

Overview Report: Simplified Text on Quantification of Money Laundering

A. Scope of Overview Report

1. This simplified Overview Report is about estimating the extent of money laundering. As quantification is the most common means of understanding the extent of the problem, this Report is primarily focused on describing various methodologies for quantifying the extent of money laundering, and discusses the advantages and disadvantages of each model. The Report also summarises three reports commissioned by the Government of British Columbia and two RCMP investigations, which all at least touch on the question of the extent of money laundering in this province.

B. Introduction

2. There are various ways to estimate the extent of money laundering, but there is no consensus on which method, if any, can realistically estimate the extent of money laundering domestically or globally.

C. Why try to estimate money laundering?

3. Because money laundering takes place in secret, it is impossible to directly measure and very hard to estimate. Some view estimates of money laundering as wild and imprecise, if not downright wrong.¹ Others have said it is not possible on any evidence to do better than an order of ten estimate range.² Problems with money laundering estimates have led some experts to conclude that the ways used to quantify money laundering are so flawed as to be unable to guide policy.³

¹ P.C. Van Duyne, J.H. Harvey, L.Y. Gelemerova, *The Critical Handbook of Money Laundering: Policy, Analysis and Myths* (London, Palgrave Macmillan, 2018) at p. 6. See also e.g. P. Reuter, "Are estimates of the volume of money laundering either feasible or useful?", *Research Handbook on Money Laundering*, B. Unger and D. van der Linde, eds. (Cheltenham, UK: Edward Elgar, 2013) at pp. 224 and 227.

² M. Gold and M. Levi, *Money-Laundering in the UK: An Appraisal of Suspicion-based Reporting* (London: The Police Foundation / University of Wales, 1994) at p. 42.

³ P. Reuter and E. Truman, *Chasing Dirty Money: The Fight Against Money Laundering*, Institute for International Economics, Washington, D.C., 2004 at p. 10, available online at:

4. Given the problems with trying to estimate the amount of money laundering, why should the Commission consider estimating money laundering at all? First, the Terms of Reference require inquiry into the extent and growth of money laundering in British Columbia in certain sectors.⁴ Second, if estimates of the size of the problem in different industries are possible, it could help the Commission come up with recommendations.⁵ Third, it could be helpful to government if it had estimates to help direct public policy. Fourth, knowing the scope of the problem might help with assessing the effectiveness of any steps taken to address it.

D. What methods are there to quantify money laundering?

5. Money laundering is an attempt to legitimize the proceeds of illegal activities, which makes its measurement very difficult. In fact, it is not possible to directly measure the amount of money laundering in an industry and/or location. Thus, estimating money laundering relies on indirect methods.

6. The Commission groups the different ways to quantify money laundering in several categories as follows:

1. the International Monetary Fund “consensus” range of 2-5% of global gross domestic product (GDP);
2. extrapolations from capital mobility data;

<https://books.google.ca/books?id=0AVwjC9TDSMC&printsec=frontcover&dq=chasing+dirty+money+google&hl=en&sa=X&ved=0ahUKEwjN1eKcncDmAhWTqZ4KHTAZC34Q6AEIKTAA#v=onepage&q=chasing%20dirty%20money%20google&f=false>; P. Reuter, “Are estimates of the volume of money-laundering either feasible or useful?”, *Research Handbook on Money Laundering*, B. Unger and D. van der Linde, eds. (Cheltenham, UK: Edward Elgar, 2013) at p. 224.

⁴ *Commission of Inquiry into Money Laundering in British Columbia Order*, section 4(1)(a), available online at: <https://cullencommission.ca/about/#tor>.

⁵ P. Reuter and E. Truman, *Chasing Dirty Money: The Fight Against Money Laundering*, Institute for International Economics, Washington, D.C., 2004 at p. 10, available online at: <https://books.google.ca/books?id=0AVwjC9TDSMC&printsec=frontcover&dq=chasing+dirty+money+google&hl=en&sa=X&ved=0ahUKEwjN1eKcncDmAhWTqZ4KHTAZC34Q6AEIKTAA#v=onepage&q=chasing%20dirty%20money%20google&f=false>.

3. extrapolations from measurements of the shadow or underground economy, including:
 - a. Currency Demand approach;
 - b. disagreement between indicators of overall economic activity and official GDP;
 - c. Dynamic / Multiple-Indicators Multiple Causes approach;
 - d. Two Sector / General Equilibrium model;
4. extrapolations from suspicious transaction reports or other indicators of potential money laundering;
5. extrapolations from proceeds of crime data, including:
 - a. case studies; and
 - b. Walker and Unger gravity models.

These methods are summarized below.

E. The International Monetary Fund “consensus” range of 2-5% of global GDP

7. A number repeated in anti-money laundering reports and the academic literature is that money laundering is 2-5% of global gross domestic product (“**GDP**”).⁶ This estimate is sometimes referred to as the “IMF 1998 estimate”. It comes from a speech made in 1998 by Michel Camdessus, the then Managing Director of the International

⁶ See e.g. M. Arnone and L. Borlini, “International anti-money laundering programs: Empirical assessment and issues in criminal regulation”, (2010) 13 *Journal of Money Laundering Control* 226 at p. 233; P.C. Van Duyne, J.H. Harvey, L.Y. Gelemerova, *The Critical Handbook of Money Laundering: Policy, Analysis and Myths* (London, Palgrave Macmillan, 2018) at p. 8; N. Hendriyetty and B.S. Grewal, “Macroeconomics of money laundering: effects and measurements”, (2017) 24 *Journal of Financial Crime* 66 at p. 71; W.A. Khan, S.T. Jawaid and I. Arif, “Where does a nation’s wealth go? Evidence from a third world country”, (2018) 21 *Journal of Money Laundering Control* 426 at p. 437; F. Schneider, “The Financial Proceeds of Transnational Organized Crime All Over the World: Some New Empirical Facts”, (2013) 33 *SAIS Review of International Affairs* 91 at p. 92.

Monetary Fund (“**IMF**”).⁷ Mr. Camdessus was addressing the Financial Action Task Force (“**FATF**”) plenary meeting.⁸ Although the method used to get this estimate is unknown, the estimate is frequently used as a default reference point by various agencies, including The World Bank.⁹ Domestically, the Criminal Intelligence Service Canada applied it in 2014 to get an estimate of money laundering in Canada.¹⁰

8. In addition to lacking any verifiable methodology, it is uncertain whether the approach can be used to estimate money laundering within a country and it is out-of-date in the context of today’s world economies and financial crime. This is why, in 2015, the Financial Transactions and Reports Analysis Centre of Canada (“**FinTRAC**”) rejected it as a viable way to measure money laundering.¹¹

F. Extrapolations from capital mobility data

9. There are several methods for estimating the extent of money laundering that use capital mobility data. “Capital” in this sense is money and liquid assets. “Capital mobility” is the ability of capital to move from one country to another. The movement of capital between countries can take a number of forms, for example, Foreign Direct Investment, movement of money through portfolio flows (short-term capital) and bank transfers.

⁷ M. Arnone and L. Borlini, “International anti-money laundering programs: Empirical assessment and issues in criminal regulation”, (2010) 13 *Journal of Money Laundering Control* 226 at p. 233; FinTRAC, “Estimating the Scale of Money Laundering in Canada”, 2015 (redacted) at p. 1; United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 19, available online at:

<https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>; J. Walker and B. Unger, “Measuring Global Money Laundering: ‘The Walker Gravity Model’”, (2009) 5 *Review of Law and Economics* 821 at p. 823.

⁸ International Monetary Fund, *SPEECH*, Address by Michael Camdessus, February 10, 1998, available online at: <<http://www.imf.org/external/np/speeches/1998/021098.htm>>. The FATF is an inter-governmental body established in 1989 by the Ministers of its Member jurisdictions. Its objectives are to set standards and promote effective implementation of legal, regulatory and operational measures for combating money laundering, terrorist financing and other related threats to the integrity of the international financial system.

⁹ FinTRAC, “Estimating the Scale of Money Laundering in Canada”, 2015 (redacted) at p. 1.

¹⁰ FinTRAC, “Estimating the Scale of Money Laundering in Canada”, 2015 (redacted) at p. 1.

¹¹ FinTRAC, “Estimating the Scale of Money Laundering in Canada”, 2015 (redacted) at p. 2.

Hot Money method

10. The Hot Money method relies on net errors and omissions in countries' balance of payments.¹²

11. The term "balance of payments" describes a way to track monetary transactions between a country and the rest of the world. A country's balance of payments is the difference in the total value of payments into and out of that country over a certain period. It includes all the transactions made by/to individuals, corporations and government. When money goes into a country, there is a credit to its balance of payments. When money leaves a country, there is a deduction from its balance of payments. There are three categories of accounts in a balance of payments: the current, capital and financial accounts.¹³ If a transaction creates a liability (e.g. by the sale of a bond to another country), then that transaction gets counted in the capital or financial accounts. But if a transaction does not create a liability (e.g. the export of a good like a car to another country), then the transaction is counted in the current account.

12. In theory, a country's balance of payments should add up to zero. "Net errors and omissions" is the difference between a zero balance in a balance of payments and what

¹² N. Hendriyetty and B.S. Grewal, "Macroeconomics of money laundering: effects and measurements", (2017) 24 *Journal of Financial Crime* 66 at p. 72; D. Kar and D. Cartwright-Smith, *Illicit Financial Flows from Developing Countries: 2002 – 2006*, Global Financial Integrity, December 2008, available online at: <https://secureservercdn.net/45.40.149.159/34n.8bd.myftpupload.com/wp-content/uploads/2014/05/IFFs_from_Developing_Countries_Report-Full-Economist-Final.pdf?time=1576152230> at pp. 4-5.

¹³ The current account monitors the flow of income from one country to another. It includes the balance of trade (net earnings on exports minus payments for imports), earnings on foreign investments minus payments made to foreign investors and cash transfers. The financial account includes the flow of assets from one country to another (through various investments in real estate, business ventures, foreign direct investments). The capital account is typically much smaller than the current or financial accounts and includes miscellaneous transfers that do not affect national income (e.g. debt forgiveness, the purchase of non-financial and non-produced assets such as the rights to natural resources or patents).

the balance of payments actually is. It is also called a “balancing item” or “statistical discrepancy”. It typically results from imperfections in source data and errors in compiling the balance of payments information. However, the Hot Money method assumes net errors and omissions are the result of money laundering through transactions with off-shore centres and bogus transactions and invoicing.¹⁴ The theory is that the higher the net errors and omissions in a balance of payments account, the more likely the country will be a victim of money laundering.¹⁵

13. The primary drawbacks in using this method are: (1) net errors and omissions data capture statistical errors in balance of payments that are difficult to separate from money laundering;¹⁶ (2) the method only captures a small part of illicit flows;¹⁷ and (3) data are missing for many countries.¹⁸

Residual method

¹⁴ United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 16, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>.

¹⁵ N. Hendriyetty and B.S. Grewal, “Macroeconomics of money laundering: effects and measurements”, (2017) 24 *Journal of Financial Crime* 66 at p. 72; United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 16, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>.

¹⁶ N. Hendriyetty and B.S. Grewal, “Macroeconomics of money laundering: effects and measurements”, (2017) 24 *Journal of Financial Crime* 66 at p. 72; D. Kar and D. Cartwright-Smith, *Illicit Financial Flows from Developing Countries: 2002 – 2006*, Global Financial Integrity, December 2008, available online at: <https://secureservercdn.net/45.40.149.159/34n.8bd.myftpupload.com/wp-content/uploads/2014/05/IFFs_from_Developing_Countries_Report-Full-Economist-Final.pdf?time=1576152230> at p. 5.

¹⁷ N. Hendriyetty and B.S. Grewal, “Macroeconomics of money laundering: effects and measurements”, (2017) 24 *Journal of Financial Crime* 66 at p. 72; D. Kar and D. Cartwright-Smith, *Illicit Financial Flows from Developing Countries: 2002 – 2006*, Global Financial Integrity, December 2008, available online at: <https://secureservercdn.net/45.40.149.159/34n.8bd.myftpupload.com/wp-content/uploads/2014/05/IFFs_from_Developing_Countries_Report-Full-Economist-Final.pdf?time=1576152230> at p. 5.

¹⁸ D. Kar and D. Cartwright-Smith, *Illicit Financial Flows from Developing Countries: 2002 – 2006*, Global Financial Integrity, December 2008, available online at: <https://secureservercdn.net/45.40.149.159/34n.8bd.myftpupload.com/wp-content/uploads/2014/05/IFFs_from_Developing_Countries_Report-Full-Economist-Final.pdf?time=1576152230> at p. 5

14. The Residual method tries to measure capital flight by looking at the unrecorded difference between inflows and outflows of funds (the “**residuals**”).¹⁹ “Capital flight” is the sum of gross capital inflows²⁰ and current account²¹ deficit, less increases in official foreign reserves. This model may overestimate illegal outflows because some unrecorded government foreign debts come from legitimate sources.²² Also, there are questions about how well the residuals reflect capital flight and to what extent capital flight, which includes, but is not limited to, money laundering and tax evasion, actually measures money laundering.²³

Dooley method

15. The Dooley method assumes privately-held foreign assets, which are not reported in a country’s balance of payments, are a measure of criminal capital flight.²⁴ It looks at a country’s balance of payments account to detect unrecorded capital outflows, which is assumed to result from money laundering.²⁵ The approach also assumes that interest earned on legal and normal capital outflows will be reported in balances of payments, while interest earned on illegal capital will be unreported.

¹⁹ N. Hendriyetty and B.S. Grewal, “Macroeconomics of money laundering: effects and measurements”, (2017) 24 *Journal of Financial Crime* 66 at p. 72; United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 16, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>.

²⁰ Capital inflows are the sum of changes in gross foreign debt (public and private) and net foreign direct investment.

²¹ The current account monitors the flow of income from one country to another. It includes the balance of trade (net earnings on exports minus payments for imports), earnings on foreign investments minus payments made to foreign investors and cash transfers.

²² N. Hendriyetty and B.S. Grewal, “Macroeconomics of money laundering: effects and measurements”, (2017) 24 *Journal of Financial Crime* 66 at p. 72.

²³ United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 16, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>.

²⁴ N. Hendriyetty and B.S. Grewal, “Macroeconomics of money laundering: effects and measurements”, (2017) 24 *Journal of Financial Crime* 66 at p. 73; D. Kar and D. Cartwright-Smith, *Illicit Financial Flows from Developing Countries: 2002 – 2006*, Global Financial Integrity, December 2008, available online at: <https://secureservercdn.net/45.40.149.159/34n.8bd.myftpupload.com/wp-content/uploads/2014/05/IFFs_from_Developing_Countries_Report-Full-Economist-Final.pdf?time=1576152230> at p. 6.

²⁵ N. Hendriyetty and B.S. Grewal, “Macroeconomics of money laundering: effects and measurements”, (2017) 24 *Journal of Financial Crime* 66 at p. 73.

16. The Dooley method is limited by the fact that the data on short-term private sector capital flows required to generate the estimate are no longer available.²⁶ There are also other data limitations and statistical problems.²⁷ The method may only reveal the inability of a country to attract foreign investment to compensate for external debt and may not explain the capital that has been transferred offshore for money laundering.²⁸

Trade Mispricing method

17. The Trade Mispricing (or Misinvoicing) method uses observations of abnormal prices to estimate the extent of money laundering. It measures under- and over-invoicing of exports and imports based on international trade data.²⁹ The idea is that people can transfer criminal capital by over-invoicing imports and under-invoicing exports.³⁰ The exports reported by a country are compared to what other countries say

²⁶ D. Kar and D. Cartwright-Smith, *Illicit Financial Flows from Developing Countries: 2002 – 2006*, Global Financial Integrity, December 2008, available online at: https://secureservercdn.net/45.40.149.159/34n.8bd.myftpupload.com/wp-content/uploads/2014/05/IFFs_from_Developing_Countries_Report-Full-Economist-Final.pdf?time=1576152230 at p. 6.

²⁷ D. Kar and D. Cartwright-Smith, *Illicit Financial Flows from Developing Countries: 2002 – 2006*, Global Financial Integrity, December 2008, available online at: https://secureservercdn.net/45.40.149.159/34n.8bd.myftpupload.com/wp-content/uploads/2014/05/IFFs_from_Developing_Countries_Report-Full-Economist-Final.pdf?time=1576152230 at pp. 6-7.

²⁸ N. Hendriyetty and B.S. Grewal, “Macroeconomics of money laundering: effects and measurements”, (2017) 24 *Journal of Financial Crime* 66 at p. 72.

²⁹ B. Unger, “Money Laundering – A Newly Emerging Topic on the International Agenda”, (2009) 5 *Review of Law & Economics* 807 at pp. 812-814; N. Hendriyetty and B.S. Grewal, “Macroeconomics of money laundering: effects and measurements”, (2017) 24 *Journal of Financial Crime* 66 at p. 73; D. Kar and D. Cartwright-Smith, *Illicit Financial Flows from Developing Countries: 2002 – 2006*, Global Financial Integrity, December 2008, available online at: https://secureservercdn.net/45.40.149.159/34n.8bd.myftpupload.com/wp-content/uploads/2014/05/IFFs_from_Developing_Countries_Report-Full-Economist-Final.pdf?time=1576152230 at pp. 8-9. See also e.g. J. Zdanowicz, “Trade-Based Money Laundering and Terrorist Financing”, (2009) 5 *Review of Law and Economics* 855.

³⁰ D. Kar and D. Cartwright-Smith, *Illicit Financial Flows from Developing Countries: 2002 – 2006*, Global Financial Integrity, December 2008, available online at: https://secureservercdn.net/45.40.149.159/34n.8bd.myftpupload.com/wp-content/uploads/2014/05/IFFs_from_Developing_Countries_Report-Full-Economist-Final.pdf?time=1576152230 at p. 8.

they have imported from that country and the disagreement is estimated to be trade-based money laundering.³¹

18. There are reasons unrelated to money laundering for mis-invoicing.³² For example, it can occur in response to high trade taxes. Other shortcomings with this method are: (1) not all mis-invoiced trade results in a difference between export and import values; (2) trade transactions concluded by word-of-mouth or using informal financial institutions are not represented; (3) collusion between importers and exporters to fake invoices is not accounted for; and (4) estimates do not include the proceeds of smuggling.³³

Global Financial Integrity method

19. Global Financial Integrity (“**GFI**”) is a Washington, D.C., organisation that works to limit criminal financial flows through research, policy and advice to governments.³⁴ The GFI method combines the Trade Mispricing method with either the Residual or Hot Money method.³⁵

³¹ D. Kar and D. Cartwright-Smith, *Illicit Financial Flows from Developing Countries: 2002 – 2006*, Global Financial Integrity, December 2008, available online at: <https://secureservercdn.net/45.40.149.159/34n.8bd.myftpupload.com/wp-content/uploads/2014/05/IFFs_from_Developing_Countries_Report-Full-Economist-Final.pdf?time=1576152230> at p. 8.

³² D. Kar and D. Cartwright-Smith, *Illicit Financial Flows from Developing Countries: 2002 – 2006*, Global Financial Integrity, December 2008, available online at: <https://secureservercdn.net/45.40.149.159/34n.8bd.myftpupload.com/wp-content/uploads/2014/05/IFFs_from_Developing_Countries_Report-Full-Economist-Final.pdf?time=1576152230> at p. 8.

³³ D. Kar and D. Cartwright-Smith, *Illicit Financial Flows from Developing Countries: 2002 – 2006*, Global Financial Integrity, December 2008, available online at: <https://secureservercdn.net/45.40.149.159/34n.8bd.myftpupload.com/wp-content/uploads/2014/05/IFFs_from_Developing_Countries_Report-Full-Economist-Final.pdf?time=1576152230> at pp. 9-11; United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 16, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>.

³⁴ Global Financial Integrity, About Us, available online at: <<https://gfintegrity.org/>>.

³⁵ N. Hendriyetty and B.S. Grewal, “Macroeconomics of money laundering: effects and measurements”, (2017) 24 *Journal of Financial Crime* 66 at p. 73; D. Kar and D. Cartwright-Smith, *Illicit Financial Flows from Developing Countries: 2002 – 2006*, Global Financial Integrity, December 2008, available online at: <https://secureservercdn.net/45.40.149.159/34n.8bd.myftpupload.com/wp-content/uploads/2014/05/IFFs_from_Developing_Countries_Report-Full-Economist-Final.pdf?time=1576152230>; D. Dar and J. Spanjers, *Illicit Financial Flows from Developing Countries:*

G. Extrapolations from estimates of the shadow or underground economy

20. Estimates of a country's shadow or underground economy are sometimes used to estimate money laundering. The terms "shadow economy" and "underground economy" are often used interchangeably.³⁶ But, sometimes they mean different things with the shadow economy meaning all informal (i.e. criminal and non-criminal) activity and the underground economy meaning only criminal activity.³⁷

21. A fundamental concern with using the size of the shadow or underground economy as proxies for money laundering is that money from informal, but not criminal, activity is often captured in the estimates.³⁸ Also, there is no independent way to test the reliability of the estimates.³⁹

Currency Demand method

22. The Currency Demand approach assumes cash is often used in hidden transactions.⁴⁰ The first use of this was in 1997 when Vito Tanzi, then with the

2003-2012, Global Financial Integrity, December 2014, available online at:

<https://secureservercdn.net/45.40.149.159/34n.8bd.myftpupload.com/wp-content/uploads/2014/12/Illicit-Financial-Flows-from-Developing-Countries-2003-2012.pdf?time=1576152230>.

³⁶ See e.g. P. Reuter and E. Truman, *Chasing Dirty Money: The Fight Against Money Laundering*, Institute for International Economics, Washington, D.C., 2004, available online at:

<https://books.google.ca/books?id=0AVwjC9TDSMC&printsec=frontcover&dq=chasing+dirty+money+google&hl=en&sa=X&ved=0ahUKEwjN1eKcncDmAhWTqZ4KHTAZC34Q6AEIKTAA#v=onepage&q=chasing%20dirty%20money%20google&f=false>.

³⁷ F. Schneider, "Money Laundering and Financial Means of Organized Crimes: Some Preliminary Empirical Findings", "Paolo Baffi" Centre on Central Banking and Financial Regulation, Research Paper Series No. 2008-1 at pp. 9-10; P.C. Van Duyne, J.H. Harvey, L.Y. Gelemerova, *The Critical Handbook of Money Laundering: Policy, Analysis and Myths* (London, Palgrave Macmillan, 2018) at p. 204; FinTRAC, "Estimating the Scale of Money Laundering in Canada", 2015 (redacted) at p. 11.

³⁸ FinTRAC, "Estimating the Scale of Money Laundering in Canada", 2015 (redacted) at pp. 4-5 and 11.

³⁹ P.C. Van Duyne, J.H. Harvey, L.Y. Gelemerova, *The Critical Handbook of Money Laundering: Policy, Analysis and Myths* (London, Palgrave Macmillan, 2018) at p. 204.

⁴⁰ FinTRAC, "Estimating the Scale of Money Laundering in Canada", 2015 (redacted) at p. 15; United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 16, available online at: https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf.

International Monetary Fund, used the difference between money printed and circulating in the United States' economy to estimate the amount of money laundering in that country.⁴¹ Later, Ardizzi et al. used a variation of the Currency Demand method to quantify the level of money laundering in Italy from 2005 to 2008.⁴² This variation used a statistical method, which assigned coefficients⁴³ to a number of independent variables to get an estimate of the value of cash deposits made during the study period. The amount of money laundering was estimated from the excess demand for cash deposits that was unexplained by economics.

23. A benefit of this method is that an estimate is relatively easy to get if the data are available.⁴⁴

24. There are several criticisms of the Currency Demand method. It does not account for use of the regular financial or trade systems to launder money even though today cash may no longer be a major way of holding illegal money.⁴⁵ The method also

⁴¹ J. Walker and B. Unger, "Measuring Global Money Laundering: 'The Walker Gravity Model' (2009) 5 Review of Law and Economics 821 at p. 828; FinTRAC, "Estimating the Scale of Money Laundering in Canada", 2015 (redacted) at p. 15; United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 16, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>; The World Bank, *Ill-gotten Money and the Economy: Experiences from Malawi and Namibia*, The World Bank, Washington, D.C., 2011 at p. 16; A. Chong and F. Lopez-de-Silanes, "Money Laundering and Its Regulation", (2015) 27 Economic & Politics 78 at pp. 97 and 100-102.

⁴² FinTRAC, "Estimating the Scale of Money Laundering in Canada", 2015 (redacted) at pp. 14-15, citing G. Ardizzi, C. Petraglia, M. Piacenza, F. Schneider and G. Turati, "Estimating Money Laundering through a "Cash Deposit Demand" Approach", *Economia Informale, Evasione Fiscale E Corruzione*, Pavia, Aule Storiche dell'Università, September 24-25, 2012, available online at: <https://pdfs.semanticscholar.org/d8bf/a2784f44c54f8be1f61186d52f998f5aefd0.pdf?_ga=2.8657404.8333515.1576711134-1857495873.1576540280>Ar; P.C. Van Duynes, J.H. Harvey, L.Y. Gelemerova, *The Critical Handbook of Money Laundering: Policy, Analysis and Myths* (London, Palgrave Macmillan, 2018) at pp. 209-210, citing G. Ardizzi, C. Petraglia, M. Piacenza, F. Schneider and G. Turati, "Money Laundering as a Crime in the Financial Sector: A New Approach to Quantitative Assessment, with an Application to Italy", (2014) 46 Journal of Money, Credit and Banking 1555; W.A. Khan, S.T. Jawaid and I. Arif, "Where does a nation's wealth go? Evidence from a third world country", (2018) 21 Journal of Money Laundering Control 426 at p. 433, citing G. Ardizzi, C. Petraglia, M. Piacenza, F. Schneider and G. Turati, "Money Laundering as a Crime in the Financial Sector: A New Approach to Quantitative Assessment, with an Application to Italy", (2014) 46 Journal of Money, Credit and Banking 1555.

⁴³ A number placed before the variable.

⁴⁴ FinTRAC, "Estimating the Scale of Money Laundering in Canada", 2015 (redacted) at p. 15.

⁴⁵ W.A. Khan, S.T. Jawaid and I. Arif, "Where does a nation's wealth go? Evidence from a third world country", (2018) 21 Journal of Money Laundering Control 426 at p. 434; J. Walker and B. Unger,

often makes no distinction between the shadow economy and money laundering.⁴⁶ Further, the method includes any legitimate currency held abroad and does not account for unaccounted cash, which was not generated by crime (such as hoarding because of a fear of currency devaluation).⁴⁷ It also does not account for laundering of money in multiple / foreign currencies or within a currency zone.⁴⁸

Disagreements between indicators of overall economic activity and official GDP

25. This is the same method as the Currency Demand method, but instead of using cash discrepancies, it uses differences between an indicator of overall economic activity (e.g. electrical consumption) and official GDP to measure the size of the shadow economy.⁴⁹ The criticisms of the Currency Demand approach also apply to this method.⁵⁰

Dynamic / Multiple-Indicators Multiple-Causes model

“Measuring Global Money Laundering: ‘The Walker Gravity Model’”, (2009) 5 Review of Law and Economics 821 at p. 828.

⁴⁶ FinTRAC, “Estimating the Scale of Money Laundering in Canada”, 2015 (redacted) at p. 15; B. Unger, “Money Laundering – A Newly Emerging Topic on the International Agenda”, (2009) 5 Review of Law & Economics 807 at p. 810; United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 16m available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>.

⁴⁷ FinTRAC, “Estimating the Scale of Money Laundering in Canada”, 2015 (redacted) at p. 15; United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 16, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>.

⁴⁸ FinTRAC, “Estimating the Scale of Money Laundering in Canada”, 2015 (redacted) at p. 15; B. Unger, “Money Laundering – A Newly Emerging Topic on the International Agenda”, (2009) 5 Review of Law & Economics 807 at p. 810; United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 16, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>. For a more technical critique of Tanzi’s model to estimate the shadow economy, see Chapter 1 of I. Deleanu, *Anti-money laundering efforts – failures, fixes and the future*, Ph.D. thesis, University of Utrecht, September 2015.

⁴⁹ A. Chong and F. Lopez-de-Silanes, “Money Laundering and Its Regulation”, (2015) 27 Economic & Politics 78 at p. 101; P.C. Van Duyne, J.H. Harvey, L.Y. Gelemerova, *The Critical Handbook of Money Laundering: Policy, Analysis and Myths* (London, Palgrave Macmillan, 2018) at p. 204.

⁵⁰ P.C. Van Duyne, J.H. Harvey, L.Y. Gelemerova, *The Critical Handbook of Money Laundering: Policy, Analysis and Myths* (London, Palgrave Macmillan, 2018) at pp. 204 and 207.

26. The “Dynamic Multiple-Indicators Multiple-Causes” (“**DYMIMIC**” or “**MIMIC**”) model is a structural equation model.⁵¹ “Structural equation” modeling describes different kinds of mathematical models, computer algorithms and statistical methods that use observable variables to try to assign relationships between unobservable variables (also called “latent variables”). Unobservable variables (like money laundering) cannot be measured directly. For example, a structural equation model could test whether intelligence (an unobservable variable) measured by observable variables (e.g. an IQ test), can predict academic performance (an unobservable variable) measured by observable variables (e.g. different standardized test scores, grade point average). The model also tests whether the observable variables are good indicators of the unobservable variables.

27. The DYMIMIC model uses two sets of observable variables and links these to the unobservable variable of money laundering.⁵² One set of the observable variables is made up of cause variables (various criminal activities).⁵³ The other set is made up of indicator variables (e.g. confiscated money, prosecuted persons, increases in crime rates).⁵⁴ The aim is to arrive at the smallest set of observable variables to measure money laundering.⁵⁵

⁵¹ F. Schneider, “Money Laundering and Financial Means of Organized Crimes: Some Preliminary Empirical Findings”, “Paolo Baffi” Centre on Central Banking and Financial Regulation, Research Paper Series No. 2008-1. See also J. Walker and B. Unger, “Measuring Global Money Laundering: ‘The Walker Gravity Model’”, (2009) 5 *Review of Law and Economics* 821 at p. 829.

⁵² F. Schneider, “Money Laundering and Financial Means of Organized Crimes: Some Preliminary Empirical Findings”, “Paolo Baffi” Centre on Central Banking and Financial Regulation, Research Paper Series No. 2008-1 at pp. 21-22. See also: F. Schneider and U. Windischbauer, “Money laundering: some facts”, (2008) 26 *European Journal of Law and Economics* 387; F. Schneider, “Turnover of organized crime and money laundering: some preliminary empirical findings”, (2010) 144 *Public Choice* 47; F. Schneider, “The Financial Proceeds of Transnational Organized Crime All Over the World: Some New Empirical Facts”, (2013) 33 *SAIS Review of International Affairs* 91; A. Buehn and F. Schneider, “A preliminary attempt to estimate the financial flows of transnational crime using the MIMIC method”, in *Research Handbook on Money Laundering*, B. Unger and D. van der Linde, eds. (Cheltenham, UK: Edward Elgar, 2013) at pp. 172-189.

⁵³ J. Walker and B. Unger, “Measuring Global Money Laundering: ‘The Walker Gravity Model’”, (2009) 5 *Review of Law and Economics* 821 at p. 829.

⁵⁴ J. Walker and B. Unger, “Measuring Global Money Laundering: ‘The Walker Gravity Model’”, (2009) 5 *Review of Law and Economics* 821 at p. 829.

⁵⁵ F. Schneider, “Money Laundering and Financial Means of Organized Crimes: Some Preliminary Empirical Findings”, “Paolo Baffi” Centre on Central Banking and Financial Regulation, Research Paper Series No. 2008-1; F. Schneider and U. Windischbauer, “Money laundering: some facts”, (2008) 26 *European Journal of Law and Economics* 387; . Schneider, “Turnover of organized crime and money

28. There are several advantages of the DYMIMIC model. It can apply to all countries and jurisdictions.⁵⁶ Variables can be changed according to particular features of the informal economic activity studied, the period in question and the availability of data.⁵⁷ Also, if the sample is large, well-known statistical testing procedures can be applied to get an idea of the reliability of the model.

29. Yet, as with all money laundering quantification methods, there are problems with the DYMIMIC model. In 2008, Friedrich Schneider estimated the amount of money laundering or profits from criminal activities for 20 countries for six years.⁵⁸ He used estimates of money laundering in the model from other sources such as the IMF 1998 estimate (see above) and the Walker Gravity model (see below).⁵⁹ Thus, the estimated value of money laundering was based on the absolute values of other estimations.⁶⁰ Schneider admitted this was a big difficulty in using his method. Another problem with the DYMIMIC model is the arbitrary choice of cause and indicator variables.⁶¹ Statistics,

laundering: some preliminary empirical findings”, (2010) 144 *Public Choice* 47; F. Schneider, “The Financial Proceeds of Transnational Organized Crime All Over the World: Some New Empirical Facts”, (2013) 33 *SAIS Review of International Affairs* 91; A. Buehn and F. Schneider, “A preliminary attempt to estimate the financial flows of transnational crime using the MIMIC method”, in *Research Handbook on Money Laundering*, B. Unger and D. van der Linde, eds. (Cheltenham, UK: Edward Elgar, 2013) at pp. 172-189.

⁵⁶ United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 17, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>; N. Hendriyetty and B.S. Grewal, “Macroeconomics of money laundering: effects and measurements”, (2017) 24 *Journal of Financial Crime* 66 at p. 74.

⁵⁷ A. Buehn and F. Schneider, “A preliminary attempt to estimate the financial flows of transnational crime using the MIMIC method”, in *Research Handbook on Money Laundering*, B. Unger and D. van der Linde, eds. (Cheltenham, UK: Edward Elgar, 2013) at p. 180.

⁵⁸ F. Schneider, “Money Laundering and Financial Means of Organized Crimes: Some Preliminary Empirical Findings”, “Paolo Baffi” Centre on Central Banking and Financial Regulation, Research Paper Series No. 2008-1.

⁵⁹ F. Schneider, “Money Laundering and Financial Means of Organized Crimes: Some Preliminary Empirical Findings”, “Paolo Baffi” Centre on Central Banking and Financial Regulation, Research Paper Series No. 2008-1 at p. 23; F. Schneider, “The Financial Proceeds of Transnational Organized Crime All Over the World: Some New Empirical Facts”, (2013) 33 *SAIS Review of International Affairs* 91 at pp. 92-99.

⁶⁰ F. Schneider, “Money Laundering and Financial Means of Organized Crimes: Some Preliminary Empirical Findings”, “Paolo Baffi” Centre on Central Banking and Financial Regulation, Research Paper Series No. 2008-1 at pp. 21-22; A. Buehn and F. Schneider, “A preliminary attempt to estimate the financial flows of transnational crime using the MIMIC method”, in *Research Handbook on Money Laundering*, B. Unger and D. van der Linde, eds. (Cheltenham, UK: Edward Elgar, 2013) at pp. 180-181.

⁶¹ J. Walker and B. Unger, “Measuring Global Money Laundering: ‘The Walker Gravity Model’”, (2009) 5 *Review of Law and Economics* 821 at p. 829; United Nations Office on Drugs and Crime, *Estimating illicit*

and not expert opinion, decide which indicator variables are used to estimate money laundering.⁶² Also, the estimation procedure is very sensitive to changes in variables.⁶³

Two Sector / General Equilibrium model

30. The Two Sector / General Equilibrium model is a mathematical model that uses economic theory to estimate the value of the underground economy. The estimate of the underground economy is then used as an estimate of money laundering.⁶⁴

Behaviour is predicted from theory by deriving an equilibrium equation from estimated data to generate the unobservable variable (the size of the illegal economy).⁶⁵

31. This method can be applied to any country.⁶⁶ The model's predictions about the development of the legal (but not illegal) sector can be compared to real GDP data to determine the accuracy of the model for this aspect, which also allows an inference about the reliability of the illegal sector estimate.⁶⁷ This approach has the advantage of a solid grounding in accepted economic theory.⁶⁸

financial flows resulting from drug trafficking and other transnational organized crimes, Research Report, October 2011 at p. 17, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>.

⁶² J. Walker and B. Unger, "Measuring Global Money Laundering: 'The Walker Gravity Model'", (2009) 5 *Review of Law and Economics* 821 at p. 829; United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 17, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>.

⁶³ N. Hendriyetty and B.S. Grewal, "Macroeconomics of money laundering: effects and measurements", (2017) 24 *Journal of Financial Crime* 66 at p. 74.

⁶⁴ A. Argentiero, M. Bagella and F. Busato, "Money laundering in a two-sector model: using theory for measurement", (2008) 26 *Eur J Law Econ* 341. See also M. Bagella, F. Busato and A. Argentiero, "Using dynamic macroeconomics for estimating money laundering: a simulation for the EU, Italy and the United States", in *Research Handbook on Money Laundering*, B. Unger and D. van der Linde, eds. (Cheltenham, UK, 2013) at pp. 207-223, which applies the model to Italy, the European Union 15 and the United States.

⁶⁵ A. Argentiero, M. Bagella and F. Busato, "Money laundering in a two-sector model: using theory for measurement", (2008) 26 *Eur J Law Econ* 341 at p. 349.

⁶⁶ A. Argentiero, M. Bagella and F. Busato, "Money laundering in a two-sector model: using theory for measurement", (2008) 26 *Eur J Law Econ* 341 at p. 345.

⁶⁷ FinTRAC, "Estimating the Scale of Money Laundering in Canada", 2015 (redacted) at pp. 4-5; N. Hendriyetty and B.S. Grewal, "Macroeconomics of money laundering: effects and measurements", (2017) 24 *Journal of Financial Crime* 66 at p. 74; United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 18, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>.

⁶⁸ B. Unger, "Money Laundering – A Newly Emerging Topic on the International Agenda", (2009) 5 *Review of Law & Economics* 807 at pp. 814-845.

32. However, there are a few problems with using the Two Sector model to estimate money laundering: (1) it relies on a variety of assumptions;⁶⁹ (2) much of the theoretical reasoning underpinning the model requires so much simplification and abstraction that the model is far removed from reality;⁷⁰ and (3) it does not use any observed data to measure money laundering.⁷¹

H. Extrapolations from suspicious transaction reports or other indicators of potential money laundering

33. Estimating money laundering via extrapolations from suspicious transaction reports (“**STRs**”) or other suspicious transaction indicators may provide an estimate of money laundering in a specific sector.⁷²

34. In 2009, John Zdanowicz analyzed monthly data in the United States Merchandise Trade Data Base.⁷³ He compared a country’s average price of an export with the world average price for the same (as far as possible) product. He classified all transactions with a price below 5% or above 95% of the average prices as trade-based

⁶⁹ FinTRAC, “Estimating the Scale of Money Laundering in Canada”, 2015 (redacted) at pp. 4-5.

⁷⁰ P.C. Van Duyne, J.H. Harvey, L.Y. Gelemerova, *The Critical Handbook of Money Laundering: Policy, Analysis and Myths* (London, Palgrave Macmillan, 2018) at p. 210.

⁷¹ N. Hendriyetty and B.S. Grewal, “Macroeconomics of money laundering: effects and measurements”, (2017) 24 *Journal of Financial Crime* 66 at p. 74.

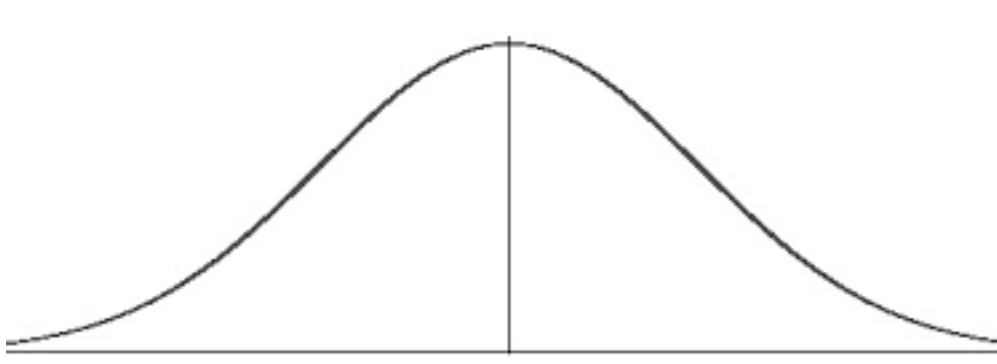
⁷² FinTRAC, “Estimating the Scale of Money Laundering in Canada”, 2015 (redacted) at p. 6, citing M. Gold and M. Levi, *Money Laundering in the United Kingdom: An Appraisal of Suspicious-Base Reporting* (London: Police Foundation, 1994). See also J. Walker and B. Unger, “Measuring Global Money Laundering: ‘The Walker Gravity Model’”, (2009) 5 *Review of Law and Economics* 821 at p. 827; P.C. Van Duyne, J.H. Harvey, L.Y. Gelemerova, *The Critical Handbook of Money Laundering: Policy, Analysis and Myths* (London, Palgrave Macmillan, 2018) at p. 219; The World Bank, *Ill-gotten Money and the Economy: Experiences from Malawi and Namibia*, The World Bank, Washington, D.C., 2011 at p. 17, all citing M. Levi and M. Gold, *Money Laundering in the United Kingdom: An Appraisal of Suspicious-Base Reporting* (London: Police Foundation, 1994).

⁷³ J. Ferwerda, M. Kattenberg, H.-H. Chang, B. Unger, L. Groot and J.A. Bikker, “Gravity models of trade-based money laundering” (2013) 45 *Applied Economics* 3170 at p. 3173, citing J. Zdanowicz, “Trade-Based Money Laundering and Terrorist Financing”, (2009) 5 *Review of Law and Economics* 855; United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at pp. 17-18, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>, also citing work by Professor Zdanowicz. See also The World Bank, *Ill-gotten Money and the Economy: Experiences from Malawi and Namibia*, The World Bank, Washington, D.C., 2011 at p. 17.

money laundering. The study assumed product prices were normally distributed⁷⁴ and that unusual prices had a criminal intention and were not just errors made by customs officials.⁷⁵ Another weakness of the study was that no matter how great the price fluctuations were, the model classified 10% of all transactions as suspicious (the upper and lower 5%).⁷⁶ Pricing within that 10% might arise from laundering, but also could be for other reasons like the evasion of trade duties.⁷⁷

35. There are some general problems with using STRs to estimate money laundering. The method is over- and under-inclusive because it can capture suspicious transactions that are in fact legitimate and can exclude legitimate transactions that are criminal.⁷⁸ Also, STRs may only tell one about the number of total transactions of a certain kind and not anything about the value of those transactions.⁷⁹ Finally, because the same money may go through many different transactions in the laundering process,

⁷⁴ In other words, it assumed prices fell along a “normal distribution curve” as follows:



⁷⁵ United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 18, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>.

⁷⁶ United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 18, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>.

⁷⁷ P.C. Van Duyne, J.H. Harvey, L.Y. Gelemerova, *The Critical Handbook of Money Laundering: Policy, Analysis and Myths* (London, Palgrave Macmillan, 2018) at p. 217.

⁷⁸ P.C. Van Duyne, J.H. Harvey, L.Y. Gelemerova, *The Critical Handbook of Money Laundering: Policy, Analysis and Myths* (London, Palgrave Macmillan, 2018) at p. 219; J. Walker and B. Unger, “Measuring Global Money Laundering: ‘The Walker Gravity Model’”, (2009) 5 *Review of Law and Economics* 821 at p. 827; M. Levi, P. Reuter and T. Halliday, “Can the AML System be evaluated without better data?”, (2018) 69 *Crime Law Social Change* 307 at p. 319.

⁷⁹ M. Levi, P. Reuter and T. Halliday, “Can the AML System be evaluated without better data?”, (2018) 69 *Crime Law Social Change* 307 at p. 319.

it is likely to result in double counting.⁸⁰ In 2015, FinTRAC concluded the STR approach was not rigorous enough to be a standalone method to estimate money laundering.⁸¹

I. Extrapolations from proceeds of crime data

36. Data about proceeds of crime has been used to estimate the scale of money laundering.⁸² This approach has three main problems: (1) it is not known how representative police data on proceeds of crime are in relation to the total amount of money laundering; (2) it depends on access to reliable quantitative data about the amount of crime and the amount of money generated by different crimes; and (3) it depends on being able to accurately estimate the percentage of the proceeds of crime that are laundered for each type of crime considered.⁸³

⁸⁰ J. Walker and B. Unger, “Measuring Global Money Laundering: ‘The Walker Gravity Model’”, (2009) 5 Review of Law and Economics 821 at p. 827; United Nations Office on Drugs and Crime, Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes, Research Report, October 2011 at p. 48, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>.

⁸¹ FinTRAC, “Estimating the Scale of Money Laundering in Canada”, 2015 (redacted) at p. 6.

⁸² See e.g. J. Walker and B. Unger, “Measuring Global Money Laundering: ‘The Walker Gravity Model’”, (2009) 5 Review of Law and Economics 821 at p. 827 and United Nations Office on Drugs and Crime, Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes, Research Report, October 2011 at p. 15, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>, citing J. Meloen, R. Landman, H. de Miranda, J. van Eekelen and S. van Soest, *Buit en besteding* (Gravenhage: Elsevier Overheid, 2003) (the Commission does not have this Dutch publication); P. Reuter and E. Truman, *Chasing Dirty Money: The Fight Against Money Laundering*, Institute for International Economics, Washington, D.C., 2004, available online at:

<<https://books.google.ca/books?id=0AVwjC9TDSMC&printsec=frontcover&dq=chasing+dirty+money+google&hl=en&sa=X&ved=0ahUKEwjN1eKcncDmAhWTqZ4KHTAZC34Q6AEIKTAA#v=onepage&q=chasing%20dirty%20money%20google&f=false>>; Organization for Security and Co-operation in Europe and United Nations Interregional Crime and Justice Research Institute, *A report on Money laundering and Predicate Crime in Serbia 2000-2005*, October 2006, available online at: <http://www.unicri.it/topics/organized_crime_corruption/archive/money_laundering_serbia/MoneyLaunderingSerbia2000-2005.pdf>.

⁸³ FinTRAC, “Estimating the Scale of Money Laundering in Canada”, 2015 (redacted) at p. 2; M. Levi, P. Reuter and T. Halliday, “Can the AML System be evaluated without better data?”, (2018) 69 Crime Law Social Change 307 at p. 318. Later, Schneider also used this case study to estimate money laundering in the securities sector: . S. Schneider, “Money Laundering Through Securities: An Analysis of Canadian Police Cases”, (2004) 4 Asper Review 169.

Case studies

37. The work done by Stephen Schneider and Margaret Beare in the early 2000s is an example of an extensive case study in the Canadian context. The authors analysed Royal Canadian Mounted Police (“**RCMP**”) proceeds of crime cases to estimate money laundering in Canada.⁸⁴ The objectives were to identify, examine and quantify: (1) the types of illegal activity that generated criminal money washed through the legitimate economy; (2) the sectors of the economy into which criminal proceeds were placed; (3) specific assets or services used within the respective sectors; (4) transactions and processes used for money laundering purposes; and (5) specific guises and/or techniques used to facilitate money laundering at deposit institutions.⁸⁵

38. The study had problems with data reliability and there were questions about whether it was reasonable to extrapolate the findings to money laundering in all of Canada.⁸⁶ First, there was no guarantee that the study was able to identify all of the assets and laundering methods associated with a particular crime. Second, the study’s exclusive reliance on police cases meant that examples of money laundering included in the study were skewed toward those identified and investigated by the RCMP. In other words, the study was filtered through the police’s enforcement priorities and capacities. Third, there were issues about the quality and completeness of the information in the RCMP database because some information was missing or was wrongly entered. It was not possible to get a random sample of cases.

39. Another example of a case study is a 2015 report done by the Department of Finance: *Assessment of Inherent Risks of Money Laundering and Terrorist Financing in*

⁸⁴ S. Schneider, *Money Laundering in Canada: An Analysis of RCMP Cases* (Toronto, York University, 2004); S. Schneider, “Money Laundering Through Securities: An Analysis of Canadian Police Cases”, (2004) 4 *Asper Review* 169; M. Beare and S. Schneider, *Money Laundering in Canada: Chasing Dirty and Dangerous Dollars* (Toronto: University of Toronto Press, 2007) at pp. 76-146.

⁸⁵ S. Schneider, “Money Laundering Through Securities: An Analysis of Canadian Police Cases”, (2004) 4 *Asper Review* 169 at p. 172.

⁸⁶ S. Schneider, “Money Laundering Through Securities: An Analysis of Canadian Police Cases”, (2004) 4 *Asper Review* 169 at pp. 175-176; M. Beare and S. Schneider, *Money Laundering in Canada: Chasing Dirty and Dangerous Dollars* (Toronto: University of Toronto Press, 2007) at p. 324, footnote 2.

Canada: 2015.⁸⁷ The goal was to identify, assess and understand money laundering and terrorist financing risks in Canada. During a series of workshops, experts from Canada's anti-money laundering and anti-terrorist financing regimes assessed the threats and vulnerabilities of sectors and products.⁸⁸ They used a low, medium, high or very high rating. Participants reviewed Canadian data for 21 crimes they considered most associated with proceeds of crime in Canada and money laundering. The money laundering threat was rated for each criminal activity against four rating criteria: (1) the extent of the threat actors' knowledge, skills and expertise to conduct money laundering; (2) the extent of the threat actors' network, resources and overall capability to conduct money laundering; (3) the scope and complexity of the money laundering activity; and (4) the magnitude of the proceeds of crime being generated annually from the criminal activity.

40. Case studies provide a good indication of the extent of money laundering at the smaller end of the money laundering scale.⁸⁹ They are also helpful in understanding the behaviour of launderers, what they consume, where they launder, how they launder and so on.⁹⁰

41. However, like STRs, crime statistics are subject to different interpretations.⁹¹ Researchers must make assumptions about the underlying population of money launderers.⁹² Thus, case studies exclude the full range of money laundering practices, networks and behavioural assumptions. Also, the data are often skewed by the fact that

⁸⁷ Department of Finance Canada, *Assessment of Inherent Risks of Money Laundering and Terrorist Financing in Canada: 2015*, Government of Canada, July 2015, available online at: <<https://fin.gc.ca/pub/mltf-rpcf/mtf-rpcf-eng.pdf>> at p. 5.

⁸⁸ Department of Finance Canada, *Assessment of Inherent Risks of Money Laundering and Terrorist Financing in Canada: 2015*, Government of Canada, July 2015, available online at: <<https://fin.gc.ca/pub/mltf-rpcf/mtf-rpcf-eng.pdf>> at p. 16.

⁸⁹ B. Unger, "Money Laundering – A Newly Emerging Topic on the International Agenda", (2009) 5 *Review of Law & Economics* 807 at p. 809.

⁹⁰ See e.g. M.R.J. Soudijn, "Using Police Reports to Monitor Money Laundering Developments. Continuity and Change in 12 Years of Dutch Money Laundering Crime Pattern Analysis", (2019) 25 *Eur. J. Crim. Policy Res.* 83.

⁹¹ M. Levi, P. Reuter and T. Halliday, "Can the AML System be evaluated without better data?", (2018) 69 *Crime Law Social Change* 307 at pp. 319-320.

⁹² B. Unger, "Money Laundering – A Newly Emerging Topic on the International Agenda", (2009) 5 *Review of Law & Economics* 807 at p. 809.

money laundering prosecutions are the consequence of law enforcement priorities, attitude, competence and resources. Police statistics may actually say more about the organizational qualities of police and prosecutors than about crime.⁹³ For example, to avoid criticism for low prosecution rates, some countries might choose to prosecute more low level laundering cases rather than focus on a smaller number of prosecutions or other interventions against big players.⁹⁴

42. Finally, estimates of money laundering based on the study of police files have an intrinsic logic problem: the stricter the fight against money laundering, the more eagerly police will record money laundering cases.⁹⁵

Walker Gravity model

43. John Walker first adapted an economic model called the “gravity” model to estimate the volume and flow of money laundering in Australia in the 1990s.⁹⁶ He adapted a formula previously used to measure transnational trade flows, which in turn was based on Newton’s Law of Universal Gravitation.⁹⁷

44. There are three key assumptions about money laundering built into the Walker Gravity model.⁹⁸ First, not all laundered money leaves the country. Second, countries where official corruption is common provide benign environments for launderers. Third, laundered money seeks countries that: (1) are tax havens; (2) have “no questions asked” banking; and (3) have stable and low risk economies.

⁹³ M. Beare and S. Schneider, *Money Laundering in Canada: Chasing Dirty and Dangerous Dollars* (Toronto: University of Toronto Press, 2007) at p. 76.

⁹⁴ M. Levi, P. Reuter and T. Halliday, “Can the AML System be evaluated without better data?”, (2018) 69 *Crime Law Social Change* 307 at p. 320.

⁹⁵ J. Walker and B. Unger, “Measuring Global Money Laundering: ‘The Walker Gravity Model’”, (2009) 5 *Review of Law and Economics* 821 at p. 827.

⁹⁶ J. Walker, “How Big is Global Money Laundering?”, (1999) 3 *Journal of Money Laundering Control* 25.

⁹⁷ The attractive force between two objects i and j depends on their masses M_i and M_j , the square distance between these objects D_{ij} and a gravitational constant G , which depends on the units of measurement for mass and attractive force: J. Walker and B. Unger, “Measuring Global Money Laundering: ‘The Walker Gravity Model’”, (2009) 5 *Review of Law and Economics* 821 at pp. 829-830.

⁹⁸ J. Walker and B. Unger, “Measuring global money laundering: the ‘Walker Gravity Model’” in *Research Handbook on Money Laundering*, B. Unger and D. van der Linde, eds. (Cheltenham, UK, 2013) at p. 164.

45. While Walker's original Gravity model has been somewhat modified (by him and others), the basic approach remains the same: (1) first, the quantity of money laundered in each country in the world is estimated using proceeds of crime data; and (2) second, the quantity of illicit money flowing to each country is modeled. The model's estimate of the amount of money laundered in each country is dependent upon the accuracy of its estimates of:

1. the nature and extent of crime in a country;
2. the amount of money laundered per reported crime for each type of crime; and
3. the economic environment in which the crimes and the laundering take place.⁹⁹

Walker describes the model as follows:

1. find data on recorded crime for all countries;
2. review major discrepancies in official crime statistics and make necessary adjustments;
3. for countries without crime statistics, apply per capita crime rates from similar or neighbouring countries to demographic data to estimate likely crime figures;
4. for each crime, estimate total money laundered for each type of crime by dividing the number of those types of crimes recorded per year to get an average amount of laundered money per recorded crime. Walker 1999 came up with the following amounts for Australia:
 - a. \$50,000 per recorded fraud offence;
 - b. \$100,000 per recorded drug-trafficking offence;
 - c. \$400 per recorded theft;

⁹⁹ J. Walker, "How Big is Global Money Laundering?", (1999) 3 Journal of Money Laundering Control 25 at p. 27.

- d. \$600 per recorded burglary;
 - e. \$1,400 per recorded robbery;
 - f. \$225 per recorded homicide; and
 - g. \$2.23 per recorded assault and sexual assault;
5. the figures initially resulting from step 4 take no account of the differences between countries in the profitability of crime. Therefore, two factors are built into the model: the overall economic situation, as measured by each country's gross national product ("**GNP**") per capita, and a hypothesized relationship between the level of corruption in a country and the profitability of frauds. For each country, take the figures from step 4 and increase or decrease them based on data on GNP per capita. To maintain consistency with the 1995 AUSTRAC report, Australia's GNP per capita is considered 1.0, and others are pro-rated accordingly. Although it is quite likely that a linear relationship is not appropriate, the proceeds per crime in any given country are assumed to be proportional to that country's GNP per capita (i.e. a linear relationship is assumed). Use the Transparency International Corruption Index ("**TI Index**"), rearranged to a scale of 1 (low corruption) to 5 (high corruption), to factor in 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 amount;
6. calculate the proportion of money laundered domestically using the 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% of the money generated from crime is laundered locally. This results in highly corrupt countries (values approaching 5

on the scale) having 80-100% laundered locally, while those with the lowest corruption scores (values only slightly above 1) having only 20-30% laundered locally. Countries without any score on the TI index are allocated a score equal to the average for their world trade region;

7. estimate the portion of the proceeds of that crime that will be laundered using the Australian crime-specific estimates of money laundering obtained in an Australian Transaction Reports and Analysis Centre (“**AUSTRAC**”) 1995 report by Walker.¹⁰⁰ In the report, based on his own assumptions, Walker came up with estimates of proportions of the total costs for each crime that were: (1) very small; (2) small; and (3) considerable. He then “guesstimated” “very small” as 1%, “small” as 10% and “considerable” as 80%. He also did a survey of criminologists, police analysts and other acknowledged experts in the field to get alternate figures for his estimated proportions; and
8. estimate how the foreign laundered part of the total money generated in each country is distributed amongst the over 200 other countries around the world using the gravity model formula. The model builds in four tendencies:
 - a. foreign countries with a tolerant attitude towards money laundering (e.g. those with banking secrecy laws or lax government attitudes towards money laundering) will attract a greater proportion of the funds than more vigilant countries;
 - b. high levels of corruption and/or conflict will deter money launderers, because of the risks of losing their funds;
 - c. countries with high levels of GNP per capita will be preferred by money launderers, since it would be easier to hide their transaction; and

¹⁰⁰ J. Walker, 1995. *Estimates of the Extent of Money Laundering in and through Australia*, prepared for the Australian Transaction Reports and Analysis Centre, available online at: <https://ccv-secondant.nl/fileadmin/w/secondant_nl/platform/artikelen_2018/Austrac_1995_Estimates_report.pdf>.

- d. other things being equal, geographic distance, and linguistic or cultural differences, work as deterrents to money launderers.

The first three of these assumptions are combined to form an “index of attractiveness” (“Attractiveness”) to money launderers. The fourth assumption is incorporated as a “distance deterrence” (“Distance”) to determine how each country’s outgoing money laundering is distributed amongst the other countries.

The formula is:

$$\begin{aligned} & \textit{Proportion of outgoing ML from country X to country Y} \\ &= \frac{\textit{Attractiveness score for Y}}{(\textit{Distance between country X and country Y})^2} \end{aligned} \quad 101$$

46. In 2006, Brigitte Unger and colleagues modified the Distance index (and this version of the model was used in a 2009 paper co-authored by Professor Unger and Mr. Walker).¹⁰² Walker 1999 used physical distance between countries, but Unger et al. considered physical distance less important for money laundering because money cannot perish, transportation costs for money are often negligible and cultural barriers may play a role in determining the flow of illicit funds.¹⁰³ Thus, in addition to physical distance, Unger et al. used each country’s language and colonial background as well as geographical distance.¹⁰⁴ Unger et al. also modified Attractiveness to include a

¹⁰¹ J. Walker, “How Big is Global Money Laundering?”, (1999) 3 *Journal of Money Laundering Control* 25 at pp. 27-33.

¹⁰² B. Unger, M. Siegel, J. Ferwerda, W. de Kruijf, M. Busuioic, K. Wokke and G. Rawlings, *Amounts and the Effects of Money Laundering*, Report for Netherlands Ministry of Finance, February 16, 2006; J. Walker and B. Unger, “Measuring Global Money Laundering: ‘The Walker Gravity Model’”, (2009) 5 *Review of Law and Economics* 821.

¹⁰³ B. Unger, M. Siegel, J. Ferwerda, W. de Kruijf, M. Busuioic, K. Wokke and G. Rawlings, *Amounts and the Effects of Money Laundering*, Report for Netherlands Ministry of Finance, February 16, 2006; J. Walker and B. Unger, “Measuring Global Money Laundering: ‘The Walker Gravity Model’”, (2009) 5 *Review of Law and Economics* 821 at p. 829 at p. 833.

¹⁰⁴ J. Walker and B. Unger, “Measuring Global Money Laundering: ‘The Walker Gravity Model’”, (2009) 5 *Review of Law and Economics* 821 at p. 829 at pp. 841-842.

country's financial deposits and another measure of anti-money laundering efforts (whether or not a country was a member of the Egmont Group).¹⁰⁵

47. The result was that Unger et al modified the Walker 1999 Gravity Model as follows:

Percentage of World Criminal Money Flowing Into a Country X (The Netherlands)

$$P(X, y_i) = \frac{1}{\sum_{i=1}^n \left[\frac{\text{attractiveness}(y_i)}{\text{dist}(X, y_i)} \right]} \times \frac{\text{attractiveness}(y_i)}{\text{dist}(X, y_i)}$$

Country X, countries y_i $i=1..n$

Attractiveness = f (GDP per capita, Bank Secrecy, Anti-Money Laundering Policy, SWIFT Membership, **Financial Deposits**, Conflict, Corruption, **Egmont Group**)¹¹

Distance deterrence = f (**Language**, **Colonial Background**, Physical Distance)

(Changes in Attractiveness and Distance from the Walker 1999 model are in **bold**.)

48. The above approach has been used in Canada. In 2019, Professors Maureen Maloney, Tsur Somerville and Brigitte Unger provided their report ("**Maloney Report**") to the British Columbia Minister of Finance about money laundering in the British Columbia real estate sector.¹⁰⁶ They estimated the amount of money laundering in Canada and in British Columbia using the Walker Gravity model.

49. Although different studies have tinkered with the model's formula, the part of the Walker Gravity model, which estimates the volume of money laundered per crime has not substantially changed. It relies on crime statistics to get the total proceeds of crime from reported crimes and on expert opinion to get the percentage of the total proceeds

¹⁰⁵ The Egmont Group is an organisation that meets in the Dutch village Egmont aan de Zee to discuss how to combat money laundering: J. Walker and B. Unger, "Measuring Global Money Laundering: 'The Walker Gravity Model'", (2009) 5 Review of Law and Economics 821 at p. 829 at p. 842. It is made up of national Financial Intelligence Units fighting money laundering in compliance with the Financial Action Task Force recommendations: H. Balani, J.J. Lewer and M. Saenz, "Trade Based Money Laundering in Select Asian Economies: A Comparative Approach Using the Gravity Model", (2017) 1 South West Economic Review 15 at p. 19.

¹⁰⁶ M. Maloney, T. Somerville and B. Unger, *Combatting Money Laundering in BC Real Estate*, Expert Panel on Money Laundering in BC Real Estate, 2019.

of crime that require laundering.¹⁰⁷ In fact, researchers have often used the same estimates used by Walker based on his 1995 AUSTRAC work.

Advantages and disadvantages of using the Walker Gravity model to quantify money laundering

50. Two advantages of the Walker Gravity model are: (1) it avoids double-counting; and (2) it is relatively easy to understand.¹⁰⁸ Also, the procedure can be used for all countries and jurisdictions in the world.¹⁰⁹ And, it combines expertise from criminology, economics and finance.

51. There are a number of criticisms of the model, many of which are the same as the general criticisms about using extrapolations from proceeds of crime data to estimate money laundering.

¹⁰⁷ B. Unger, M. Siegel, J. Ferwerda, W. de Kruijf, M. Busuioic, K. Wokke and G. Rawlings, *Amounts and the Effects of Money Laundering*, Report for Netherlands Ministry of Finance, February 16, 2006; J. Walker and B. Unger, "Measuring Global Money Laundering: 'The Walker Gravity Model'", (2009) 5 *Review of Law and Economics* 821; United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>; European Commission DG Home Affairs, Project "ECOLEF": The Economic and Legal Effectiveness of Anti-Money Laundering and Combating Terrorist Financing Policy, European Commission, JLS/2009/ISEC/AG/087, February 2013, available online at <[http://www2.econ.uu.nl/users/unger/ecolef_files/Final%20ECOLEF%20report%20\(digital%20version\).pdf](http://www2.econ.uu.nl/users/unger/ecolef_files/Final%20ECOLEF%20report%20(digital%20version).pdf)>; J. Ferwerda, M. Kattenberg, H.-H. Chang, B. Unger, L. Groot, L. and J.A. Bikker, "Gravity models of trade-based money laundering", (2013) 45 *Applied Economics* 3170; H. Balani, J.J. Lewer and M. Saenz, "Trade Based Money Laundering in Select Asian Economies: A Comparative Approach Using the Gravity Model", (2017) 1 *South West Economic Review* 15; W.A. Khan, S.T. Jawaid and I. Arif, "Where does a nation's wealth go? Evidence from a third world country" (2018) 21 *Journal of Money Laundering Control* 426; J. Ferwerda, A. van Saase, B. Unger and M. Getzner, *Money Laundering or Money just Flowing Through? Estimating Money Laundering with a Gravity Model Based Simulation*, Working paper for iCOV, 2019; New Zealand Police, *National Risk Assessment of Money Laundering and Terrorism Financing*, New Zealand Police Financial Intelligence Unit, 2019, available online at: <<https://www.police.govt.nz/sites/default/files/publications/fiu-nra-2019.pdf>>; M. Maloney, T. Somerville and B. Unger, *Combating Money Laundering in BC Real Estate*, Expert Panel on Money Laundering in BC Real Estate, 2019.

¹⁰⁸ N. Hednriyetty and B.S. Grewal, "Macroeconomics of money laundering: effects and measurements", (2017) 24 *Journal of Financial Crime* 66 at p. 75; P.C. Van Duyne, J.H. Harvey, L.Y. Gelemerova, *The Critical Handbook of Money Laundering: Policy, Analysis and Myths* (London, Palgrave Macmillan, 2018) at p. 213.

¹⁰⁹ J. Walker and B. Unger, "Measuring Global Money Laundering: 'The Walker Gravity Model'", (2009) 5 *Review of Law and Economics* 821 at p. 829. See also W.A. Khan, S.T. Jawaid and I. Arif, "Where does a nation's wealth go? Evidence from a third world country" (2018) 21 *Journal of Money Laundering Control* 426 at p. 435.

52. First, using proceeds of crime to estimate money laundering depends on access to reliable quantitative crime data. There is likely a large margin of error in estimates because of the lack of measured and reliable data.¹¹⁰ Even where data are available, they only reflect aspects of money laundering that are reported. Crime reporting is uneven across countries, particularly for bribery, corruption and tax evasion and some transactions are not typically included in crime statistics, including illegal savings from non-compliance (e.g. environmental crime).¹¹¹

53. Second, the reliability and accuracy of the model is contingent on the accuracy of estimates of the percentage of proceeds laundered for various types of crimes.¹¹² The Walker Gravity model uses percent-money laundered of total proceeds of crime estimates from the 1995 AUSTRAC report.¹¹³ Using the same percentages as Walker 1999 to estimate the money laundered is not likely to be accurate for other countries.¹¹⁴ Also, some researchers have faulted Walker's use of experts (usually policemen) to estimate money generated by particular crimes and how much of that is laundered.¹¹⁵ This is because of the potential bias of experts.¹¹⁶ The expert sample might not be

¹¹⁰ M. Maloney, T. Somerville and B. Unger, *Combating Money Laundering in BC Real Estate*, Expert Panel on Money Laundering in BC Real Estate, 2019 at pp. 46-47; W.A. Khan, S.T. Jawaid and I. Arif, "Where does a nation's wealth go? Evidence from a third world country" (2018) 21 *Journal of Money Laundering Control* 426 at p. 426.

¹¹¹ P. van Duyne, "(Transnational) Organised Crime, Laundering and the Congregation of the Gullible", Valedictory, Tilburg University, March 14, 2011 at p. 27, available online at: <<http://www.petrusvanduyne.nl/wp-content/uploads/2017/08/Afscheidsrede-Valedictory.pdf>>; J. Walker, "How Big is Global Money Laundering?", (1999) 3 *Journal of Money Laundering Control* 25 at p. 28.

¹¹² M. Maloney, T. Somerville and B. Unger, *Combating Money Laundering in BC Real Estate*, Expert Panel on Money Laundering in BC Real Estate, 2019 at p. 46.

¹¹³ J. Walker, "How Big is Global Money Laundering?", (1999) 3 *Journal of Money Laundering Control* 25 at p. 28.

¹¹⁴ United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 96, available online at: <https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf>.

¹¹⁵ P. van Duyne, "(Transnational) Organised Crime, Laundering and the Congregation of the Gullible", Valedictory, Tilburg University, March 14, 2011 at p. 28, available online at: <<http://www.petrusvanduyne.nl/wp-content/uploads/2017/08/Afscheidsrede-Valedictory.pdf>>; P.C. Van Duyne, J.H. Harvey, L.Y. Gelemerova, *The Critical Handbook of Money Laundering: Policy, Analysis and Myths* (London, Palgrave Macmillan, 2018) at p. 214; P. Reuter, "Are estimates of the volume of money laundering either feasible or useful?", *Research Handbook on Money Laundering*, B. Unger and D. van der Linde, eds. (Cheltenham, UK: Edward Elgar, 2013) at pp. 227 and 229-230.

¹¹⁶ P. Reuter, "Are estimates of the volume of money laundering either feasible or useful?", *Research Handbook on Money Laundering*, B. Unger and D. van der Linde, eds. (Cheltenham, UK: Edward Elgar,

representative. The people interviewed may also have perception biases (for example, overestimation of money laundering by authorities responsible for combating it or underestimation if law enforcement / regulators feel they fight crime efficiently).

54. Third, the Walker Gravity model is not underpinned by any economic theory.¹¹⁷ An economic foundation for the Walker Gravity model requires understanding the behaviour of money launderers, including what makes them send their money to a specific country.¹¹⁸ There has not yet been a modification of the Walker Gravity model to provide better insight into the behaviour of money launderers.

55. Fourth, there are problems with the model's mathematical specifications when applied domestically. Model parameters¹¹⁹ that may work when applied across a range of countries in the world may be less accurate when applied to a subset of countries or regions.¹²⁰ For example, while parameters based on economic data will vary across Canada, other parameters (e.g. the rule of law and the banking system) do not differ. In the Maloney Report, this meant parameters like provincial GDP and crime rates had greater weight than non-economic parameters.

56. Extrapolation from the arithmetic mean is another statistical problem because the frequency distribution of criminal income is skewed with a lot of low-income criminals and a few high earners (i.e. the distribution of criminal income is not normally

2013) at pp. 227 and 229-230; J. Walker and B. Unger, "Measuring Global Money Laundering: 'The Walker Gravity Model'", (2009) 5 *Review of Law and Economics* 821 at p. 828; United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 15, available online at: https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf.

¹¹⁷ J. Walker and B. Unger, "Measuring Global Money Laundering: 'The Walker Gravity Model'", (2009) 5 *Review of Law and Economics* 821 at pp. 834 and 849-850. See also J. Walker and B. Unger, "Measuring global money laundering: the 'Walker Gravity Model'" in *Research Handbook on Money Laundering*, B. Unger and D. van der Linde, eds. (Cheltenham, UK, 2013) at pp. 169-170.

¹¹⁸ J. Walker and B. Unger, "Measuring global money laundering: the 'Walker Gravity Model'" in *Research Handbook on Money Laundering*, B. Unger and D. van der Linde, eds. (Cheltenham, UK, 2013) at pp. 169-170.

¹¹⁹ A "parameter" is a numerical or other measurable factor forming one of a set that defines a system or sets the conditions of its operation.

¹²⁰ M. Maloney, T. Somerville and B. Unger, *Combatting Money Laundering in BC Real Estate*, Expert Panel on Money Laundering in BC Real Estate, 2019 at p. 47.

distributed—see graph at footnote 75 above).¹²¹ Using the average with a skewed frequency distribution of criminal wealth and related money-flows leads to overestimation.¹²²

57. Fifth, and finally, the estimates depend on the values used for Attractiveness and Distance, but their weighting is arbitrary and not fact-based.¹²³ Weighting of Attractiveness was never based on statistical estimates; it only uses values of an “inspirational guess”.¹²⁴

J. What estimates of money laundering are there for British Columbia?

58. Before this Commission, three provincial government agencies commissioned independent consultants and/or experts to look at money laundering in British Columbia:

1. the British Columbia Gaming Policy and Enforcement Branch (“**GPEB**”) had MNP LLP look at money laundering in casinos;
2. the Minister of Finance had Professors Maloney, Sommerville and Unger look at money laundering in the British Columbia real estate sector (the Maloney Report); and

¹²¹ P.C. van Duynes, “(Transnational) Organised Crime, Laundering and the Congregation of the Gullible”, Valedictory, Tilburg University, March 14, 2011 at p. 28, available online at:

<http://www.petrusvanduyne.nl/wp-content/uploads/2017/08/Afscheidsrede-Valedictory.pdf>; P.C. van Duynes, “Crime-money and financial conduct”, *Research Handbook on Money Laundering*, B. Unger and D. van der Linde, eds. (Cheltenham, UK: Edward Elgar, 2013) at p. 248.

¹²² P.C. van Duynes, “Crime-money and financial conduct”, *Research Handbook on Money Laundering*, B. Unger and D. van der Linde, eds. (Cheltenham, UK: Edward Elgar, 2013) at p. 248.

¹²³ J. Walker and B. Unger, “Measuring Global Money Laundering: ‘The Walker Gravity Model’”, (2009) 5 Review of Law and Economics 821 at pp. 849-850; United Nations Office on Drugs and Crime, *Estimating illicit financial flows resulting from drug trafficking and other transnational organized crimes*, Research Report, October 2011 at p. 95, available online at: https://www.unodc.org/documents/data-and-analysis/Studies/Illicit_financial_flows_2011_web.pdf.

¹²⁴ J. Ferwerda, M. Kattenberg, H.-H. Chang, B. Unger, L. Groot and J.A. Bikker, “Gravity models of trade-based money laundering” (2013) 45 Applied Economics 3170 at p. 3170; M. Levi, P. Reuter and T. Halliday, “Can the AML System be evaluated without better data?”, (2018) 69 Crime Law Social Change 307 at p. 311.

3. the Attorney General had Peter German & Associates Inc. investigate the risk of money laundering in the provincial casino, real estate, luxury vehicle sales and horse racing sectors.

Only the Maloney Report provides a dollar estimate of money laundering, although the other reports consider the general extent of the risk of money laundering in specified industries.

59. Also, the RCMP looked at the extent of money laundering in British Columbia in 2017 and 2018.

60. The three provincial reports and the RCMP work is summarised below. As noted above, of the above British Columbia-specific studies, only the Maloney Report, and to a much lesser extent, the RCMP work, attempt to estimate money laundering in the province. However, summaries of all three reports are included in this Overview Report, along with a summary about the RCMP estimates, because each report, to a greater or lesser degree, says something about efforts to look at the extent of the problem in British Columbia. Quantifying money laundering is a means to the end of understanding the extent of money laundering. Thus, to the extent that the three provincial reports touch on understanding the *extent* of money laundering in British Columbia (including how difficult it may be to do so), they are relevant to this Overview Report, even though they do not speak to quantification methods.

K. MNP LLP Report

61. In 2015, the GPEB engaged MNP LLP to work with senior GPEB managers to review practices at casinos regarding source of funds, source of wealth, handling of cash, use of cash alternatives and overall Customer Due Diligence in gaming facilities compared to financial institutions, review best practices in the gaming sector, in relation to the “know your customer” framework in British Columbia, assess the British Columbia Lottery Corporation (BCLC)’s Customer Due Diligence regime and casino compliance

with this regime (“**MNP Report**”).¹²⁵ Quantifying the amount of money laundering was not within the scope of the review, but MNP LLP reviewed data on reportable cash transactions or play records from September 1, 2013 to August 31, 2015 to estimate volumes of unsourced cash being accepted at one casino, River Rock Casino Resort.¹²⁶ These data were Large Cash Transaction Reports, STRs and records of players banned at least in part because of large and frequent play with unsourced cash.

62. There was an error in BCLC’s statistical reporting, which resulted in significant over-reporting of non-cash transactions to FinTRAC.¹²⁷ Because of this overreporting, MNP LLP was unable to determine the actual number, and amounts, of large cash transactions. This in turn, limited its ability to get reliable results from its data analysis. MNP LLP’s observations based on the dataset were limited to the following:

1. patrons with non-Canadian addresses and identification, primarily Chinese, were playing with a significant volume of cash; and
2. while significant volumes of Large Cash Transaction Reports were filed during the period reviewed, the number of STRs filed was relatively small and the number of bans for potential money laundering was few.¹²⁸

L. Maloney Report

¹²⁵ MNP LLP, *British Columbia Gaming Policy Enforcement Branch: AML Report*, July 26, 2016 at p. 3, available online at: <https://www2.gov.bc.ca/assets/gov/sports-recreation-arts-and-culture/gambling/gambling-in-bc/reports/mnp_report-redacted.pdf>.

¹²⁶ MNP LLP, *British Columbia Gaming Policy Enforcement Branch: AML Report*, July 26, 2016 at pp. 7 and 15, available online at: <https://www2.gov.bc.ca/assets/gov/sports-recreation-arts-and-culture/gambling/gambling-in-bc/reports/mnp_report-redacted.pdf>.

¹²⁷ MNP LLP, *British Columbia Gaming Policy Enforcement Branch: AML Report*, July 26, 2016 at pp. 8 and 15, available online at: <https://www2.gov.bc.ca/assets/gov/sports-recreation-arts-and-culture/gambling/gambling-in-bc/reports/mnp_report-redacted.pdf>.

¹²⁸ MNP LLP, *British Columbia Gaming Policy Enforcement Branch: AML Report*, July 26, 2016 at pp. 15-16, available online at: <https://www2.gov.bc.ca/assets/gov/sports-recreation-arts-and-culture/gambling/gambling-in-bc/reports/mnp_report-redacted.pdf>.

63. Using the Walker Gravity model, the Maloney Report estimated annual money laundering activity in Canada in 2015 at \$41.3 billion and in 2018 at \$46.7 billion.¹²⁹ For British Columbia, the estimates for 2015 and 2018 were \$6.3 billion and \$7.4 billion, respectively.

64. The Maloney Report also came up with ranges of how much of the estimated money laundering in British Columbia was invested in real estate.¹³⁰ The first range assumed all money laundering flows were either: (1) income subject to decisions about consumption and investment; or (2) intended to be invested. The result was \$2.1-\$7.4 billion. The other range took a wealth portfolio allocation approach. Data indicated portfolio allocation to real estate varied from 37-72% and the authors assumed 28% or 100% of money laundered was invested. The result was \$2.7-\$5.3 billion for the top bound and \$0.8-\$5.3 billion for the bottom bound.

65. The Maloney Report hypothesized that suspicious transactions in real estate via money laundering “flags” might identify the amount of money laundering.¹³¹ But, applying broad indicators associated with money laundering to existing data sets was difficult because details of real estate transactions that might be flags were often found in disparate data sources or were not readily identifiable. There was also no database of money laundering activities and transaction characteristics proven to be related to money laundering.

66. Even so, the Maloney Report did some sample calculations of money laundering using publicly available data from the Land Title Registry and from the British Columbia Property Assessment Roll. They chose three indicators easily identified in these data and supported by real estate money laundering flags identified by the Financial Action Task Force as follows:

¹²⁹ M. Maloney, T. Somerville and B. Unger, *Combatting Money Laundering in BC Real Estate*, Expert Panel on Money Laundering in BC Real Estate, 2019 at pp. 1 and 47-48.

¹³⁰ M. Maloney, T. Somerville and B. Unger, *Combatting Money Laundering in BC Real Estate*, Expert Panel on Money Laundering in BC Real Estate, 2019 at pp. 50-52.

¹³¹ M. Maloney, T. Somerville and B. Unger, *Combatting Money Laundering in BC Real Estate*, Expert Panel on Money Laundering in BC Real Estate, 2019 at pp. 58-60.

1. ownership of real estate by legal persons;
2. purchase or ownership of properties without a mortgage; and
3. financing of real estate with mortgages from individuals or unregulated lenders.

67. The authors concluded that: (1) beneficial ownership disclosure was needed to make ownership by legal persons a useful indicator; and (2) the other two indicators were unlikely to be useful because purchase / ownership without a mortgage was so common across the province and there were *bona fide* legal reasons for using unregulated lenders. The Maloney Report suggested it might be necessary to combine indicators, including indicators based on data from other sources (e.g. like financial STRs), to narrow results.

M. German Reports

68. Peter German, Q.C., and Peter German & Associates Inc. released the report, *Dirty Money – Part 1: An Independent Review of Money Laundering in Lower Mainland Casinos conducted for the Attorney General of British Columbia*, on March 31, 2018 (“**German Report 1**”).¹³² They released the report, *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, on March 31, 2019 (“**German Report 2**”).¹³³ The German Reports were commissioned by the Attorney General of British Columbia to assess money laundering risk and vulnerabilities in the named sectors. The quantity of money laundering in each sector investigated was not estimated, but the Reports assessed whether money laundering was a risk in each sector.

¹³² P. German and Peter German & Associates Inc., *Dirty Money – Part 1: An Independent Review of Money Laundering in Lower Mainland Casinos conducted for the Attorney General of British Columbia*, March 31, 2018.

¹³³ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019.

Casinos

69. The German Report 1 reviewed the casino sector. The authors interviewed BCLC personnel, GPEB personnel, casino personnel, law enforcement personnel, federal and provincial government ministry and agency staff, stakeholder groups and other individuals. They examined BCLC and GPEB policies and other documents and did a literature review. The authors also did site visits. The German Report 1 did not estimate the amount of money laundering in British Columbian casinos, but it concluded large-scale, transnational money laundering had been occurring.¹³⁴

Real estate

70. The German Report 2 combined data from the Land Title and Survey Authority of British Columbia (“**LTSA**”), BC Assessment and from the Multiple Listing Service and came up with a data set of more than 1.2 million properties.¹³⁵ Money laundering indicators were then identified from the literature (academic papers, white papers and advisory notices from regulators and law enforcement and real estate-focused publications from the Financial Action Task Force¹³⁶ and the Organization for Economic Co-operation and Development). Fourteen indicators in four categories were analyzed using the property dataset and for a sample of 154 properties linked to alleged money laundering or other criminal activity (linked by civil forfeiture cases and other information obtained by the authors). The indicators were:

1. ownership:

¹³⁴ P. German and Peter German & Associates Inc., *Dirty Money – Part 1: An Independent Review of Money Laundering in Lower Mainland Casinos conducted for the Attorney General of British Columbia*, March 31, 2018, p. 13.

¹³⁵ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at pp. 68-70.

¹³⁶ The FATF is an inter-governmental body established in 1989 by the Ministers of its Member jurisdictions. Its objectives are to set standards and promote effective implementation of legal, regulatory and operational measures for combating money laundering, terrorist financing and other related threats to the integrity of the international financial system.

- a. ownership by a legal entity or arrangement;
 - b. ownership by a nominee;¹³⁷
 - c. ownership by an overseas buyer;
 - d. ownership by a buyer from a high-risk jurisdiction;
 - e. title holder using an opaque address;
2. financing:¹³⁸
- a. purchase did not involve external financing;
 - b. mortgage with an unregulated lender;
 - c. mortgages from overseas lenders;
 - d. mortgage discharged quickly;
 - e. multiple mortgages registered and discharged;
 - f. mortgage with an unusual loan-to-value ratio;
3. valuations: property was overvalued or undervalued;
4. transactions:
- a. property flipped multiple times; and

¹³⁷ The German Report 2 could not identify nominee owners with publicly available real estate data and therefore the authors used occupation as a proxy for the nominee variable. Owners with occupations of “student”, “homemaker” and “unemployed” were designated as nominee owners. The Report acknowledged the nominee analysis almost certainly included false positives and excluded nominee owners who listed other occupations on title: P. German, *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at pp. 79 and 108.

¹³⁸ The German Report 2 noted several financing indicators required information were impacted by data limitations so the authors could only analyse a sample of about 126,000 mortgages registered since 2011: P. German, *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at p. 90. This sample was not proportionally distributed across years or categories of residential real estate.

- b. buyer acquired multiple properties in a brief period.

71. The German Report 2 noted British Columbia, and the Lower Mainland in particular, had a real estate market in which many conventional money laundering indicators did not apply.¹³⁹ Speculative investment activity, an influx of foreign capital and rapid appreciation made it difficult to identify suspicious transactions. Also, the authors were limited to indicators that could be analyzed through available data sources.¹⁴⁰ Further, there were data access and quality issues.¹⁴¹ The Report only focused on residential properties because real estate transactions in the commercial sector did not lend themselves to analysis using the data sources available and many of the established money laundering indicators for residential property did not apply to commercial property.¹⁴²

72. The results for the property dataset were as follows:

1. ownership (percentages of properties):
 - a. ownership by a legal entity or arrangement: 7%;
 - b. ownership by a nominee: 3%;
 - c. ownership by an overseas buyer: 1.06%;
 - d. ownership by a buyer from a high-risk jurisdiction: 0.24%;
 - e. title holder used an opaque address: 5.66%;

¹³⁹ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at p. 70.

¹⁴⁰ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at p. 70.

¹⁴¹ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at p. 71.

¹⁴² P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at p. 71.

2. financing:

- a. purchase did not involve external financing: 17-21% of titles;
- b. mortgage with an unregulated lender: 9% of mortgages;
- c. mortgage from overseas lenders: 24 mortgages;
- d. mortgage discharged quickly: 5% of mortgages;
- e. multiple mortgages registered and discharged quickly:
 - i. 8% (two mortgages), 1% (three mortgages) and 1% (four or more mortgages);
 - ii. 0.79% of properties had multiple mortgages discharged between 30 and 365 days;
- f. mortgage with an unusual loan-to-value (LTV) ratio: 15% of all mortgages (regulated and unregulated) had a LTV above 100% and 27% of unregulated mortgages had a LTV below 30%;

3. valuations: property was overvalued or undervalued: 3% of titles;

4. transactions:

- a. property flipped multiple times: 0.76% of titles; and
- b. buyer acquired multiple properties in a brief period: <0.3%.¹⁴³

73. To test the validity of their indicators, the German Report 2 also assessed how common each indicator was for the properties on the list of 154 titles with known or strongly suspected links to money laundering. The results for the sample of 154 titles were as follows:

¹⁴³ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at pp. 73-107.

1. ownership (percentages of properties):
 - a. ownership by a legal entity or arrangement: 12%;
 - b. ownership by a nominee: 5% of titles;
 - c. ownership by an overseas buyer: 2.6%;
 - d. ownership by a buyer from a high-risk jurisdiction: 1.3%
 - e. title holder used an opaque address: 3.9%;
2. financing:
 - a. purchase did not involve external financing: 8-16% of titles;
 - b. mortgage with an unregulated lender: 34% of mortgaged properties and 24% of mortgages;
 - c. mortgage from overseas lenders: 0;
 - d. mortgage discharged quickly: 8%;
 - e. multiple mortgages registered and discharged: few;
 - f. mortgage with an unusual loan-to-value (LTV) ratio: not reviewed;
3. valuations: property was overvalued or undervalued: 1%, but indicator could not be analyzed across the whole sample;
4. transactions:
 - a. property flipped multiple times: 5.19% of titles; and
 - b. buyer acquired multiple properties in a brief period: <4.5%.¹⁴⁴

¹⁴⁴ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at pp. 107-112.

The only indicator that was significantly higher for the suspicious properties dataset than for the total dataset was the one about borrowing from unregulated lenders.

74. Finally, the German Report 2 used the 154 titles on its suspicious properties list to explore whether a scoring system could be an effective way to flag money laundering risk for specific properties.¹⁴⁵ The indicators were first repackaged as: (1) opaque owner (legal entity, legal arrangement or nominee); (2) opaque address (service address was overseas, a post office box or a law office); (3) unfinanced purchase; (4) quickly discharged mortgage (single or multiple); (5) mortgage with unregulated or overseas lender; (6) property was overvalued or undervalued property was flipped; and (7) property was part of a buying spree. Each property was assessed a point for every indicator that applied. Sixty-one percent of the properties received one or more points for the seven indicators. One property received three points; 37 properties received two points; and 54 properties received one point. The most common indicators were opaque ownership structures and mortgages with unregulated lenders, which accounted for 14% and 24% of the sample, respectively. These indicators appeared together for 7% of properties. The authors concluded a scoring system may not be an effective way to detect properties linked to money laundering.¹⁴⁶

Builders liens

75. The LTSA provided German et al. with a custom dataset with information from Claim of Builders lien forms submitted electronically.¹⁴⁷ A cursory review indicated that of almost 11,000 claims, about 1,660 were submitted by unique claimants, most through

¹⁴⁵ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at pp. 111-112.

¹⁴⁶ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at p. 112.

¹⁴⁷ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at p. 115

a lawyer or notary public. Eighty-five claimants were individuals and 23 were numbered companies without a “doing business as” addendum. The dollar amounts claimed were mostly for smaller sums than identified in a *Globe and Mail* investigation about money laundering through builders liens. Most of the descriptions of the claims had detailed summaries of the work allegedly done. The German Report 2 concluded there was no indication of widespread misuse of builder’s liens for money laundering.

Luxury vehicle exports

76. The German Report 2 said the number of applications for refunds of provincial sales tax (“**PST**”) on vehicles was a strong indication of the size of the grey market for exported vehicles from the province.¹⁴⁸ Prior to 2014, the number of applications was less than 100 per year, but in each of 2014 and 2015 it was more than 700 and then went up to 3,674 in 2016. The number of applications grew to 4,452 in 2018. Ministry of Finance staff raised concerns about several red flags for possible money laundering activity, including:

1. vehicle registration documents that appeared to have been altered;
2. high value cars;
3. generic-looking expert documents with suspicious inconsistencies;
4. straw buyers struggling to explain anomalies in documents;
5. the same straw buyers in multiple transactions;
6. PST refunds directed to vehicle exporters rather than purchasers;
7. straw buyers who often did not speak English and were “clearly just a signature”;
8. method of purchase of vehicles (e.g. bank drafts or physical cash);

¹⁴⁸ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at p. 198.

9. value of PST refunds; and

10. total purchase value for all refunds.¹⁴⁹

77. Ministry staff gathered statistics for the German Report 2 for 2016-2017 on the number of unique straw buyers, the number of transactions per straw buyer, which exporters straw buyers were linked to and the identification provided by the straw buyer (e.g. foreign national passport or British Columbia driver's license). Based on these statistics, the German Report 2 could not estimate the extent of money laundering in the luxury vehicle export grey market, but concluded there was a money laundering risk.

Independent luxury car resellers

78. The German Report 2 cross-referenced publicly available information and found a number of luxury car resellers were operated by individuals with serious criminal histories, typically for drug trafficking.¹⁵⁰

Horse racing

79. The German Report 2 explored the vulnerability of the horse racing industry to money laundering by looking at: (1) police and GPEB information and investigations; (2) demographics of bettors; (3) size of wagers; (4) sales of race horses, including a cursory examination of who buyers and sellers were; (5) use of self-serve terminals to wager; and (6) online betting.¹⁵¹

¹⁴⁹ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at pp. 199-200.

¹⁵⁰ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at p. 206.

¹⁵¹ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at p. 235.

80. The Vancouver Police Department compiled a 10-year dataset (July 2008-November 2018) for German et al. of police-reported incidents at Hastings Racecourse.¹⁵² There were 3 fraud, 3 counterfeiting currency and 55 minor incidents or petty crimes such as assault, mischief, theft and public intoxication.

81. The RCMP provided the authors with a detailed analysis of all incidents associated with horse racing in the province for 2009-2019.¹⁵³ There were 110 files. Seventeen were determined as potentially relevant to money laundering, loan sharking, organized crime or criminal activities. However, in every case, the 17 incidents were associated with the onsite casino at the horse racing venue and not with wagering on horses.

82. GPEB and Joint Illegal Gaming Investigation Team staff were interviewed and said they had never received any information or complaint about money laundering or suspicious financial transactions at a race track.¹⁵⁴ These staff also noted the average financial transaction was small.

83. The above information and other indicators led the German Report 2 to conclude there was unlikely to be much risk of money laundering in the horse racing sector.¹⁵⁵

¹⁵² P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at p. 237.

¹⁵³ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at p. 237.

¹⁵⁴ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at p. 238.

¹⁵⁵ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at pp. 238-243.

N. RCMP 2017 and 2018 investigations

84. In November 2017, the RCMP tried to estimate Vancouver-area property transactions linked to criminality.¹⁵⁶ The RCMP study used data from the Real Estate Board of Greater Vancouver. The study looked at residential properties bought in 2015-2016 and valued at more than \$3 million. Addresses were reviewed in the BC Online Land Titles database to identify property owners. The names of the property owners were then checked against the PRIME-BC database to determine potential criminality / criminal involvement. Initial findings indicated about 10% of property purchasers were linked to some level of criminality, including suspicious currency transactions, drug importation / production / trafficking, gaming intelligence, fraud, extortion and proceeds of crime. The study did not cross-reference or validate its results against historical or current investigations, intelligence or opened or closed data sources.

85. In 2018, the RCMP E Division Federal and Serious Organized Crime Project E-Pirate produced a draft report estimating the value of transactions facilitated by one unlicensed, British Columbia-based money services business.¹⁵⁷ The data came from seizure and or judicial authorizations of electronic and handwritten corporate financial ledgers, domestic bank accounts and images from several electronic devices. The yearly value of transactions flowing through the business approached \$1 billion, but the RCMP said the study had methodological limitations in terms of information gaps and overlaps.

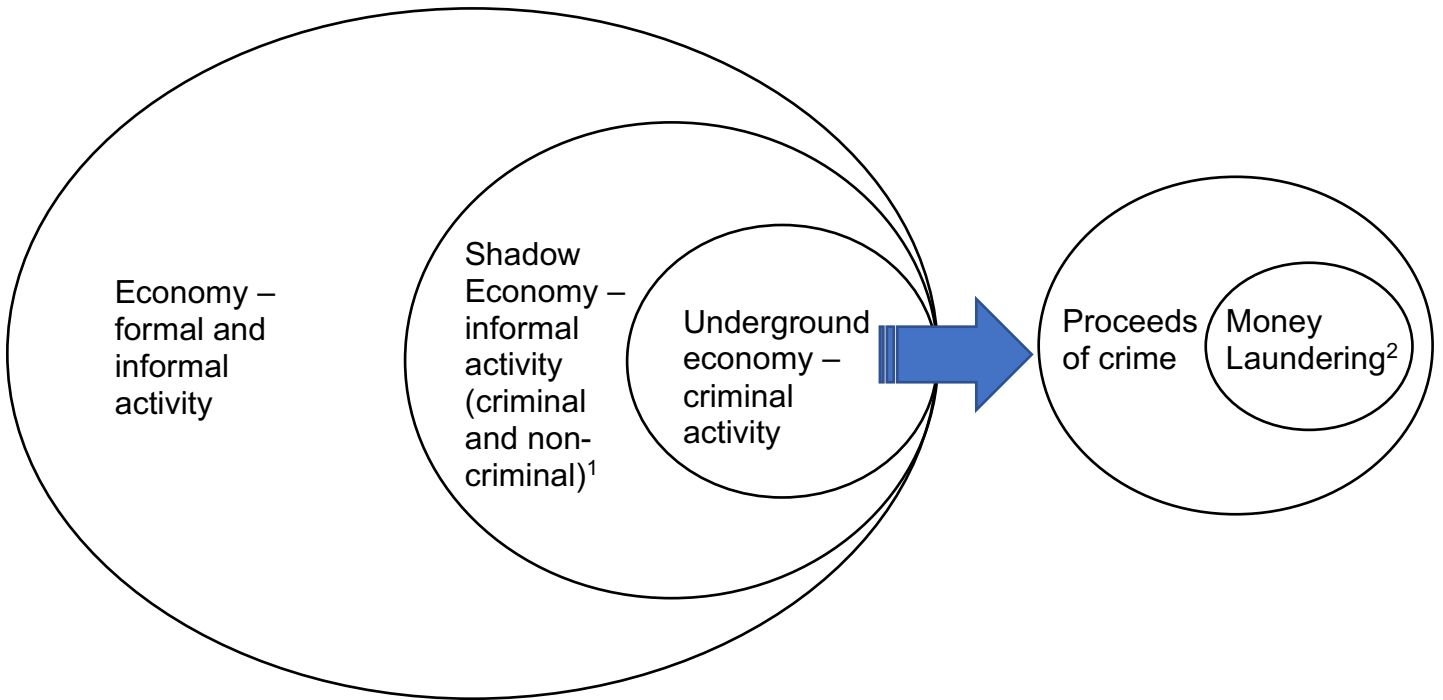
O. Conclusion

¹⁵⁶ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at p. 334 (Appendix G).

¹⁵⁷ P. German and Peter German & Associates Inc., *Dirty Money – Part 2: Turning the Tide – An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing*, March 31, 2019 at p. 335 (Appendix H).

86. In summary, there have been many attempts to quantify money laundering in different jurisdictions, globally and/or in various sectors. All methods produce estimates based on indirect measurements because it is not possible to directly measure actual amounts laundered. There is not yet general agreement that any single quantification method is the best way to estimate money laundering or even that any one method can produce a reliable estimate.

P. Appendix A: Money Laundering and Related Terms



¹ The terms “*shadow economy*” and “*underground economy*” are sometimes used interchangeably.

² Money laundering - The United Nations defines it as “*any act or attempted act to disguise the source of money or assets derived from criminal activity.*” It is where proceeds of crime are transformed into “*clean money,*” the criminal origin of which is difficult to trace.

