

How Big is Global Money Laundering?

John Walker

Known incidents of money laundering involving large amounts of money generated from crime are of tremendous public interest and are consequently given wide publicity. A wide range of national and international agencies have attempted to quantify organised crime and components of money laundering in their particular sphere of interest, and their assessments are frequently made available in public statements. The purpose of this paper is to describe a comparatively simple crime-economic model, constructed from readily available international databases, that closely 'predicts' a range of such expert assessments, and appears to offer a framework for determining and monitoring the size of money-laundering flows around the world. Further research is required, but the exercise of constructing the model has identified a number of gaps in existing knowledge which could readily be addressed by well-targeted research. Initial output from the model suggests a global money-laundering total of \$2.85bn per year, heavily concentrated in Europe and North America.

BACKGROUND

In early 1998, the retiring chairman of the OECD's Financial Action Task Force (FATF) Ad Hoc Group on Estimating the Magnitude of Money Laundering, Mr Stanley Morris, stated that 'the need to estimate the size of money laundering and quantify its constituent parts has been a concern of the FATF since its initial report'.¹

His report identified at least four areas of legitimate demand for quantitative measures of money laundering.

- *Understanding the magnitude of the crime*, so that law enforcement authorities, national legislators, and international organisations can reach agreement on the place of counter money-laundering programmes within national and international enforcement and regulatory agendas.
- *Understanding the effectiveness of counter money-laundering efforts*, by providing a baseline and a scale for measurement and enabling evaluation of particular programmes or approaches.
- *Understanding the macroeconomic effects of money laundering*, particularly the adverse effects of money laundering on financial institutions and economies, eg changes in demand for money; exchange and interest rate volatility; heightened risks to asset quality for financial institutions; adverse effects on tax collection and, ultimately, on fiscal policy projections; contamination effects on particular transactions or sectors and behavioural expectations of market actors; and country-specific distributional effects or asset price bubbles.
- *Understanding money laundering*, since even the rigorous examination of the components of measurement should produce a deepened understanding of the relationships among, and the differences between, various parts of the phenomenon that are grouped together when we speak of money laundering.

He concluded however that, 'There is not at present any economic *deus ex machina* that will allow the accurate measurement of money laundering worldwide, or even within most large nations. The basis for such estimations simply does not exist.' Almost two years after FATF's quest for quantification began, the Working Group and its economists — as if trying to prove the old theory about laying economists end-to-end — have yet to reach a conclusion on a methodology.

INTRODUCTION

This paper begs to differ from Morris's gloomy assessment and describes a logical crime-economic model, resembling an interregional input-output economic model, which uses a range of publicly available crime statistics to estimate the amount of money generated by crime in each country around the world, and then uses various socio-economic indices to estimate the proportions of these funds that will be laundered, and to which countries these funds will be attracted for laundering. By aggregating these estimates, an assessment can be made of the likely extent of global money laundering, and comparisons can be made of each country's

contribution to the overall global problem. The structure of the model, together with some of the key output data, will be discussed in this paper. It is not claimed that the model, thus far, produces accurate estimates of money-laundering flows.

What is defined as a crime in one country may not necessarily be criminal in another. The most profitable crimes in some countries may not be profitable in others. Criminals in some countries might choose to launder their profits, while those in other countries might simply spend them. To this extent, Morris's conclusion that there is no single model that explains money laundering may be correct. However, there may be only a relatively small number of variants of a basic formula. One might be able to say, for example, that 'in countries like X, the average profit per recorded fraud is probably around \$20,000, but in countries like Y the figure is more like \$2,000'. Or 'in countries like A, around 60 per cent of the proceeds of crime will be laundered, while in countries like B it is likely to be only around 20 per cent'.

There is a surprising amount of information about global trends in crime and money laundering. For example:

- UN crime and justice databases,² describing crimes officially recorded at the national level in over 80 countries;
- international crime victims surveys,³ that provide insights into the relationships between crime (including crimes not officially recorded) and national socio-economic characteristics in over 60 countries;
- estimates of the proceeds of crimes — particularly drug-related and other transnational crimes⁴;
- indices of corruption and susceptibility to money laundering, such as those compiled by Transparency International⁵ or the Australian Office of Strategic Crime Assessments⁶ in Canberra;
- geographic, demographic, economic, trade and finance data at national and international levels.⁷

More is in the pipeline, since the UN Centre for International Crime Prevention is currently pilot-testing a survey of transnational crime, including questions on international linkages between crime groups.

This paper tries to demonstrate that such data can be assembled to produce a model that, while

currently lacking some important elements, appears to show the way forward. The model, as envisaged in the 1995 AUSTRAC publication that estimated the extent of money laundering in and through Australia,⁸ has something of the style of an international input-output model. It proceeds by estimating the quantity of money that could be generated by crime and made available for laundering in each of 226 countries. It then addresses the question of what proportion of this money is likely to be laundered within the same country or sent to another country for laundering, and finally determines which destination countries will receive the funds exported and in what proportions. When this process is complete, the total estimated flows into and out of each of the individual countries can be added up to provide global aggregates, and country profiles can be derived, highlighting where the greatest flows of hot money are, and identifying the key global problem areas.

THE MODEL

To begin with, it needs to be remembered that money laundering is a flow of funds. There is essentially a place where the money is generated, and a place where it is laundered. Even where crime is organised on a transnational basis, the proceeds of crime can be allocated to the countries in which the various victims of crime live. The money may then, of course, be laundered in the same country in which it was generated, or be sent to another country (or other countries) for laundering. It may, furthermore, flow on from its first placement to other countries, and may often return eventually to the originating country so that the offenders can invest their money into legitimate enterprises in their home country.

However, for the purpose of quantifying money laundering, it is unnecessary to follow the money trails beyond the initial point of laundering, because the transactions from that point onwards have all the legitimacy of ordinary monetary flows. In statistical terms, it would be double counting if hot money was followed all the way round its circuitous path from the scene of the crime to the final investment, and the same money counted each time it moved. If \$1m is earned from crime in Australia and sent, say, to a Hong Kong bank for laundering, and from there via Switzerland to the Cayman Islands, from where it is returned 'cleansed' to Australia, it

is a nonsense to say that these four moves amount to \$4m of money laundering. If a thief sells a stolen bicycle to a secondhand retail shop, it does not count as another theft when the bicycle is purchased from the shop, and each time it subsequently changes hands, yet this sort of muddled thinking is apparent even in the most influential of reports on money laundering.⁹

In this model, the quantity of money laundering *generated* in each country is described as dependent principally upon:

- the nature and extent of crime in that country;
- an estimated amount of money laundered per reported crime, for each type of crime;
- the economic environment in which the crime and the laundering take place.

A country that does not have a lot of crime, or whose economy does not provide significant profits to criminal enterprises, cannot generate large amounts of money to be laundered. In high-crime countries, or those where crime is very profitable, the potential for money laundering is clearly higher. To some extent, this begs the question of what is 'crime'; it is not difficult to think of examples in which, for instance, the political leader of an impoverished country extracts large amounts of wealth from his country, and expatriates it to foreign bank accounts, while at the same time ensuring that his actions are declared to be lawful. From one strictly legalistic point of view, because it was not illegal at the time, it could not have been laundered. But from the moralistic point of view (and examples such as Marcos and Suharto suggest that the world is increasingly willing to take a moralistic position vis-à-vis politicians with large foreign bank accounts) activities such as money laundering would certainly be included. The 'rules' of international politics, however, often make it impossible to describe publicly such political behaviour as criminal until after the removal of the political leader in question. It may therefore be prudent for researchers to adopt a similar stance, only including such amounts retrospectively.

As the next step in the model, the quantity being *attracted* to each country is described as dependent upon, *inter alia*:

- the presence or absence of banking secrecy provisions;
- government attitudes to money laundering;

- levels of corruption and regional conflict; and
- geographical, ethnic or trading proximities between the origin and destination countries.

One would expect initial flows of laundered money to favour countries that have secretive banking practices or poor government control over banking. By contrast, subsequent movements of this laundered money may be expected to favour countries with more respectable and controlled, and therefore safer, banking regimes, but as pointed out above, these secondary flows should not concern us. One would also expect money launderers to take advantage of high levels of corruption, if the corrupt behaviour favours their activities, but to avoid those countries in which there are dangerous levels of conflict or where the corruption is of a form that might put their money at risk. One would further expect higher flows of laundered money between places where geographic proximity, or strong trading or community links such as linguistic or ethnic ties, simplify business transactions.

It is by no means clear that these theories are, in fact, correct. There has simply been insufficient research carried out in enough countries to test them, but they may be a useful starting point. They suggest, in fact, the need for the creation of a range of new country-level crime-economic indices, leading to a better understanding of the determinants of criminal profitability and the effectiveness of regulatory crime prevention efforts. Ratios such as the proceeds of crime as a proportion of GDP, or the extent of fraud as a proportion of total business turnover, would be excellent indicators of a country's well-being, but in spite of the groundwork being done by agencies such as Transparency International¹⁰ and KPMG,¹¹ such ratios are not yet in common use by criminologists.

Stepwise through the model

The model, in its prototype form can be described as a seven-stage process.

- (1) As a starting point, the UN Centre for International Crime Prevention database of recorded crime statistics — the 'UN Survey on Crime Trends and the Operations of Criminal Justice Systems' — contains data on numbers of crimes recorded per year in almost 100 countries. These relate to the crime categories of homicide, assault, rape, robbery, bribery, embezzlement,

fraud, burglary, theft, drug possession and drug trafficking.

- (2) It is no secret that there are differences in the ways countries classify and count criminal incidents, and that there are significant differences in the extent that police get to know about crimes. But research has also shown how to read between the lines of official crime statistics, by using crime victims' surveys of the kind pioneered since 1988 by the Dutch Ministry of Justice and by the UN Interregional Crime Research Institute in Rome (UNICRI). Enough is known to 'see through' major discrepancies in official crime statistics, and make the necessary adjustments. The results presented later in this paper do not yet, however, incorporate any such adjustments, as this requires in-depth research because of the large number of countries involved.
- (3) There are, in addition, a number of countries — mostly smaller, less developed countries — for which we have neither official crime statistics nor crime victims' surveys. They are mostly, by definition, not major players in the system. Some, however, are regarded as attractive to those seeking to launder money. No country, therefore, can be left out of the model. Using knowledge of the prevailing socio-economic circumstances of each of these countries, per capita crime rates from similar or neighbouring countries can be applied to their demographic data to estimate likely recorded crime figures. The model, at this stage, simply computes average crime rates per capita for each of 12 world regions, and these values are applied to the population figures for all countries without crime data, but there is considerable scope for more considered analysis.

So, at this stage in the process, estimates have been produced for the numbers of crimes recorded by police in each country in each of the 11 crime types. The accuracy and the comparability of these estimates are currently open to question, but in future versions of the model adjustments can be made where sufficient knowledge exists.

The model then proceeds to estimate the total amount of money that is laundered *per recorded* crime in each country. This is not necessarily the

same as the average amount laundered per actual crime, although it would be true if all crimes were recorded. Because we acknowledge the fact that not all crimes (particularly in the very important categories of major frauds and drug crimes) are recorded by the police or other authorities, the best way to calculate this figure is by estimating the overall proceeds of crime, for *all* crimes of this type, and then dividing this figure by the number of crimes *recorded*.

- (4) The model's current starting point for this stage is the crime-specific estimates of money laundering, obtained in the 1995 AUSTRAC report on Australia. The best Australian estimate of total laundered money for each type of crime is divided by the numbers of those types of crimes recorded per year in Australia — to give an average amount of laundered money generated *per recorded crime* in Australia. Analysis of the Australian report produces the following approximate figures for money laundered per reported crime:
 - \$50,000 per recorded fraud offence
 - \$100,000 per recorded drug-trafficking offence
 - \$400 per recorded theft
 - \$600 per recorded burglary
 - \$1,400 per recorded robbery
 - \$225 per recorded homicide
 - \$2.23 per recorded assault and sexual assault.

It is worth repeating that these figures are not estimates of the average amount of money laundered per *actual* crime, but per *recorded* crime. This inflates the figure considerably, and will differ from country to country depending on the extent to which crimes are recorded by the authorities — a particularly difficult issue to resolve in the cases of drug crimes and frauds. These estimates for Australia so far have very few equivalents from other countries,¹² but similar methods can eventually be used in other countries to broaden the picture.

The figures, applied to the estimated number of crimes recorded in each country (obtainable from the United Nations crime and justice databases), result in preliminary estimates of the generation of hot money in each of these other countries.

(5) The figures initially resulting from step 4 take no account of the differences between countries in the 'profitability' of crime. Two factors are built into the model: the overall economic situation, as measured by the GNP per capita, and a hypothesised relationship between the level of corruption in a country and the profitability of frauds.

On the question of the effect of the GNP, it is unreasonable to assume that, other things being equal, poor countries are as likely to generate high levels of criminal proceeds as richer countries. To take account of this, each country's figures from step 4 are factored up or down by data on *gross national product per capita*.¹³ To maintain consistency with the 1995 AUSTRAC report, Australia's GNP per capita is taken as 1.00, and others are pro-rataed accordingly. Benchmarking studies are required to determine the nature of the relationship between GNP per capita and the proceeds of crime — it is quite probable that a linear relationship is not appropriate. For the time being, however, a linear proportionality is assumed in the model. That is, the proceeds per crime in any given country are assumed to be proportional to that country's GNP per capita.

Addressing the hypothesis that high levels of corruption may increase the amount of money laundered from frauds, even in countries with relatively low GNPs per capita, the Transparency International Corruption Index, transposed to a scale of 1 (low corruption) to 5 (high corruption), is used to factor up the fraud component of money laundering. For example, while low corruption countries use the Australian-based figure of \$50,000 per recorded fraud offence, countries with very high levels of corruption, as measured by the TI Index, are effectively given a figure of up to five times this dollar amount. Again, this is an area in which significant new research is required.

At this point in the process, steps 1–5 have generated an estimate, for each country in the model, of the total amount of money generated by crime in that country and made available for laundering. The next step is to estimate the proportion of this money that will be laundered within the country — the remainder, of course, would be laundered in other countries.

(6) In the current model, the proportion laundered internally is calculated using the same 1–5 scale of corruption based on the TI Index, assuming that countries with high levels of corruption will allow money to be readily laundered in their own economy and thereby reduce the need to launder in foreign countries. The formula incorporated into the model simply assumes that, for each point on this corruption scale, an additional 20 per cent of the money generated from crime is laundered locally. This results in highly corrupt countries (values approaching 5 on the scale) having 80–100 per cent laundered locally, while those with the lowest corruption scores (values only slightly above 1) have only 20–30 per cent laundered locally. Countries without any score on the TI index have been allocated a score equal to the average for their world trade region.

The assumptions currently used in step 6 need to be further addressed from a theoretical standpoint. The logic behind the decision to launder locally or launder in a foreign market does not appear to be well known or quantified. Other indicators, such as whether the country has any 'suspect transaction' legislation or monitoring agency, would perhaps be appropriate for inclusion in this formula.

(7) Finally, the model estimates how the foreign-laundered part of the total generated in each country is distributed amongst the over 200 other countries around the world. The current assumption builds in four likely tendencies:

- that foreign countries with a tolerant attitude towards money laundering (eg those with banking secrecy laws or uncooperative government attitudes towards the prevention of money laundering) will attract a greater proportion of the funds than more vigilant countries;
- that high levels of corruption and/or conflict will deter money launderers, because of the risks of losing their funds;
- that countries with high levels of GNP/capita will be preferred by money launderers, since it would be easier to 'hide' their transaction; and
- that, other things being equal, geographic distance, and linguistic or cultural

differences, work as deterrents to money launderers.

It is interesting to see the results of the first three of these assumptions, as they can be combined to form an 'index of attractiveness' to money launderers. The formula, in algebraic terms is:

$$\begin{aligned}
 \text{Attractiveness to Money Launderers} &= [\text{GNP per capita}] \\
 &\times [3 \times \text{BankSecrecy} + \text{GovAttitude} \\
 &+ \text{SWIFTmember} - 3 \times \text{Conflict} \\
 &- \text{Corruption} + 15]
 \end{aligned}$$

Table 1: Attractiveness to money launderers — Rank order*

Country	Score
Luxembourg	686
US	634
Switzerland	617
Cayman Islands	600
Austria	497
Netherlands	476
Liechtenstein	466
Vatican City	449
UK	439
Singapore	429
Hong Kong	397
Ireland	356
Bermuda	313
Bahamas, Andorra, Brunei, Norway, Iceland, Canada	250–299
Portugal, Denmark, Sweden, Monaco, Japan, Finland, Germany, New Zealand, Austria, Belgium	200–249
Bahrain, Qatar, Italy, Taiwan, United Arab Emirates, Barbados, Malta, France, Cyprus	150–199
Gibraltar, Azores (Spain), Canary Islands, Greenland, Belarus, Spain, Israel	100–149
Czech Republic, Latvia, St Vincent, Malaysia, Estonia, Oman, Lithuania, N. Mariana Islands, Greece, South Korea, Seychelles, Azerbaijan, Anguilla, Aruba (Neth.), Kuwait, Hungary, Saudi Arabia, British Virgin Islands, Guam, Brazil, Panama, Russia, Costa Rica, Mauritius, Gabon, Armenia, Thailand, Macedonia, Grenada	50–99
Poland, Slovakia, Georgia, St Kitts-Nevis, Dominica, St Lucia, Belize, Guadeloupe, Martinique, Puerto Rico, US Virgin Islands, Argentina, Croatia, Uruguay, Midway Islands, Barbuda, Slovenia, Suriname, Botswana, Romania, Chile, Bulgaria, French Polynesia, New Caledonia, Yugoslavia, Trinidad, Libya, Turkey, Albania, Lebanon, Guatemala, Ecuador, Moldova, South Africa, French Guiana	25–49
Falkland Islands, Vanuatu, Venezuela, Ukraine, Cook Islands, Philippines, Turks and Caicos Islands, Fiji, Marshall Islands, Mexico, Nauru, Algeria, Antigua, Bolivia, Uzbekistan, Syria, Western Samoa, Morocco, Indonesia, Colombia, Cuba, Bosnia and Herzegovina, Tunisia, Jordan, Paraguay, Jamaica, San Marino, Mayotte, Palau Islands, Honduras, Niue, Reunion, Namibia, Somalia, Congo, Tonga, Iraq, Swaziland, Dominican Republic, Kazakhstan, Kyrgyzstan, Turkmenistan, El Salvador	10–24
Cameroon, Bhutan, North Korean, Ivory Coast, Federal States of Micronesia, Kiribati, Tuvalu, Papua New Guinea, Zimbabwe, Western Sahara, Iran, Cape Verde, Senegal, Egypt, Peru, Sri Lanka, Djibouti, Mongolia, Solomon Islands, Zambia, Lesotho, Yemen, Comoros, Sao Tome, Maldives, Benin, Nicaragua, Pakistan, Guyana, Burkina Faso, Nigeria, Equatorial Guinea, Mauritania, Gambia, Myanmar, Guinea, China, Ghana, Haiti, Vietnam, Madagascar, Kenya, Togo, Tadjikistan, India, Central African Republic, Sudan, Tanzania, Mali, Laos, Niger, Malawi, Uganda, Guinea Bissau, Nepal, Angola, Bangladesh, Liberia, Democratic Republic of Congo, Cambodia, Rwanda, Mozambique, Ethiopia, Afghanistan, Burundi, Sierra Leone, Chad, Antarctica, Europa Island	0–9

*The higher the score, the greater the attractiveness for money launderers.

Table 2: Estimates of the major money-laundering flows around the world (\$USbn/year)

World region	Money-laundering destinations												Total generated	Outgoing
	E Asia	S Asia	SW Asia	Australasia	N Africa	S Africa	Europe	S America	C America	Caribbean	N America	Antarctica		
<i>ML origins</i>														
E Asia	298	1	6	2	1	1	18	0	0	1	1	0	329	31
S Asia	0	3	0	0	0	0	0	0	0	0	0	0	4	1
SW Asia	0	0	17	0	0	0	1	0	0	0	0	0	18	1
Australasia	1	0	0	2	0	0	1	0	0	0	0	0	4	2
N Africa	0	0	0	0	5	0	0	0	0	0	0	0	6	1
S Africa	0	0	1	0	0	15	2	0	0	0	0	0	19	4
Europe	7	0	9	1	1	1	985	0	0	2	1	0	1,006	21
S America	0	0	0	0	0	0	2	24	0	3	1	0	31	7
C America	0	0	0	0	0	0	1	0	18	3	1	0	24	5
Caribbean	0	0	0	0	0	0	0	0	0	6	0	0	6	0
N America	15	0	20	13	7	5	271	22	54	316	681	0	1,403	721
Antarctica	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total laundered	322	5	52	18	15	21	1,281	47	73	31	686	0	2,850	
Incoming	24	2	36	16	9	6	296	23	54	325	4	0		

where *GNP per capita* is measured in US\$,
BankSecrecy is a scale from 0 (no secrecy laws) to 5 (bank secrecy laws enforced),
GovAttitude is a scale from 0 (government anti-laundering) to 4 (tolerant to laundering),
SWIFTmember is 0 for non-member countries and 1 for members of the SWIFT international fund transfer network,
Conflict is a scale from 0 (no conflict situation) to 4 (conflict situation exists),
Corruption is the modified Transparency International Index (1 = low, 5 = high corruption),
 And the constant '15' is included to ensure that all scores are greater than zero.

on this index does not necessarily reflect poorly on that country's banking regime or government stance regarding money laundering. High scores on the index can be achieved by providing a secure environment for investments generally, as well as by providing a benign environment for money launderers. Bearing in mind that these scores are based on a very simple formula derived from publicly available information and the researcher's own intuition as to the relative importance of the various factors, most of the country rankings appear to be quite logical.

The final step in this process is to incorporate a 'distance deterrence' assumption into the formula to determine how each country's outgoing money laundering is distributed amongst the 225 other countries. The formula used is:

$$\text{Proportion of outgoing ML from country X to country Y} = \frac{\text{Attractiveness score for Y}}{(\text{Distance between country X and country Y})^2}$$

The scores on this index, as they result from the assumptions used in the current model, are presented in Table 1. It is important to note that a high score

The distances between countries were estimated using

Principal Inter-regional Flows

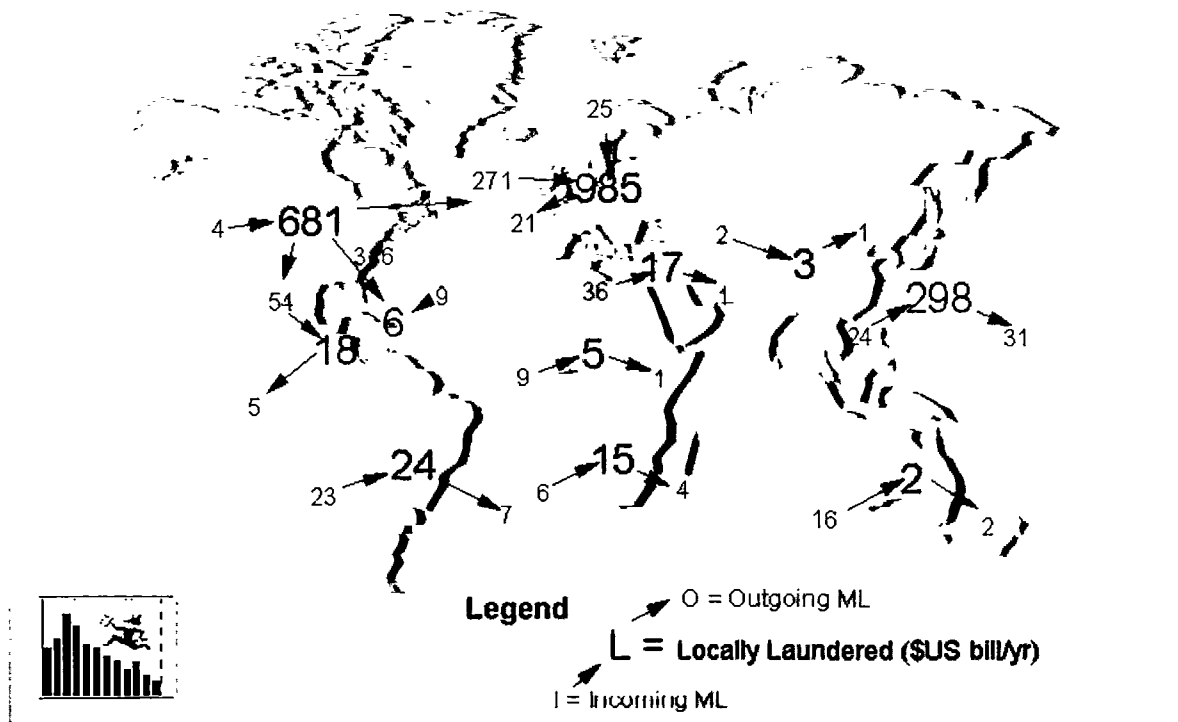


Figure 1: Estimates of the major money-laundering flows around the world (\$USbn/year)

a feature of the Mapinfo software, identifying the latitudes and longitudes of the approximate population centroids of each country and using simple geometry to calculate the distances between them. The use of the distances squared as a measure of deterrence uses empirically based regional economic analysis conventions, by which interactions between communities reduce according to the square of the distance between them.¹⁴

The geographical distance formula should, after further research, be replaced by a more complex 'Index of Trading Proximity', using a formula that would include, in addition to the geographic information, data on bilateral trade and finance, currency transaction reporting statistics, cross-border currency movement reporting figures, and on ethnic and linguistic linkages between countries. In addition, more sensitive measures of corruption, conflict and tolerance of money laundering, including perhaps suspicious activity report statistics, need to be developed.

The results of the model

The full spreadsheet occupies 22 megabytes of disk space, and is therefore not practical to include in full in this document. However, it is interesting simply to present some summary results from the matrix — ie the total money laundering generated in each country and the total money laundering attracted to each region and country. The figures generated by the assumptions described above are presented in Table 2. A total of over \$US2.8tn is obtained for global money laundering, which is within the range of estimates reported by the IMF.

Table 2 and Figure 1 summarise the estimated international flows of laundered money at the global level. Note that, in these figures, flows of money generated and laundered in the same region of the world may actually involve international transfers (eg a flow from the UK to Switzerland would be included in the internal figure of \$985bn for money generated and laundered in Europe).

The model actually produces estimates at the level of individual countries. It is very important to reiterate that these figures represent only an interim set of results and not the author's best and final estimates of money laundering around the world. They are included to show the types of output that would be derived from a fully developed model,

and cannot yet be regarded as serious measures of money-laundering flows.

Readers may note, for example, that some of the figures of money laundering currently derived by the model amount to rather more than the entire recorded GNP of some countries, and while this may in fact not be impossible,¹⁵ it indicates that, as discussed earlier, the model probably needs to pay more attention to constraints involving *actual economic and financial transaction* data.

More work is definitely required before the output of this model may be considered to be an adequate response to the question of quantifying global money laundering, but the approach appears to be feasible and capable of further refining.

Table 3 shows the top 20 countries of origin for laundered money, as estimated by the model. Note that most are developed countries.

The model then tries to estimate where these amounts of hot money will go for laundering, using the assumptions described above. Estimates of the top 20 flows are presented in Table 4, including

Table 3: Top 20 origins of laundered money

Rank	Origin	Amount (\$USm/yr)	% of total
1	US	1,320,228	46.3
2	Italy	150,054	5.3
3	Russia	147,187	5.2
4	China	131,360	4.6
5	Germany	128,266	4.5
6	France	124,748	4.4
7	Romania	115,585	4.1
8	Canada	82,374	2.9
9	UK	68,740	2.4
10	Hong Kong	62,856	2.2
11	Spain	56,287	2.0
12	Thailand	32,834	1.2
13	South Korea	21,240	0.7
14	Mexico	21,119	0.7
15	Austria	20,231	0.7
16	Poland	19,714	0.7
17	Philippines	18,867	0.7
18	Netherlands	18,362	0.6
19	Japan	16,975	0.6
20	Brazil	16,786	0.6
Total	All countries	2,850,470	100.0

Table 4: Top 20 flows of laundered money

Rank	Origin	Destination	Amount (\$USm/yr)	% of total
1	US	US	528,091	18.5
2	US	Cayman Islands	129,755	4.6
3	Russia	Russia	118,927	4.2
4	Italy	Italy	94,834	3.3
5	China	China	94,579	3.3
6	Romania	Romania	87,845	3.1
7	US	Canada	63,087	2.2
8	US	Bahamas	61,378	2.2
9	France	France	57,883	2.0
10	Italy	Vatican City	55,056	1.9
11	Germany	Germany	47,202	1.7
12	US	Bermuda	46,745	1.6
13	Spain	Spain	28,819	1.0
14	Thailand	Thailand	24,953	0.9
15	Hong Kong	Hong Kong	23,634	0.8
16	Canada	Canada	21,747	0.8
17	UK	UK	20,897	0.7
18	US	Luxembourg	19,514	0.7
19	Germany	Luxembourg	18,804	0.7
20	Hong Kong	Taiwan	18,796	0.7
Total	All countries	All countries	2,850,470	100.0

flows of funds within the generating countries themselves.

Finally, it is possible to aggregate these flows according to their destinations. Table 5 presents the top 20 destination countries for money laundering, according to the assumptions currently incorporated in the model.

It is interesting again to note how much of the laundered money, using these assumptions, flows to already developed countries — particularly the US and Europe. The potential of money laundering to widen the gap between rich countries and poor countries is another important issue that can be tested using a model of this kind.

Use of media content analysis for calibration of the model

As a means of evaluating the credibility of the estimates produced by the model, a sample of 100 press clippings on money laundering or related issues, provided by e-mail from Europol's documentation centre, was examined for information regarding the

extent of national or global flows of laundered money.

The original press reports, predominantly (but not exclusively) from English-language printed and electronic media, were dated between 27th February and 5th May, 1998 — a period of less than ten weeks. More recently, national assessments for Belarus (personal communication), Canada (website) and Colombia (Europol clippings) have also been obtained.

Particular passages in the press clippings were extracted, relating specifically to the amounts of money being generated by crime and laundered around the world, examples of types of crime that generate launderable levels of criminal proceeds, the countries in which they take place, and the means by which the money is laundered. Other passages extracted provide information on the degree of effort made by governments to prevent money laundering in each country. An essential element in the selection of these extracts is that they relate to specific countries. Finally, a number of other extracts have a broader focus — providing global

Table 5: Top 20 destinations of laundered money

Rank	Destination	Amount (\$USm/yr)	% of total
1	US	538,145	18.9
2	Cayman Islands	138,329	4.9
3	Russia	120,493	4.2
4	Italy	105,688	3.7
5	China	94,726	3.3
6	Romania	89,595	3.1
7	Canada	85,444	3.0
8	Vatican City	80,596	2.8
9	Luxembourg	78,468	2.8
10	France	68,471	2.4
11	Bahamas	66,398	2.3
12	Germany	61,315	2.2
13	Switzerland	58,993	2.1
14	Bermuda	52,887	1.9
15	Netherlands	49,591	1.7
16	Liechtenstein	48,949	1.7
17	Austria	48,376	1.7
18	Hong Kong	44,519	1.6
19	UK	44,478	1.6
20	Spain	35,461	1.2

or regional estimates of crime or of the extent of money laundering.

Table 6 summarises the key findings from these clippings, together with the equivalent model results. Bearing in mind that there is much that remains to be done in refining the data and relationships built into the model, these results are already interestingly close to the published assessments contained in the press clippings.

The Walker model of global money laundering relies upon a wide range of risk assessment indices, including crime and economic statistics alongside subjective assessments such as Transparency International's well-known corruption index. While such information does not provide absolute numbers for estimates of the proceeds of crime and of money laundering, it provides information on the likely limitations on criminal proceeds and on levels of money laundering in a given country.

'Harder' evidence — ie data on actual cases with estimates of the monetary amounts involved — is required to ensure the model 'fits' the available data and therefore has overall credibility. The hard data could be compared with the estimates that emerge from the model, and any discrepancies can be used

to adjust or calibrate the assumptions of the model. Such official data are, regrettably, extremely rare owing to the complex and covert nature of the money-laundering activity itself. Neither is the extent of the profits from crime a statistic readily obtained from the entrepreneurs themselves.

This small collection of press clippings extracts has, however, revealed useful information on a remarkably broad range of countries (84 in all), crime patterns and money-laundering techniques. It has revealed a large number of linkages between criminal groups operating across international borders, and it has provided estimates of the dollar values involved in their financial transactions. All of this information can be used to enhance the model's credibility in the fine detail, and hence its overall credibility.

As it stands, it could not yet be described as an entirely rigorous technique for the identification of key data on money laundering. For example, there is likely to be some unevenness in the international coverage, because the service focuses mainly on European or US-based English-speaking news services. The researcher's own limited linguistic ability further reduced the scope of the analysis to press reports written in English, simple French or the very rare instance of monosyllabic German. Repetition of high-interest cases, such as the Salinas investigation involving Mexico, Switzerland and Colombia, might also appear to introduce biases or even double counting into the analysis.

On the other hand, one should not be too dismissive of a technique that provides information about over 80 countries from a mere ten weeks' supply of press clippings. One might therefore conclude that ongoing monitoring of this press clipping service could contribute significantly, and without any major research cost, to the analysis of global money-laundering flows.

While it might be less than completely satisfying to evaluate an economic model through its success in predicting expert assessments, rather than through its performance in predicting actual economic statistics, one might be excused on the grounds of the peculiar nature of the crime economy and the complexity of the laundering processes that facilitate it.

CONCLUSIONS

This paper has presented the design of a model for estimating flows of money laundering around the

Table 6: Comparisons of estimates contained in media reports against model results

<i>Press clippings</i>	<i>Model results</i>
'Illegal grey economy in Czech Republic about 10% of GDP' (<i>Hospodářské Noviny</i> , 2 Apr. 98)	Model estimates 14.8% of GDP
'\$30bn illegal drugs reach the US from Mexico each year' (<i>Chicago Tribune</i> , 25 Mar. 98)	Model estimates \$26bn laundered in Mexico each year
'More than \$2bn is laundered in Poland each year' (National Bank of Poland, reported on 15 Apr. 98)	Model estimates \$3bn sent for laundering in Poland each year
'Share of shadow business in Russia's economy may range between 25%–50%' (TASS, 17 Mar. 98)	Model estimates money laundering 15% of Russian GDP
'Switzerland is implicated in \$500bn of money laundering each year' (Swiss Finance Ministry, reported on 26 Mar. 98)	Model estimates \$59bn, including only 'first-stage' laundering
'UK black economy between 7–13% of GDP' (<i>Sunday Telegraph</i> , 29 Mar. 98)	Model estimates total money laundering 7.4% of UK GDP
'Money laundering in Belarus about 30% of GDP' (European Humanities University, 20 Nov. 98)	Model estimates 22.2% of GDP
'Illicit funds generated and laundered in Canada per year between \$5 and \$17bn' (Canadian Solicitor General, Sept. 1998)*	Model estimates \$22bn generated and laundered in Canada per year, but also that \$63bn of US crime funds laundered in Canada
'Approximately \$2.7bn are laundered in Colombia every year' (BBC Monitoring Service, Latin America, 25 Nov. 98)	Model estimates that \$2.1bn laundered in Colombia every year
'Illegal profits total 2–5% of world GDP or \$1–3trn' (<i>Dow Jones News</i> , 12 Mar. 98)	Model estimates total global money laundering \$2.85trn

* Porteous, S. 'Organised Crime Impact Study Highlights', internet site <http://www.sgc.gc.ca/>, Ministry of the Solicitor General, Ottawa, 1998.

world. While there are many problems with missing and non-comparable data, there also appear to be rational techniques for using expert knowledge to fill in these gaps. The model concentrates on assembling or estimating information that can be cross-checked, so that while it will, inevitably, be in error in some areas due to poor data or incorrect hypotheses, there are numerous opportunities to cross-check with other data in the model. For example, estimates based on data and hypotheses about crime levels and profits logically cannot be in conflict with estimates based on economic or financial data. Also a number of ratios and indices (eg money laundering as a percentage of GNP, the ML Attractiveness Index) are calculated for every country within the model that can be assessed by expert opinion. Whenever they are in conflict in the model, this is a signal that a 'third opinion' is required — ie more research needs to be done in precisely the area of data conflict.

Areas identified in this paper for further research include:

- The estimation of crime levels in countries for which no statistics exist, by the use of demographic and socio-economic data that are more readily available.
- Estimating the relative amounts of money laundered per recorded crime, in each crime type, in a range of country types (eg development level, transitional, geographic region etc), and the relationships between these amounts and national indicators such as GNP per capita and the types and levels of corruption.
- Research into the factors determining the decision of where to launder the proceeds of crime; ie the proportion of money that is laundered in the country in which it is generated, and the relative attraction of foreign destinations.

REFERENCES

- (1) Chairman's Paper, 'Measuring Money Laundering' (Rev. 1); An Interim Report to the FATF Ad Hoc Group on Estimating the Magnitude of Money Laundering, 4th March, 1998, OECD, Paris.
- (2) See for example Ch. 2 'Police Records of Crime' in 'Global

Report on Crime and Justice', UN Centre for International Crime Prevention, Vienna, 1999.

- (3) See for example, 'Understanding Crime — Experiences of Crime and Crime Control', UNICRI Report No. 49, (1993), 'Criminal Victimisation in the Developing World', UNICRI Report No. 55 (1995) and 'The International Crime Victims Survey in Countries in Transition', UNICRI Report Number 62 (1998), United Nations Interregional Crime Research Institute, Rome.
- (4) See for example Porteous, note to Table 6 and Ch. 9 'Emerging Issues: Transnational Crime and its Control' in 'Global Report on Crime and Justice', UN Centre for International Crime Prevention, Vienna, 1999.
- (5) Internet site <http://www.gwdg.de/~uwvw/CPI1998.html>, Transparency International (1998).
- (6) 'OSCA Assessment No. 3/97 — Potential Money Laundering Centres of Concern to Australia — Technical Appendix', Office of Strategic Crime Assessments, Canberra 1998.
- (7) For example, 'World Economic and Social Survey', UN Department of Economic and Social Information and Policy Analyses, New York, annual.
- (8) Walker, J. (1995) 'Estimates of the Extent of Money Laundering in and through Australia', Australian Transactions Research and Analysis Centre, Sydney.
- (9) For example, in the 'Chairman's Paper' (ref. 1 above) Morris said 'Measuring a sequence of transactions involves double counting if all of the transactions occur within the same measurement group (or if one is attempting to measure money laundering worldwide). The issue may be less serious if one is counting on a country-by-country basis.'
- (10) Ref. 5 above.
- (11) <http://www.kpmg.net/images/library/96/may/fraud.pdf>. During 1994 and 1995, KPMG conducted national fraud surveys in 18 countries: Australia, Greece, New Zealand, Bahrain, Hong Kong, Norway, Botswana, India, South Africa, Canada, Ireland, Sweden, France, Malawi, the UK, Germany, the Netherlands and the US, concluding that aggregate losses in these countries from fraud alone are in excess of US\$1bn.
- (12) Costs of crime research has been carried out in Canada, the US and the UK which could form the basis of comparative estimates, and some relevant information for developing and transitional countries may be available from the international crime victims' surveys.
- (13) Source: annual *Human Development Reports*, UN Development Programme, New York.
- (14) See, for example, 'Calibrating and testing a gravity model for any size urban area', US Department of Transportation, Federal Highway Administration, reprinted in 1983.
- (15) Indeed, in countries where the underground economy exceeds the size of the legitimate economy, this will be so unless the GNP figures were compiled so as to include untaxed income — a practice that would not conform to current international standards of national accounting.

John Walker is an independent consultant crime trends analyst. His work includes analysis of crime victimisation, measurement of the costs of crime, quantification of money-laundering flows and projection models of crime and corrections.