within and outside the jurisdiction of the State Party in question. However, offences committed outside the jurisdiction of a State Party shall constitute predicate offences only when the relevant

conduct is a criminal offence under the domestic law of the State where it is committed and would be a criminal offence under the domestic law of the State Party implementing or applying this article had it been committed there;

(d) Each State Party shall furnish copies of its laws that give effect to this article and of any subsequent changes to such laws or a description thereof to the Secretary-General of the United Nations;

(e) If required by fundamental principles of the domestic law of a State Party, it may be provided that the offences set forth in paragraph 1 of this article do not apply to the persons who committed the predicate offence;

(f) Knowledge, intent or purpose required as an element of an offence set forth in paragraph 1 of this article may be inferred from objective factual circumstances.

- United Nations Convention against Transnational Organized Crime

Article 7. Measures to combat money-laundering

1. *Each State Party:*

(a) Shall institute a comprehensive domestic regulatory and supervisory regime for banks and non-bank financial institutions and, where appropriate, other bodies particularly susceptible to money-laundering, within its competence, in order to deter and detect all forms of money-laundering, which regime shall emphasize requirements for customer identification, record-keeping and the reporting of suspicious transactions;

(b) Shall, without prejudice to articles 18 and 27 of this Convention, ensure that administrative, regulatory, law enforcement and other authorities dedicated to combating money-laundering (including, where appropriate under domestic law, judicial authorities) have the ability to cooperate and exchange information at the national and international levels within the conditions prescribed by its domestic law and, to that end, shall consider the establishment of a financial intelligence unit to serve as a national centre for the collection, analysis and dissemination of information regarding potential money-laundering.

2. *States Parties shall consider implementing feasible measures to detect and monitor the movement of cash and appropriate negotiable instruments across their borders, subject to safeguards to ensure proper use of information and without impeding in any way the movement of legitimate capital. Such measures may include a requirement that individuals and businesses report the cross-border transfer of substantial quantities of cash and appropriate negotiable instruments.*

3. *In establishing a domestic regulatory and supervisory regime under the terms of this article, and without prejudice to any other article of this Convention, States Parties are called upon to use as a guideline the relevant initiatives of regional, interregional and multilateral organizations against money-laundering.*

4. *States Parties shall endeavour to develop and promote global, regional, subregional and bilateral cooperation among judicial, law enforcement and financial regulatory authorities in order to combat money-laundering.*

- United Nations Convention against Corruption, 2003

Article 14. Measures to prevent money-laundering

1. *Each State Party shall:*

(a) Institute a comprehensive domestic regulatory and supervisory regime for banks and non-bank financial institutions, including natural or legal persons that provide formal or informal services for the transmission of money or value and, where appropriate, other bodies particularly susceptible to money laundering, within its competence, in order to deter and detect all forms of money-laundering, which regime shall emphasize requirements for customer and, where appropriate, beneficial owner identification, record-keeping and the reporting of suspicious transactions;

(b) Without prejudice to article 46 of this Convention, ensure that administrative, regulatory, law enforcement and other authorities dedicated to combating money-laundering (including, where appropriate under domestic law, judicial authorities) have the ability to cooperate and exchange information at the national and international levels within the conditions prescribed by its domestic law and, to that end, shall consider the establishment of a financial intelligence unit to serve as a national centre for the collection, analysis and dissemination of information regarding potential money-laundering.

2. *States Parties shall consider implementing feasible measures to detect and monitor the movement of cash and appropriate negotiable instruments across their borders, subject to safeguards to ensure proper use of information and without impeding in any way the movement of legitimate capital. Such measures may include a requirement that individuals and businesses report the cross-border transfer of substantial quantities of cash and appropriate negotiable instruments.*

3. *States Parties shall consider implementing appropriate and feasible measures to require financial institutions, including money remitters:*
   (a) *To include on forms for the electronic transfer of funds and related messages accurate and meaningful information on the originator;*
   (b) *To maintain such information throughout the payment chain; and*
   (c) *To apply enhanced scrutiny to transfers of funds that do not contain complete information on the originator.*
4. *In establishing a domestic regulatory and supervisory regime under the terms of this article, and without prejudice to any other article of this Convention, States Parties are called upon to use as a guideline the relevant initiatives of regional, interregional and multilateral organizations against money-laundering.*
5. *States Parties shall endeavour to develop and promote global, regional, subregional and bilateral cooperation among judicial, law enforcement and financial regulatory authorities in order to combat money-laundering.*

Article 52. Prevention and detection of transfers of proceeds of crime

1. *Without prejudice to article 14 of this Convention, each State Party shall take such measures as may be necessary, in accordance with its domestic law, to require financial institutions within its jurisdiction to verify the identity of customers, to take reasonable steps to determine the identity of beneficial owners of funds deposited into high-value accounts and to conduct enhanced scrutiny of accounts sought or maintained by or on behalf of individuals who are, or have been, entrusted with prominent public functions and their family members and close associates. Such enhanced scrutiny shall be reasonably designed to detect suspicious transactions for the purpose of reporting to competent authorities and should not be so construed as to discourage or prohibit financial institutions from doing business with any legitimate customer.*
2. *In order to facilitate implementation of the measures provided for in paragraph 1 of this article, each State Party, in accordance with its domestic law and inspired by relevant initiatives of regional, interregional and multilateral organizations against money-laundering, shall:*
   (a) *Issue advisories regarding the types of natural or legal person to whose accounts financial institutions within its jurisdiction will be expected to apply enhanced scrutiny, the types of accounts and transactions to which to pay particular attention and appropriate account-opening, maintenance and recordkeeping measures to take concerning such accounts; and*
   (b) *Where appropriate, notify financial institutions within its jurisdiction, at the request of another State Party or on its own initiative, of the identity of particular natural or legal persons to whose accounts such institutions will be expected to apply enhanced scrutiny, in addition to those whom the financial institutions may otherwise identify.*
3. *In the context of paragraph 2 (a) of this article, each State Party shall implement measures to ensure that its financial institutions maintain adequate records, over an appropriate period of time, of accounts and transactions involving the persons mentioned in paragraph 1 of this article, which should, as a minimum, contain information relating to the identity of the customer as well as, as far as possible, of the beneficial owner.*
4. *With the aim of preventing and detecting transfers of proceeds of offences established in accordance with this Convention, each State Party shall implement appropriate and effective measures to prevent, with the help of its regulatory and oversight bodies, the establishment of banks that have no physical presence and that are not affiliated with a regulated financial group. Moreover, States Parties may consider requiring their financial institutions to refuse to enter into or continue a correspondent banking relationship with such institutions and to guard against establishing relations with foreign financial institutions that permit their accounts to be used by banks that have no physical presence and that are not affiliated with a regulated financial group.*
5. *Each State Party shall consider establishing, in accordance with its domestic law, effective financial disclosure systems for appropriate public officials and shall provide for appropriate sanctions for non-compliance. Each State Party shall also consider taking such measures as may be necessary to permit its competent authorities to share that information with the competent authorities in other States Parties when necessary to investigate, claim and recover proceeds of offences established in accordance with this Convention.*
6. *Each State Party shall consider taking such measures as may be necessary, in accordance with its domestic law, to require appropriate public officials having an interest in or signature or other authority over a financial account in a foreign country to report that relationship to appropriate authorities and to maintain appropriate records related to such accounts. Such measures shall also provide for appropriate sanctions for non-compliance.*

Article 54. Mechanisms for recovery of property through international cooperation in confiscation

1. *Each State Party, in order to provide mutual legal assistance pursuant to article 55 of this Convention with respect to property acquired through or involved in the commission of an offence established in accordance with this Convention, shall, in accordance with its domestic law:*

(a) *Take such measures as may be necessary to permit its competent authorities to give effect to an order of confiscation issued by a court of another State Party;*

(b) *Take such measures as may be necessary to permit its competent authorities, where they have jurisdiction, to order the confiscation of such property of foreign origin by adjudication of an offence of money-laundering or such other offence as may be within its jurisdiction or by other procedures authorized under its domestic law; and*

(c) *Consider taking such measures as may be necessary to allow confiscation of such property without a criminal conviction in cases in which the offender cannot be prosecuted by reason of death, flight or absence or in other appropriate cases.*

2. *Each State Party, in order to provide mutual legal assistance upon a request made pursuant to paragraph 2 of article 55 of this Convention, shall, in accordance with its domestic law:*

(a) *Take such measures as may be necessary to permit its competent authorities to freeze or seize property upon a freezing or seizure order issued by a court or competent authority of a requesting State Party that provides a reasonable basis for the requested State Party to believe that there are sufficient grounds for taking such actions and that the property would eventually be subject to an order of confiscation for purposes of paragraph 1 (a) of this article;*

(b) *Take such measures as may be necessary to permit its competent authorities to freeze or seize property upon a request that provides a reasonable basis for the requested State Party to believe that there are sufficient grounds for taking such actions and that the property would eventually be subject to an order of confiscation for purposes of paragraph 1 (a) of this article; and (c) Consider taking additional measures to permit its competent authorities to preserve property for confiscation, such as on the basis of a foreign arrest or criminal charge related to the acquisition of such property.*

- 2009 Political Declaration and Plan of Action on International Cooperation towards an Integrated and Balanced Strategy to counter the World Drug Problem

Article 50:

"The laundering of money derived from illicit drug trafficking and other serious crimes continues to be a global problem that threatens the security and stability of financial institutions and systems, undermines economic prosperity and weakens governance systems."

Article 51 - towards an Integrated and Balanced Strategy to counter the World Drug Problem

Art. 51. Member States should continue to foster international cooperation by implementing the provisions against money-laundering contained in all relevant international and multilateral instruments, such as the 1988 Convention, the Organized Crime Convention and the Convention against Corruption and, in accordance with national legislation, the Financial Action Task Force Recommendations on Money Laundering, and also by:

(a) *Establishing new or strengthening existing domestic legislative frameworks to criminalize the laundering of money derived from drug trafficking, precursor diversion and other serious crimes of a transnational nature in order to provide for the prevention, detection, investigation and prosecution of money-laundering by, inter alia:*

(i) Widening the scope of predicate crimes for money-laundering to include all serious crimes, giving due consideration to crimes related to the misuse of new technologies, cyberspace and electronic money transfer systems and to transnational cash smuggling;

(ii) Adopting or strengthening legal measures providing for the identification, freezing, seizure and confiscation of the proceeds of crime and considering, where compatible with fundamental principle of domestic law, nonconviction-based confiscation;

(iii) Promoting the use of internationally accepted asset-sharing procedures in international confiscation cases, such as the Model Bilateral Agreement on the Sharing of Confiscated Proceeds of Crime or Property, adopted by the Economic and Social Council in its resolution 2005/14;

(iv) Ensuring that legal provisions in compliance with due process of law, such as banking secrecy laws, do not unnecessarily impede the effectiveness of their systems for countering money-laundering and do not constitute

grounds for the refusal of mutual legal assistance;

(v) Granting the widest range of mutual legal assistance in investigations, prosecutions and other judicial proceedings related to money-laundering and confiscation cases;

(vi) Ensuring that the crime of money-laundering is covered by mutual legal assistance agreements for the purpose of ensuring judicial assistance in investigations, court cases and other judicial proceedings relating to that crime;

(vii) Making money-laundering an extraditable offence, in accordance with national legislation;

(b) Establishing new or strengthening existing financial and regulatory regimes for banks and non-bank financial institutions, including natural and legal persons providing formal or informal financial services, thus preserving the integrity, reliability and stability of financial and trade systems through, inter alia:

(i) Customer identification and verification requirements, namely, application of the "know-your-customer" principle in order to have available for competent authorities the necessary information on the identity of clients and their financial transactions;

(ii) Requirements for the submission of meaningful beneficial ownership information for legal persons;

(iii) Financial record-keeping;

(iv) The mandatory reporting of suspicious transactions;

(v) Mechanisms to detect and monitor the cross-border transport of cash and other negotiable bearer instruments;

(vi) Consideration of establishing partnerships with the private sector, including financial businesses, with a view to ensuring sound and effective due diligence procedures to counter money-laundering;

(vii) The introduction of measures to keep centralized statistical data on legal action taken to counter money-laundering;

(c) Implementing effective detection, investigation, prosecution and conviction measures, including:

(i) The establishment of dedicated financial intelligence units to serve as national centres for the collection, analysis and dissemination of suspicious transaction reports and the consideration of existing and affordable information technology solutions to assist financial intelligence units in the analysis of suspicious transaction reports;

(ii) The development of specialized law enforcement techniques, consistent with national legislative frameworks, to support efforts to counter money-laundering;

(iii) The encouragement of specialized training for law enforcement and judicial personnel in techniques for countering money-laundering;

(iv) The consideration, in conformity with domestic legislation, of utilizing confiscated funds to support law enforcement activities, demand reduction programmes and efforts to counter money-laundering;

(v) The development and use of instruments to detect and counter, in a timely manner, emerging methods and techniques for laundering money, including money derived from drug trafficking, from the diversion of precursors and from the abuse of cyberspace, money transfer systems and payment cards; and the provision of technical assistance for building the capacity of developing countries in this regard, including the development of national detection instruments;

(d) Promoting effective cooperation in strategies for countering money-laundering and in money-laundering cases by, inter alia:

(i) Strengthening mechanisms for domestic inter-agency coordination and information-sharing;

(ii) Strengthening regional and international networks for the exchange of operational information among competent authorities, in particular financial intelligence units;

(iii) Avoiding, to the extent possible, the duplication of data-collection tools related to Member States' obligations with respect to countering money-laundering, as set out in relevant United Nations instruments.