



# A BILATERAL STUDY ON MONEY LAUNDERING IN THE UNITED STATES AND MEXICO

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May 2011



## ABSTRACT

Money laundering has daunting effects on a country's economy. Policymakers lack adequate data that would help them quantify the phenomenon and take relevant action against it. Looking at the specific bilateral case of the United States and Mexico, this paper aims to understand how much laundered money is generated in each country from organized crime activities and how that money moves. This study uses the economic gravity model constructed by John Walker and Brigitte Unger (2006) to define illegal financial flows and adapts it for this study by refining the model's attractiveness and distance indices and by introducing a new methodology to calculate the portion of criminal revenues being laundered. This represents the first attempt to produce a transparent and comprehensive methodology to calculate illegal financial flows on a bilateral basis. With US\$182 billion laundered in the United States each year and US\$14.5 billion in Mexico, our data show that US\$10 billion circulate each year between the two countries. Such figures call for urgent legal action from the Treasury Department as well as improved multinational cooperation.

**Key words:** Money Laundering, illegal financial flows, crime revenues, criminal economy, gravity model, U.S .crime, Mexico crime, John Walker model, Brigitte Unger, Global Financial Integrity, Geographic Targeting Order (GTO)



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## ACRONYMS AND ABBREVIATIONS

ACFE	Association of Certified Fraud Examiners
AML	Anti-money Laundering
BS	Bank Secrecy
BSA	Bank Secrecy Act
CDC	<i>Casas de Cambio</i> Exchange Houses
CED	Change in External Debt (also known as World Bank residual model)
CF	Conflict
CIA	Central Intelligence Agency
CNBV	<i>Comisión Nacional Bancaria y de Valores</i> National Banking and Securities Commission
CPI	Consumer Price Index
CPI	Transparency International Corruption Perception Index
CR	Corruption
Dias	Diaspora Index
EG	The Egmont Group
FATF	Financial Action Task Force
FBI	Federal Bureau of Investigation
FD	Financial Deposits
FinCEN	Financial Crimes Enforcement Network
FIU	Financial Intelligence Units
FSRB	FATF Style Regional Bodies
GA	Government Attitude
GDP	Gross Domestic Product
GER	Gross Exclusive Reversals (also known as Trade Mispricing Model)
GFI	Global Financial Integrity
GNP	Gross National Product
GSM	Global System for Mobile Communications Services
GTO	Geographic Targeting Order
GTRI	General Trade-Related Indices
IFS	IMF's International Financial Statistics
ILO	International Labor Organization
IMF	International Monetary Fund
INTERPOL	International Criminal Police Organization
KPMG	Klynveld Peat Marwick Goerdeler (Accounting Firm)
MTP	Major Trafficking Partner
NAFTA	North American Free Trade Agreement
NDIC	U.S. National Drug Intelligence Center
NDTA	U.S. Department of Justice National Drug Threat Assessment
OECD	Organisation for Economic Co-operation and Development
PGR	<i>Procuraduría General de la República</i> Mexican Attorney General
RFPA	Right to Financial Privacy Act

SAT	<i>Servicio de Administración Tributaria</i> Mexican Internal Revenue Service
SHCP	<i>Secretaría de Hacienda y Crédito Público</i> Ministry of Finance and Public Credit
SWIFT	Society for Worldwide Interbank Financial Telecommunication
U.S.	United States
UNODC	United Nations Office on Drugs and Crime
USD	United States Dollars
WEO	IMF World Economic Outlook
WTO	World Trade Organization

## EXECUTIVE SUMMARY

This report aims at providing policymakers with a transparent methodology to assess how much laundered money is generated from criminal activities and how that money moves between the United States and Mexico.

Calculating revenues for seven categories of crime generating high money transactions (drug trafficking, fraud, forced labor, prostitution, people smuggling, weapon trafficking and counterfeiting), our estimates indicate that:

- US\$196 billion are generated every year from criminal activities in the U.S., US\$182 billion of which are laundered;
- Of the US\$182 billion that is laundered, US\$9 billion is laundered in Mexico.
- In Mexico, US\$39 billion in criminal proceeds are generated and US\$14.5 billion is laundered;
- Of the US\$14.5 billion that is laundered, US\$2.8 billion is laundered in the U.S.
- In 2008, criminal revenues in the U.S. accounted for 1.36 percent of the total GDP.
- In 2008, criminal revenues in Mexico accounted for 3.6 percent of the total GDP.
- Drug trafficking is the most significant driver of money laundering in both countries, with 40 to 45 percent of total laundered money coming from such activities.
- The amount of criminal proceeds laundered is negatively correlated to the size of the shadow economy. That is, the larger the informal economy the lower the percentage of criminal money will be laundered.
- More than 90 percent of criminal revenues generated in the U.S. are subsequently laundered, and only a third of criminal proceeds generated in Mexico are injected into the formal economy.

Results from this study highlight two key elements of the money laundering process which require immediate government action: the need to reinforce financial regulations and the importance of improved multilateral coordination between law enforcement agencies and financial regulators in the United States and Mexico.



## SECTION 1

### INTRODUCTION

1. The United States (U.S.) and Mexico share a close relationship. Over the years, both cultures and societies have interacted closely and both Mexicans and Americans cross the shared 2,000 mile border daily, forging close political, business and social ties. In 2009, Mexico was the third largest goods trading partner of the U.S. with US\$306 billion in total goods trade, and it was the second largest goods export market to the U.S.<sup>1</sup> Since the North American Free Trade Agreement (NAFTA) between the U.S., Mexico and Canada entered into force in 1994, trade between Mexico and the U.S. has tripled.<sup>2</sup> As of 2009, approximately 12 million Mexicans live in the U.S.<sup>3</sup>
2. Currently, the governments and citizens of both countries share a concern with one additional issue: the increase in the level of violence in Mexico. This level of violence has been attributed to President Felipe Calderón's strategy to counterattack drug trafficking organizations. Under the current administration, there has been a clamp down on the country's drug trafficking organizations that have gained unprecedented power over the last two decades with the weakening of the Colombian drug trafficking operations, and has involved corruption and intimidation to force compliance from local Mexicans. The rise of drug cartels can be attributed to several factors, including pre-existing corruption and the inability of law enforcement institutions to counter the cartels.<sup>4</sup> As part of reforms that are taking place in the judicial system to strengthen the rule of law, in 2008, the Mexican Congress passed a package of legislative reforms and constitutional amendments, which amongst other things, included new measures to combat organized crime.<sup>5</sup> The U.S. has had a longer history of legislative

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<sup>1</sup> "Office of the United States Trade Representative," Accessed April 25, 2011 <http://www.ustr.gov/countries-regions/americas/mexico>

<sup>2</sup> Clare Ribando Seelke, *Mexico-U.S. Relations: Issues for Congress* (United States: Congressional Research Services, September 2010).

<sup>3</sup> Jeffrey S. Passel and D'Vera Cohn, *Mexican Immigrants: How Many Come? How Many Leave?* (Washington, D.C.: Pew Hispanic Institute, July 22, 2009), Accessed April, 27, 2011 <http://pewhispanic.org/files/reports/112.pdf>

<sup>4</sup> C. Robert Bonner, "The New Cocaine Cowboys: How to Defeat Mexico's Drug Cartels," *Foreign Affairs* 89, number 4, July/August 2010, 35-47.

<sup>5</sup> David Shirk, "Justice Reform in Mexico: Change & Challenges in the Judicial Sector" Olson *et al. Shared Responsibility. U.S.-Mexico Policy Options for Confronting Organized Crime*, (Mexico: Woodrow Wilson International Center for Scholars, 2010), 205-246. Accessed April 26, 2011 <http://www.wilsoncenter.org/topics/pubs/Shared%20Responsibility--Olson,%20Shirk,%20Selee.pdf>

measures to combat the laundering of the proceeds from criminal activities than Mexico. Despite this, U.S. financial institutions have allowed themselves to be used by criminal organizations, thus facilitating and further supporting their organized crimes. We provide two pieces of recent anecdotal evidence on U.S.-Mexico cross-border illicit financial transactions, and further discuss policy issues.

3. Studying money laundering is important not only because money laundering supports organized crime, but also because of the strong negative repercussions that it has on a country's economy and society.<sup>6</sup> Firstly, in terms of the impact on society, money laundering allows organized criminal groups to enjoy their profits, and thus further expand their operations and perpetuate organized crime in a country. Particularly in the case of organized crime, the proceeds of illicit activities are concentrated in a few powerful groups, which brings them even more power. In terms of the economic impact, money laundering undermines the legitimate private sector, such as when front companies which are used by money launderers offer their products and services below market rates. Because of their access to the proceeds of illicit activities, these front companies have an advantage over legitimate firms that rely on the financial markets for capital. Legitimate businesses thus end up competing against front companies with subsidized funding, which could crowd out private sector businesses. Furthermore, investment returns are a secondary goal to money launderers, whose primary goal is to protect their criminal proceeds. Their investment activities may thus not be geared towards generating returns, and this creates economic distortion and instability in the financial markets. Money laundering also damages a country's reputation and this has a negative impact on foreign investment. In the short-run, as more resources are allocated towards law enforcement, less resources are available for other public goods and the economic development of a country, although in the long-run, a more stable and secure environment will bring about economic development.
4. The profit-motivation of most organized crimes is reflected in the United Nations Convention Against Transnational Organized Crime (2000), which defines "organized crime" as any serious offence committed by a group of people with the aim of making a profit.<sup>7</sup> Criminals are able to reap these profits when they commit "money laundering," that is, processing their

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<sup>6</sup> John McDowell and Gary Novis, "The Consequences of Money Laundering and Financial Crime," *Economic Perspectives* (United States: U.S. Department of State, 2001).

<sup>7</sup> United Nations Office of Drugs and Crime, *The United Nations Convention Against Transnational Organized Crime* (Austria: United Nations, 2000). Article 2(a) states that "'Organized criminal group' shall mean a structured group of three or more persons, existing for a period of time and acting in concert with the aim of committing one or more serious crimes or offences established in accordance with this Convention, in order to obtain, directly or indirectly, a financial or other material benefit."

criminal proceeds to disguise their illegal origin.<sup>8</sup> Financial flows may take on other forms such as the smuggling of bulk amounts of cash across the borders, which avoids the formal financial sector,<sup>9</sup> or trade mispricing as a conduit for illicit flows of a commercial nature.<sup>10</sup> Our report focuses on another activity: the laundering of criminal proceeds. A basic explanation of how money is laundered is set out in Box 1.

#### BOX 1: HOW MONEY IS LAUNDERED

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

After the funds have entered the financial system, the second stage - known as *layering* - takes place. In this phase, the launderer carries out a series of conversions or movements of the funds to distance them from their source. For example, the launderer might wire the funds through a series of accounts at various banks in different countries. In some instances, the launderer might disguise the transfers as payments for goods or services, thus giving them a legitimate appearance.

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

Source: Adapted from Financial Action Task Force (2010) *Frequently Asked Questions*.  
[www.fatf-gafi.org](http://www.fatf-gafi.org) (2010)

5. Money laundering, by nature, is an act of obfuscating and misleading. Thus, the amount of money that is laundered cannot be known for sure.<sup>11</sup> In a 1998 speech, the Managing Director of the International Monetary Fund (IMF) said that the figure may be between 2 to 5 percent of global GDP. In 1998, global GDP was about US\$30 trillion,<sup>12,13</sup> which puts the amount of money laundered at between US\$600 billion-US\$1.5 trillion. It has been estimated that

<sup>8</sup> "Financial Action Task Force," [www.fatf-gafi.org](http://www.fatf-gafi.org)

<sup>9</sup> See for example, Douglas Farah, "Money Laundering and Bulk Cash Smuggling: Challenges for the Mérida Initiative," Olson *et al. Shared Responsibility. U.S.-Mexico Policy Options for Confronting Organized Crime* (United States: Woodrow Wilson International Center for Scholars, Mexico Institute, 2010), 141-166. . Accessed April 26, 2011 <http://www.wilsoncenter.org/topics/pubs/Shared%20Responsibility--Olson,%20Shirk,%20Selee.pdf>

<sup>10</sup> See for example, Dev Kar, Devon Cartwright-Smith and Ann Hollingshead, *The Absorption of Illicit Financial Flows from Developing Countries: 2002-2006* (Washington, D.C.: Global Financial Integrity, 2010).

<sup>11</sup> Isabel Mayoral and Genaro Mejía, "Banca pone barreras al crimen organizado [Banks rises barriers against organized crime]," *CNN Expansion*, Mexico, April 11, 2011. Accessed April 12, 2011 <http://www.cnnexpansion.com/economia/2011/04/10/banca-corta-operaciones-lavado-de-dinero>

<sup>12</sup> International Monetary Fund, "Money Laundering: the Importance of International Countermeasures" Address by Michel Camdessus Managing Director of the International Monetary Fund, *FATF Plenary Meeting*, Paris, February 10, 1998.

<sup>13</sup> World Bank national accounts data.

between US\$19 billion and US\$29 billion in illicit proceeds flow from the U.S. to drug trafficking organizations and other organized criminal groups in Mexico each year.<sup>14</sup> Thus, one strategy for understanding the nature and impact of criminal activity is to study how the criminal proceeds are generated and used.

6. Our research aims to understand the amount of money that is generated from criminal activity in the U.S. and Mexico, and how that money moves. Other studies have attempted to capture other aspects of illicit financial flows and shadow economy. For example, Schneider and Enste (2000) used three different economic models to estimate the size of shadow economies in 76 countries. “Shadow” or “underground” economies are difficult to define, and may capture both legal and illegal underlying activities.<sup>15</sup> The definition also varies depending on the method of estimation.<sup>16</sup> In another study, Global Financial Integrity (2010) used the World Bank Residual method and the IMF’s Direction of Trade Statistics data to estimate illicit financial outflows from developing countries, which captures flows that contravened a country’s capital controls and does not distinguish the legal or illegal nature of the underlying activities.
7. We study a gravity model developed by John Walker in 1995 to estimate money laundering and illicit financial flows, and subsequent work done by Brigitte Unger applying this model to the case of the Netherlands in 2006. We systematically examine the model’s potential to estimate money laundering and illicit financial flows in the bilateral case of the U.S. and Mexico, an element which the models in other studies did not capture. In particular, the gravity model allows us to estimate the flows of the proceeds of crime, using attractiveness and distance indices. We believe that this research contribution is significant because, to the best of our knowledge, there has been no study which estimates the amount of money generated to be laundered in the U.S. and in Mexico, and the flow of this money between the two countries.
8. Using a baseline application of the Walker model, we arrive at a conservative estimate of about US\$196 billion in revenues generated from organized crime in the U.S. in 2008, of which about US\$182 billion was likely to be laundered in the global financial system. In Mexico, in the same year, an estimated US\$39 billion in criminal revenues was generated, of which about US\$14.5 billion was likely to be laundered. We find these estimates to be consistent with a 2-5 percent world GDP estimate. Upon elaborating on this baseline model, our findings

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<sup>14</sup> Seelke, *Mexico-U.S. Relations: Issues for Congress*, *op.cit.*

<sup>15</sup> Friedrich Schneider and Dominik H Enste, “Shadow Economies: Size, Causes, and Consequences,” *Journal of Economic Literature* 38, number 1 (March 2000), 78; and, Monetary and Exchange Affairs and Policy Development and Review Departments, *Financial System Abuse, Financial Crime and Money Laundering - Background Paper*, (United States: International Monetary Fund, 2001), 10. Accessed April 1, 2011 <http://www.imf.org/external/np/ml/2001/eng/021201.pdf>

<sup>16</sup> Schneider and Enste, “Shadow Economies: Size, Causes, and Consequences,” *op.cit.*, 79.

complement the existing work done to estimate total illicit flows from the U.S. and Mexico, by focusing narrowly on organized crime revenues, and thus help to provide a more complete understanding of the phenomenon.

9. By applying the attractiveness and distance indices to the money that was generated to be laundered, the model estimates about US\$9.2 billion will flow from the U.S. to Mexico to be laundered, and about US\$32 billion will remain in the U.S. Of the US\$14 billion generated to be laundered in the U.S., about US\$2.8 billion flows to the U.S., and US\$791 million remains in Mexico to be laundered.
10. In addition to the basic findings outlined above, this research has several potential uses. Firstly, such analysis allows us to account for illegal money that does not show up in official statistics by isolating illegally generated money. In this way, it captures money laundering through smuggling of cash, stored value cards or goods, as well as “hawala-style” swap arrangements and structuring, although we stress that it does not specifically predict the quantity transacted by these methods. Secondly, the most interesting application of the model would be to construct the time-series data and evaluate the effectiveness of specific anti-money laundering policies. At the same time, this trend analysis could provide insight into identifying which variables are most important to include, the best way to weight the variables, and the best way to index relevant variables so they best model changes in policy
11. This report is structured as follows: Section II presents a background of money laundering concepts, and introduces the anti-money laundering (AML) laws and some key institutions in the U.S. and Mexico to provide a context for our study. These concepts, laws and institutions are further elaborated by discussing two recent U.S. money laundering cases. Section III comprises a literature review on money laundering and organized crime; Section IV presents the methodology and the estimation of criminal revenues in Mexico and the U.S. In Section V, we calculate the illegal financial flows between Mexico and the U.S. This is followed by a robustness check of the model in Section VI. Section VII is a critique of the model and discusses areas for further research. Finally, Section VIII concludes with a broader policy analysis discussion.

## SECTION II

### BACKGROUND TO ANTI-MONEY LAUNDERING EFFORTS IN MEXICO AND THE U.S.

12. This section provides a brief background on money laundering, and efforts that the U.S. and Mexico have taken to combat money laundering. We discuss some commonly used concepts of money laundering and applicable laws in the U.S. and Mexico, which will be further illustrated with two recent money laundering cases.
13. There is an emphasis in the U.S. laws on combating of money laundering for the purpose of counter terrorism efforts. In contrast, Mexico's laws emphasize combating money laundering as part of the effort to clamp down on organized crime. These differences in the approach highlight the different domestic priorities of the U.S. and Mexican governments, given the different nature of the threats they face. In our view, one of the implications of this difference is in the type of information and/or intelligence that each country collects, and that the two countries share with each other. In 1970, the U.S. passed the Bank Secrecy Act, which requires businesses to keep records and file reports that are important in criminal, tax, and regulatory matters. The Money Laundering Control Act of 1986 criminalized money laundering.<sup>17</sup> Following the terrorist attacks of September 11, 2001, the USA PATRIOT Act was adopted, and this led to a greater focus greater focus on compliance by financial institutions with measures to combat money laundering and terrorism financing. Title III of the USA PATRIOT Act amended the Bank Secrecy Act (BSA) to require certain financial institutions to establish proactive AML programs, through regulations issued by the Financial Crimes Enforcement Network (FinCEN), the financial intelligence unit of the U.S.<sup>18</sup> In Mexico, money laundering has been a fiscal offense in Mexico's Federal Fiscal Code since 1989, and it was later criminalized in 1996 by the Federal Criminal Code in Article 400 Bis. The provisions stated in the Federal Law Against Organized Crime complement the money laundering crime of Article

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<sup>17</sup> *Money Laundering Control Act (1986)*, Sections 1956 and 1957.

<sup>18</sup> Financial Action Task Force, *Third Mutual Evaluation Report on Anti-Money Laundering and Combating the Financing of Terrorism: United States of America*, (France: FATF Secretariat, 2006), 4, para. 8.

400 Bis. This law provides higher criminal sanctions for money laundering offenders, among others, considered to be members of a criminal organization.<sup>19,20</sup>

14. In addition to different domestic policy objectives, the U.S. and Mexico also adopt different legal and regulatory AML frameworks. For example, in Mexico, the laws and regulatory framework have been implemented at the federal level. In contrast, the U.S. exhibits a more decentralized structure, with more delegation of authority at the state level, including state level anti-money laundering laws and state regulators. In our view, each framework has its advantages and disadvantages. For example, a centralized structure would demonstrate more coherent and unified policies, whilst a decentralized structure provides the state with more discretion to adapt policies to the state-specific risks that it faces. This point is illustrated in the case of *State of Arizona v Western Union*, discussed below, where Arizona has a lower reporting and recording threshold than the federal requirement. One of the implications of this is on the cooperation between the agencies of the two countries, for example, cooperation between agencies along the U.S Southwest border and the Mexican authorities.
15. Here, we mention briefly some of the main agencies in both countries: In Mexico, the Ministry of Finance and Public Credit (SHCP) is in charge of regulating financial institutions and granting authorizations or licenses for the creation and operation of each of them. Ongoing supervision is conducted by decentralized supervisory agencies of the SHCP.<sup>21</sup> The National Banking and Securities Commission (CNBV) is the supervisory authority for banking and non-banking financial intermediaries and the securities sector in Mexico. The U.S. has several financial sector supervisors, including the Federal Reserve, Federal Deposit Insurance Corporation, Office of the Comptroller of the Currency and the Office of Thrift Supervision, as well as state regulators. The financial intelligence unit, Financial Crimes Enforcement Network (FinCEN), has the main responsibility for the administration of the regulatory regime under Bank Secrecy Act.
16. Financial institutions are an important line of defense for combating money laundering. They are responsible for carrying out customer due diligence and ongoing monitoring of their customers' accounts; where suspicious activities are detected, financial institutions are responsible for reporting these to the authorities, such as the law enforcement agencies or the financial supervisors. Investigations and prosecutions of money laundering offenses are then

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<sup>19</sup> International Monetary Fund, "Mexico: Detailed Assessment Report on Anti-Money Laundering and Combating the Financing of Terrorism," *IMF Country Report* (Washington, D.C.: IMF, 2009), 49, paras. 192–193.

<sup>20</sup> In addition to these anti-money laundering laws, the provisions of terrorism may be found in Article 139, Chapter IV of the Federal Criminal Law. [Código Penal Federal. Online version <http://info4.juridicas.unam.mx/ijure/fed/8/>]

<sup>21</sup> International Monetary Fund, "Mexico: Detailed Assessment Report on Anti-Money Laundering and Combating the Financing of Terrorism," *op.cit.*, 27, para 83.

conducted by the Department of Justice, in the case of the U.S., or the General Attorney (PGR), in the case of Mexico. The following two cases involving U.S. financial institutions and cross-border financial transactions with Mexico help illustrate these concepts, actors and application of the relevant anti-money laundering laws. The first case, *United States of America v Wachovia N.A.* illustrates the role of financial institutions in implementing AML compliance programs and the consequences of not having a system to detect suspicious activities. We also provide some comments on recent legislative reforms in Mexico.

#### CASE 1: UNITED STATES OF AMERICA V WACHOVIA N.A.

1. Wachovia Bank N.A. was a federally chartered banking institution based in Charlotte, North Carolina. It was subject to oversight and regulation by the U.S. Department of the Treasury, Office of the Comptroller of the Currency. In March 2010, Wachovia Bank N.A. was charged with failure to maintain an anti-money laundering program, around the period of May 2003 to June 2008, in violation of the Bank Secrecy Act, Title 31, United States Code, Sections 5318(h)(1) and 5322(a).

2. The case first came to light when the U.S. authorities began investigating wire transfers sent from Mexico to the U.S., which were being spent on purchasing aircraft in the U.S. The aircraft were used to move illegal narcotics for distribution in the U.S. The wire transfers were traced back to correspondent bank accounts held by certain Mexican currency exchange houses, also known as “casas de cambio” (“CDC”) at Wachovia N.A. CDCs allow persons in one country, in this case Mexico, to exchange one type of currency for another, such as from pesos to U.S. dollars or vice versa.

3. The U.S. authorities had highlighted the increased money laundering risk that Mexican CDCs posed to the U.S. financial system. However, Wachovia N.A. continued to provide the CDCs with their banking services, including at least these three: (i) conducting wires through Wachovia; (ii) bulk cash service; and (iii) pouch deposit service, which later included a new delivery method for check deposits called “remote deposit capture.”

4. The investigation revealed evidence and red-flag indicators of large scale drug money laundering. Amongst the activities that were identified by law enforcement were structured wire transactions involving multiple wire transfers of round numbered amounts of money, made on the same day or in close succession, by the same originator account, to the same recipient (beneficiary).

5. The U.S. Bank Secrecy Act (1970) (“BSA”) requires banks and credit unions to file a Suspicious Activity Report if a transaction involves or aggregates at least US\$5,000 in funds or other asset, and the bank knows, suspects, or has reason to suspect that the transaction is designed to evade any requirements of the BSA. To comply with this regulation, the financial institution must have in place systems to identify the kinds of transactions and accounts that may exhibit suspicious activities. Wachovia N.A.’s AML and compliance program were found to have lacked specific policies and procedures on the handling of the high-risk accounts with CDCs, including, inter alia, due diligence on high risk CDC customers and detecting and reporting suspicious activities.

6. The investigation revealed at least US\$110 million in drug proceeds that were laundered through Wachovia N.A., which will be forfeited to the U.S. Wachovia N.A. will also pay a US\$50 million fine.

#### **Comment**

7. In this case, Casas de Cambio located on the border were one reason behind the success of the money launderers. Nevertheless, it is important to mention the difference between the “Casas de Cambio” which are the currency exchange houses, as mentioned above; and the Centros Cambiarios (exchange centers). Both of these institutions perform the function of exchanging money from one currency to another, but the difference lies in their oversight. Exchange Centers are regulated by the SAT, which is the Mexican tax authority, and they do not have to follow the same regulations that the CNBV imposes. The Exchange Centers are also obliged to follow certain regulations in order to notice suspicious activities (Art. 81 A of the General Law on Auxiliary Credit Organizations and Activities), but there is no investigation unless the amount is higher than US\$10,000. Thus, any amounts which are below this threshold are likely to be subjected to less scrutiny.

8. In June 2010, the Mexican Ministry of Finance and Public Credit (SHCP), issued amendments to the Credit Institutions Law that restricts the amount of U.S. dollars in physical cash that financial institutions could receive. With respect to individuals that are customers of a financial institution, the cash transactions shall not exceed USD 4,000 per customer per calendar month. Non-customers are limited to USD 300 per day, and no more than USD 1,500 per month. This legislative reform, which came into force in mid-September 2010, is likely to lead to changing patterns of financial transactions, such as a decline in the overall amount of U.S. currency repatriated by Mexican banks to the U.S. To help financial institutions assess risks and perform ongoing monitoring of financial transactions, FinCEN has issued guidance on examples of the potential effects of this new Mexican legislation. However, since Centros Cambiarios are only exchange centers and do not involve bank account transfers, they are not subject to the newly-passed regulation restricting deposits of U.S. dollars to less than US\$4,000, which falls under the CNBV regulatory framework.

*Sources:*

1. U.S. Attorney’s Office Southern District of Florida Press Release, March 17, 2010. <http://www.justice.gov/usao/fls/PressReleases/100317-02.html>
2. U.S. District Court Southern District of Florida Case No. 10 – 20165-CR-LENARD - Information, Agreement and Settlement. <http://www.justice.gov/usao/fls/PressReleases/100317-02.html>
3. FinCEN Advisory 2019-A007 “Newly Released Mexican Regulations Imposing Restrictions on Mexican Banks for Transactions in U.S. Currency.” June 21, 2010 and Unofficial Translation of the regulations. [http://www.fincen.gov/news\\_room/rp/files/06-2010-0238-eng-final.pdf](http://www.fincen.gov/news_room/rp/files/06-2010-0238-eng-final.pdf)

17. Like the Wachovia case, the *State of Arizona v Western Union* case also involves wire transfers, but in this case, the U.S. financial institution is a money transmitter, Western Union Financial Services. This case resulted in an unprecedented agreement to share data between a financial institution and law enforcement authorities. In Mexico and the U.S., banking secrecy laws do not inhibit the implementation of the Financial Action Task Force (FATF) standards on combating money laundering.<sup>22</sup> The banking secrecy provisions in Mexico are found in each of the general laws that govern each category of financial institutions. For example, the confidentiality provisions are set out in Article 117 of the Credit Institution Law. Under Article 115 of the same law, banking secrecy may be lifted in order for the financial institution to comply with the AML legal provisions<sup>23</sup> without breaching confidentiality. In the U.S., the

<sup>22</sup> Both countries were rated fully compliant with regard to this standard.

<sup>23</sup> The provision also includes legal provisions on counter terrorism financing, which this paper does not discuss.

main legislation that protects the confidentiality of financial information is the Right to Financial Privacy Act (RFPA). The RFPA does not allow a federal government agency to access information contained in the financial records unless the financial records are reasonably described, the customer has given consent, there is an appropriate administrative subpoena or summons, a qualified search warrant, an appropriate judicial subpoena or an appropriate written request from an authorized government authority. In addition to the RFPA, the USA PATRIOT Act (s. 314(b)) allows a financial institution to share information with another in order to identify and report activities that may involve money laundering or terrorist activity to the federal government, after providing notice to the U.S. Treasury.<sup>24</sup>

#### CASE 2: STATE OF ARIZONA V WESTERN UNION FINANCIAL SERVICES

1. Western Union Financial Services, Inc (“Western Union”) is licensed to do business as a money transmitter in the state of Arizona, under the Arizona Transmitters of Money Act. Western Union conducts its business through “Agents,” referred to as “authorized delegates” in Arizona.
2. Between 2003 and 2007, Western Union had information that one or more of their authorized delegates in Arizona were knowingly engaged in a pattern of money laundering violations that facilitated human smuggling from Mexico into the U.S., through Arizona. Between 2003 and 2005, the Western Union payouts at eight Arizona locations totaled US\$176,735,000 in wires of US\$500 or more sent to the location from one of the States that were the most frequent destinations for persons being smuggled from Mexico into the U.S. through Arizona. From 2006, Western Union limited the amount that could be transferred into Arizona to US\$450. From 2005–2007, Western Union payouts at eight locations outside the U.S totaled US\$142,446,000 in wires of US\$500 or more sent to the location from one of the States that was the most frequent destinations for persons being smuggled into the U.S. through Arizona
3. In February 2010, Western Union and the State of Arizona entered into a Settlement Agreement. The US\$94 million settlement agreement comprises these components:
  - US\$21 million to the Anti-Racketeering Revolving Fund established for the benefit of the Arizona Attorney General’s Office, the Arizona Department of Public Safety and the Phoenix Police Department (paragraph 16).
  - US\$23 million towards enhancing Western Union’s own AML program, of which US\$4 million will be allocated towards an independently-appointed Monitor.
  - US\$50 million to the Center for State Enforcement of Antitrust and Consumer Protection Laws, Inc., a not-for-profit organization. The funds will be available through a grant process for law enforcement agencies throughout the U.S.-Mexican border to fund money laundering, human trafficking, drug smuggling and arms trafficking investigations and prosecutions. The funds will also support law enforcement training efforts in

<sup>24</sup> Financial Action Task Force, *Third Mutual Evaluation Report on Anti-Money Laundering and Combating the Financing of Terrorism: United States of America, op.cit.*, 125, para. 566.

the U.S. and in Mexico to help reduce money laundering.

### **Comment**

This case highlights two specific measures that Arizona State has taken to combat money laundering:

- i. *Data sharing* – Arising from this settlement are data sharing provisions (Paragraph 17.1), in which the parties agreed that Western Union shall provide the State of Arizona with any relevant document concerning matters relating to an investigation of money laundering or other related criminal activity in the Southwest Border Area. This shall be done promptly upon the issuance of an Arizona state or federal legal process, such as a subpoena, summons, or court order. The obligation to provide data is limited to data related to transactions that are sent from or received in the Southwest Border Area or such additional areas of a Participating State. The issues that arise from this data sharing provision are the impact that this will have on future decisions on data sharing for the purposes of combating money laundering in the U.S., and the handling of such the data. In addition, there may need to be an assessment of the potential impact that this may have on legitimate business of money service businesses.
- ii. *Suspicious transaction reporting* - The topic of suspicious transaction reporting first arose in the earlier Wachovia case. As mentioned earlier, banks and credit unions must report suspicious transactions only when they involve at least US\$5,000, either in single or aggregate amounts. Money service businesses, however, must generally report suspicious transactions when they involve or aggregate at least US\$2,000. Arizona has implemented a lower threshold of US\$1,000 for reporting and recording transactions. In addition, money service businesses operating in Arizona must comply with the federal reporting and recording requirements applicable to transactions above US\$3,000. Arizona has thus adapted its laws to take into consideration the additional ML risks that the state faces. Whilst this may be a model which may be relevant to other states, there is also the possibility that illegal activities may be diverted to other states with the higher threshold, in order to avoid being detected.

#### *Sources:*

1. *State of Arizona v Western Union Financial Services, Inc (February 11<sup>th</sup>, 2010) Settlement Agreement*
2. *Statement of Admitted Facts (Exhibit A, Settlement Agreement)*
3. *Press Release, Office of Attorney General "Terry Goddard Announces Historic Settlement Giving Law Enforcement Greater Resources to Fight Border Crime" (Feb 11, 2010)*
4. *FATF, Third Mutual Evaluation Report on Anti-Money Laundering and Combating the Financing of Terrorism: United States of America,, p. 197 - Case Study on Arizona*

## SECTION III

### LITERATURE REVIEW

18. Given the discussion on anti-money laundering measures and the examples of money laundering cases involving the U.S. and Mexico, one question that arises is what studies have there been to estimate the amount of money laundering in both countries. This section presents a review of studies that we are aware of, which have been done in this area.
19. Some studies have attempted to study the movement of criminal proceeds by analyzing the supply chain and bulk cash movement. The U.S. and Mexican Governments undertook a binational criminal proceeds study in 2010, which focused on the criminal proceeds supply chain and revealed the means by which transnational criminal enterprises moved criminal proceeds from the U.S. into and beyond Mexico.<sup>25</sup> In the opening message from Director Williams of the Office of Counternarcotics Enforcement and Assistant Secretary Morton of the Immigration and Customs Enforcement, they noted that an estimated US\$19–29 billion of cash travelled annually from the U.S. into Mexico. Others have studied the movement of the money between the U.S. and Mexico. The U.S. Department of Justice National Drug Threat Assessment 2010 (NDTA) reported that Mexican drug trafficking organizations smuggled bulk cash drug proceeds totaling “tens of billions of dollars” from the U.S. through the Southwest Border and into Mexico, after being consolidated in areas including Atlanta, Chicago, Los Angeles, New York City, and North Carolina. However, the 2010 NDTA noted that there are no current estimates for the annual amount of money either laundered domestically or smuggled out of the U.S. by drug trafficking organizations. A 2007 study by the U.S. National Drug Intelligence Center (NDIC) estimated that between 2003 and 2004, at least US\$17.2 billion was smuggled into Mexico in bulk cash shipments. This estimate was based on a study of U.S. banknotes repatriated from Mexico, and not all U.S. currency that was smuggled to or through Mexico.<sup>26</sup> Other estimates place the range of unexplained differences between inflows

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<sup>25</sup> United States Department of Homeland Security, *Binational Criminal Proceeds Study Executive Summary* (United States: Department of Homeland Security, June 2010), 1.

<sup>26</sup> United States Department of Justice, *Illicit Finance* (United States; Department of Justice, 2010), paras 1–3 and footnote 24.

and outflows at between US\$6 to US\$36 billion, but provide no further details of methodology used to arrive at these figures.<sup>27</sup>

20. Despite these published estimates, there has been an absence of a methodology to estimate the amounts of money laundered in the U.S. and in Mexico. Some studies have estimated the illicit financial flows from developing countries, whilst others have estimated the size of shadow economies. Table 1 is a summary comparison of these studies and how our study contributes to the existing research in this field. Further elaboration on the studies is provided below.
21. Schneider and Enste (2000) have studied shadow economies, which as a working definition, comprises “all economic activities that contribute to official calculations of gross national product, but are currently unregistered.”<sup>28</sup> The authors argue that shadow economies may arise due to a number of factors, including the “burden of taxes and social security contributions, increased regulation and labor costs in the official labor market.” A growing shadow economy has a negative impact on the official economy by reducing the tax and social security bases. Schneider and Enste focus on “legal value-added creating activities which are not taxed or registered and where the largest part can be classified as ‘black’ or clandestine labor.” They employ three economic models – a physical (electricity consumption) method, a currency demand approach, and a “multiple-indicator-multiple cause” model – to estimate the size of shadow economies of 76 countries.
22. Global Financial Integrity (GFI) conducted a study on illicit financial flows from developing countries from 2000 to 2008. Using the World Bank Residual model, which has been used to measure unrecorded flows, and the IMF’s Direction of Trade Statistics data the cumulative illicit outflows from Mexico between 2000 and 2008 was estimated to be US\$416 billion. Illicit financial flows is defined as involving “capital that is illegally earned, transferred or utilized and covers all unrecorded private financial outflows that drive the accumulation of foreign assets by residents, in contravention of applicable capital controls and regulatory frameworks.” Illicit financial flows may thus involve capital that has been earned through legitimate activities, such as profits of a legitimate business.<sup>29</sup>

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<sup>27</sup> Farah, “Money Laundering and Bulk Cash Smuggling: Challenges for the Mérida Initiative,” *op.cit.*, 143.

<sup>28</sup> Schneider and Enste, “Shadow Economies: Size, Causes, and Consequences,” *op.cit.*, 78.

<sup>29</sup> Kar, Cartwright-Smith and Hollingshead, *The Absorption of Illicit Financial Flows from Developing Countries: 2002-2006*, *op.cit.*, 3.

TABLE 1: COMPARISON OF STUDIES

	SCHNEIDER AND ENSTE (2000)	GLOBAL FINANCIAL INTEGRITY (2009; 2010)	WALKER (1996)	UNGER (2006)	OUR STUDY
Level of analysis	Country-level	Country-level	Country-level (Australia); cross-border inflow of money to Australia	Country-level (the Netherlands); cross-border inflow of money to the Netherlands.	Country-level; bilateral cross-border flows
Area of study	Shadow Economies of 76 countries	Illicit Financial Flows of developing countries	Money laundering in one country (Australia)	Money laundering in one country (Netherlands)	Money laundering of two countries (U.S. and Mexico)
Legal or Illegal Activities?	Legal activities. Value-added creating activities which are not taxed or registered	Does not distinguish between legal or illegal underlying activities	Illegal activities	Illegal activities	Illegal activities
Estimates	Mexico: 27 – 49% U.S.: 6.7% - 13.9%	U.S. \$1.26 trillion to U.S.\$1.44 trillion in 2008 from developing countries; US\$43 billion from Mexico	<ul style="list-style-type: none"> <li>• Amount of money generated in Australia;</li> <li>• Amount that flows into Australia for laundering;</li> <li>• Amount laundered in or through Australia annually</li> </ul>	<ul style="list-style-type: none"> <li>• Amount of money generated in the Netherlands;</li> <li>• Amount that flows into the Netherlands for laundering;</li> <li>• Amount laundered in or through the Netherlands annually</li> </ul>	<ul style="list-style-type: none"> <li>• Amount of money generated in the U.S. and in Mexico;</li> <li>• Amount of money generated flowing from the U.S. to Mexico, and from Mexico to the U.S.</li> </ul>
Methodology	<ul style="list-style-type: none"> <li>• Physical Input method</li> <li>• Currency Demand Approach</li> <li>• Multiple Indicator-Multiple Cause (MIMIC) model</li> </ul>	World Bank Residual Model and the IMF's Direction of Trade Statistics	Walker gravity model	Walker gravity model, with modifications	Walker gravity model, with modifications by Unger et al, and further modifications specifically for the case of U.S. and Mexico

23. As discussed, the models that were used to study shadow economies and illicit financial flows have not captured the proceeds of criminal activities. The studies also have not captured bilateral, cross-border financial flows. Thus, our study aims to complement their work, by studying the proceeds of organized crime in a bilateral case of the U.S. and Mexico. We study a gravity model that was developed by John Walker in 1995 to estimate money laundering and illicit financial flows, and subsequent work done by Brigitte Unger applying this model to the case of the Netherlands in 2006. We systematically examine the model's potential to estimate money laundering and illicit financial flows in the bilateral case of the U.S. and Mexico to help provide a more complex basis for analyzing the size and impact of the phenomenon. We believe that this research contribution is significant because, to the best of our knowledge, there has been no bilateral study which estimates the amount of money generated to be laundered in the U.S. and in Mexico, and the flow of this money between the two countries. This research complements the work done by Global Financial Integrity in estimating the total illicit financial flows from the U.S. and Mexico, and helps to provide a more complete understanding of the phenomenon. The following section presents the methodology.

## SECTION IV

### METHODOLOGY (PART I)

#### **4.1 Quantifying organized crime revenues and the laundering processes in Mexico and the U.S.**

24. By definition, quantifying illicit activities is a challenge. Official reports often do not display their methodology and sometimes even acknowledge the lack of precision in their own calculations.<sup>30</sup> This study introduces the first attempt to use a transparent methodology to estimate criminal proceeds generated both in the U.S. and Mexico. We also develop a methodology to determine the portion of those criminal proceeds which is likely to be “laundered.”

##### **4.1.1 The Walker methodology for estimating criminal revenues**

25. The money laundering process is triggered by the collection of financial benefits from a crime and only ends when these funds can be used with minimal risk by the offender, for any purpose. It is therefore essential to first estimate the sources and extent of criminal revenues in order to gain a better understanding of criminal motivations to launder money.
26. In 1995, Australian economist John Walker published his pioneer study of money laundering proceeds.<sup>31</sup> In order to estimate crime proceeds on a country-by-country basis, Walker surveyed Australian law enforcement officials and supplemented his results with official documents such as restraining orders, reports of suspect financial transactions, and estimates based on financial transactions through Australian Banks and international transfers. He then generalized the results and made the assumption that criminal patterns and incentives to launder money are similar from one country to another.
27. The Walker calculation model relies on a series of assumptions, which we consider reasonable:

- Criminal activities generate revenues in all countries

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<sup>30</sup> Vito Tanzi, “Uses and Abuses of Estimates of the Underground Economy,” *The Economic Journal* 109, number 456, June 1999, 338-347.

<sup>31</sup> John Walker, “Estimates of the Extent of Money Laundering in and through Australia,” Paper Prepared for the Australian Transaction Reports and Analysis Centre (AUSTRAC), Queanbeyan: John Walker Consulting Services, September 1995.

- Criminal revenues are larger for sophisticated and organized crimes than for simpler and individual crimes
- Countries with a higher GNP per capita tend to generate more income per crime.

28. Using these assumptions, Walker establishes categories according to the proportion of proceeds which were likely to be laundered. Those categories are assigned percentage values: very small=1%, small=10%, considerable=80%. Those coefficients are then applied to the proceeds of crime in order to find the portion that is laundered (See Table 2 below).

TABLE 2: ESTIMATE OF TOTAL CRIME IN AUSTRALIA

Crime Category	Best available estimate of costs (million \$)	Proceeds of crime (% of total costs)	Portion Laundered (% of proceeds)	Amount being laundered (million \$)
Homicide	275	Very small (1%)	Small (10%)	0.275
Assault (including sexual assault)	331	Very small (1%)	Very small (1%)	0.0331
Robbery and extortion	93	Considerable (80%)	Small(10%)	7.44
Breaking and entering	893	Considerable (80%)	Small (10%)	71.44
Fraud/forgery/false pretences	6710-13770	Considerable (80%)	Considerable(80%)	4294-8812
Theft	1232-2712	Considerable (80%)	Small (10%)	98.56-216.96
Property/Environmental damage	525-1645	Very small (1%)	Small (10%)	.0525-1.65
Drug Offences	1200	Considerable (80%)	Considerable (80%)	768
<b>TOTAL</b>	11259-20719			5240-9878

*Source: Walker data, 1992, as appeared in Unger et al (2006)*

29. Walker dissociates the cost to the victim and the revenues made by the offender/criminal. For instance, law enforcement professionals confirm that homicides and assaults are rarely committed to create a financial benefit for the offender.<sup>32</sup> Robberies and theft are assaults committed for the purpose of financial benefit and, despite its relatively high cost, its revenues tend to be small and do not necessarily need to be laundered in order to hide its criminal origin. The crimes most likely to enter the money laundering process are drug and fraud related offences since they involve the largest amounts of money, which in return provides criminals with a strong incentive to launder money.

<sup>32</sup> Contract killings and homicides committed in order to benefit from insurance payment or inheritances are an exception to this general trend.

30. We identify two major problems with the Walker calculation model and we suggest a different approach to refine it. Previous studies of money laundering, such as Walker (1999),<sup>33</sup> tend to forge a universal pattern for laundering crime proceeds<sup>34</sup> and extrapolate their results to the countries they are observing, without taking into account the specificities of the local criminal environments and the local macro and micro-economic incentives for laundering money. In order to fit the specific case of our bilateral study, we used a country-by-country approach in order to reflect the diversity of motivations and means utilized by criminal networks depending on their geographic implantation.
31. Previous research has also placed too much emphasis on the broad notion of “criminal revenues,” rather than narrowing their focus on criminal organizations. The activities that are assigned “small” and “very small” percentage values by Walker, such as assaults or homicides, are often committed by individuals and can hardly be systematically correlated to the activities of criminal organizations. In order to focus on the activities most likely to generate large proceeds for money laundering, our paper will focus exclusively on crimes identified with large sums of proceeds and large proportions of laundered money. Building on the taxonomy developed by Schneider and Enste (2000), this paper will study a set of illegal activities most likely to generate large monetary transactions. Unlike the original research conducted by Walker (1999), which looked at the broad spectrum of illegal activities (see Table 3 below), this paper will narrow the focus to a set of illegal activities in order reflect the specificities of the U.S. and Mexico environments in which criminal organizations operate.

TABLE 3: A TAXONOMY OF UNDERGROUND ECONOMIC ACTIVITIES

Illegal Activities	Monetary Transactions		Non-Monetary Transactions	
		Trade in stolen goods; drug dealing and manufacturing; prostitution; gambling; smuggling and fraud		Barter: drugs, stolen goods, smuggling, etc. Produce or growing drugs for own use Theft for own use
Legal Activities	Tax Evasion	Tax Avoidance	Tax Evasion	Tax Avoidance
	Unreported income from self-employment; Wages, salaries and assets from unreported work related to legal services and goods	Employee discounts, fringe benefits	Barter of legal services and goods	All do-it-yourself work and neighbour help

*Source: Schneider and Enste (2000), Rolf Mirus and Roger R. Smith (1997)*

<sup>33</sup> John Walker, “How Big is Global Money Laundering?” *Journal of Money Laundering Control* 3, number 1, 1999.

<sup>34</sup> We understood “proceeds” as the “financial benefits obtained by the criminal.”

#### 4.1.2 The bilateral case of U.S. and Mexico: Taking into account criminal patterns to estimate criminal revenues.

32. The most recent version of the Walker model used for the Netherlands by Unger *et al* in 2006 focused on the following list of crimes:
  - Fraud
  - Drugs
  - Theft
  - Burglary
  - Robbery
  - Homicide
  - Assault/Sexual Assault
  - Prostitution
  - Illegal gambling
  - Illegal workers
  - Fencing
  - Illegal copying
33. The above list reflects criminal patterns in industrialized countries such as Australia and the Netherlands and does not necessarily give a comprehensive snapshot of illegal activities in the specific bilateral case of the U.S. and Mexico. We narrowed down this list to activities which would be more relevant to our case study, in order to reflect the specificities of the criminal environments in the U.S. and Mexico, for instance introducing new categories such as people smuggling and weapons trafficking.
34. The list of major sources of crime revenues in Mexico include:
  - Drug trafficking
  - Fraud
  - People Smuggling
  - Forced Labor
  - Prostitution
  - Weapons trafficking
  - Counterfeiting Goods
35. Due to the legalization of weapons trading in certain states, the U.S.' crimes list differs marginally from the Mexican list:
  - Drug trafficking
  - Fraud
  - People Smuggling
  - Forced Labor
  - Prostitution
  - Counterfeiting Goods
36. Data on criminal revenues were calculated by using a collection of official data from the United Nations Office on Drugs and Narcotics, the U.S. Federal Bureau of Investigation, the

U.S. Department of Justice and from private sector sources such as the accounting firm KPMG. Unless it is otherwise mentioned, we used 2008 as our reference year.<sup>35</sup>

## **Mexico**

### **i. Drug Trafficking**

37. In order to assess revenues from drug trafficking, we first refer to street prices mentioned in the UNODC World Drug Report of 2009.<sup>36</sup> Following interviews with U.S. law enforcement officers, we assessed seizures represent a mere 5 percent of total drugs sold in Mexico. By multiplying seizures figures by a factor of 20, we obtain a rough estimate of drug revenues, at US\$7.7 billion.
38. The UNODC does not provide street prices for cannabis resin in Mexico. We however noticed that the price differential for cannabis herb between the U.S. and Mexico was a factor of 25. Using this factor, we found a figure of US\$360/kg, which seems to be a reasonable estimate given that it represents approximately 4.5 times the price of cannabis herb, from which cannabis resin is a derived product.

<b>Crime</b>	<b>Street Price(USD/kg)</b>	<b>Seizures (kg)</b>	<b>Money Generated (5% hypothesis)</b>
Cocaine	12500	19333.043	\$ 4,833,260,750.00
Cannabis herb	80	1657853.057	\$ 2,652,564,891.20
Heroin	35000	194.055	\$ 135,838,500.00
Methamphetamines	20000	341.059	\$ 136,423,600.00
Cannabis resin	360	279.084	\$ 2,009,404.80
<b>TOTAL Drugs</b>			<b>\$ 7,760,097,146.00</b>

### **ii. Fraud**

39. Our fraud estimate only encompasses corporate fraud, as we lack updated and/or meaningful data on other types of fraud such as credit card fraud. In its 2010 report *Encuesta de Fraude en Mexico*<sup>37</sup> [Survey of Fraud in Mexico], the local services of accounting firm KPMG calculate that some US\$900 million were misappropriated in 2008.

<b>Crime</b>	<b>Money Generated</b>
Corporate Fraud	\$ 896,340,000.00
<b>TOTAL Fraud</b>	<b>\$ 896,340,000.00</b>

<sup>35</sup> We ruled out 2009 and 2010 in order to guard against a potential bias in 2009-2010 data arising from the financial crisis.

<sup>36</sup> United Nations Office of Drugs and Crime, 2009 *World Drug Report* (Austria: United Nations Publications, 2009), 211-234. Accessed January 18, 2011 [http://www.unodc.org/documents/wdr/WDR\\_2009/WDR2009\\_eng\\_web.pdf](http://www.unodc.org/documents/wdr/WDR_2009/WDR2009_eng_web.pdf)

<sup>37</sup> KPMG, *Encuesta de Fraude en Mexico [Survey of Fraud in Mexico]*, accessed April 1, 2011 [http://www.kpmg.com/MX/es/IssuesAndInsights/ArticlesPublications/Documents/Estudios/Encuesta\\_fraude\\_en\\_Mexico\\_2010.pdf](http://www.kpmg.com/MX/es/IssuesAndInsights/ArticlesPublications/Documents/Estudios/Encuesta_fraude_en_Mexico_2010.pdf)

### iii. People Smuggling

40. According to the UNODC Drug and Crime Report of 2010,<sup>38</sup> revenues from smuggling Latin American undocumented people into Mexico reach some US\$1 billion per year. Given that the portion of non-Latin American undocumented people entering Mexico is relatively insignificant,<sup>39</sup> we were able to set this figure as a total estimate for proceeds from people smuggling in Mexico.

<u>Crime</u>	<u>Money Generated</u>
People Smuggling	\$ 1,000,000,000.00
<b>TOTAL</b>	<b>\$ 1,000,000,000.00</b>

### iv. Forced Labor

41. In a 2005 study on forced labor profits,<sup>40</sup> International Labor Organization (ILO) experts set proceeds from forced labor at an average of US\$3,570 per year per person in Latin America and the Caribbean. Given that Mexico's productivity standards and average wages are higher than those of other Latin American and Caribbean countries,<sup>41</sup> we believe this estimate is probably conservative. The U.S. Department of Labor stated<sup>42</sup> in a 2009 report that 3.8 million children work illegally in Mexico. We found other reports mentioning figures between 8 and 11 million children, and have chosen the conservative estimate.

<u>Crime</u>	<u>Profit per worker</u>	<u>Number of workers</u>	<u>Money Generated</u>
Forced Labor	3570	3,640,000.00	\$ 12,994,800,000.00

### v. Prostitution

42. In its study of forced labor profits, the International Labor Organization also gave an estimate of revenues from prostitution, setting it to US\$18,200 per year per person for Latin America and the Caribbean. However, there is currently a lack of official reports to estimate the size of this industry. Relying on official reports from local Health Services, the President of the Human Rights Commission of the State Legislative Assembly of the Federal District estimated

<sup>38</sup> United Nations Office of Drugs and Crime, *Drug and Crime Report* (Austria: United Nations, 2010), 66. Accessed January 18, 2011. [http://www.unodc.org/documents/data-and-analysis/tocta/TOCTA\\_Report\\_2010\\_low\\_res.pdf](http://www.unodc.org/documents/data-and-analysis/tocta/TOCTA_Report_2010_low_res.pdf)

<sup>39</sup> *Idem*, 67.

<sup>40</sup> Patrick Belser, *Forced Labor and Human Trafficking: Estimating the profits* (Switzerland: International Labor Organization, 2005). Accessed April 1, 2011 <http://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1016&context=forcedlabor>

<sup>41</sup> Augusto De La Torre and Ana Cusolito, "Competition and Economic Growth," *International Conference on "Challenges and Strategies for Promoting Economic Growth,"* World Bank, Mexico City, October 2009.

<sup>42</sup> United States Department of Labor "Stop child labor in agriculture," *Technical Cooperation Project*. Accessed March 15, 2011 [http://www.dol.gov/ilab/projects/americas/Mexico\\_Agriculture.pdf](http://www.dol.gov/ilab/projects/americas/Mexico_Agriculture.pdf)

in 2007 that 40,000 prostitutes were working in Mexico City alone.<sup>43</sup> Mexico City makes up for 20% of the Mexican population living in the 55 biggest metropolises. Considering that prostitution is essentially an urban phenomenon,<sup>44,45,46</sup> we extrapolated the Mexico City figures and assessed the phenomenon to 200,000 prostitutes in Mexico. This is probably a conservative estimate and clearly does not take into account prostitution in rural areas.

43. The main weakness of our methodology lies in the potential overlap of the people smuggling category with other categories of human trafficking such as forced labor and prostitution. Independent studies<sup>47</sup> suggest that a significant portion of forced labor and prostitution in the U.S. is linked to the payment of smuggling fees by undocumented immigrants.

<u>Crime</u>	<u>Profit per worker</u>	<u>Number of workers</u>	<u>Money Generated</u>
Prostitution	18200	200,000.00	\$ 3,640,000,000.00

#### vi. Weapons Smuggling

44. Our estimate of proceeds from weapons smuggling is based on the survey presented in the 2010 UNODC World Drug and Crime Report, which estimates revenues from this traffic at US\$ 20 million<sup>48</sup> per year.

<u>Crime</u>	<u>Money Generated</u>
Weapons Trafficking	\$ 20,000,000.00

#### vii. Counterfeiting Goods

45. The size of the counterfeiting and piracy industry is particularly difficult to assess. Most estimates tend to be published by alliances of companies which were victims of the phenomenon, and their methodology has been repeatedly questioned by international

<sup>43</sup> Pablo Pérez, “Buscan legalizar la prostitución en México [Looking to Legalize Prostitution in Mexico],” *AFP Press release*, June 14, 2007, Accessed March 1, 2011 [http://www.perfil.com/contenidos/2007/06/13/noticia\\_0076.html](http://www.perfil.com/contenidos/2007/06/13/noticia_0076.html)

<sup>44</sup> Melissa Farley, Marisa Ugarte and Laura Zarate, “Prostitution and Trafficking of Women and Children from Mexico to the United States,” *Journal of Trauma Practice* 2, number 3-4, 2003, 147-165.

<sup>45</sup> Álvaro López, “Turismo sexual masculino-masculino en la Ciudad de México [Male-Male Sexual Tourism in Mexico City,]” *Teoría y Praxis*, number 5, 2008, 99-112.

<sup>46</sup> Rodolfo Casillas, *La trata de mujeres, adolescentes, niñas y niños en México [Women, teenagers, and children smuggling in Mexico]*, (Mexico: Comisión Interamericana de Mujeres de la Organización de Estados Americanos, 2006). Accessed February 12, 2011 <http://www.oas.org/atip/Reports/Estudio.Exploratorio.en.Tapachula.pdf>

<sup>47</sup> Free the Slaves Washington, D.C. & Human Rights Center University of California, Berkeley, *Hidden Slaves: Forced Labor in the U.S.*, 2004,

<http://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1007&context=forcedlabor&seidir=1#search=%22forced+labor+in+the+U.S.%22>

<sup>48</sup> United Nations Office of Drugs and Crime, *World Drug and Crime Report*, op.cit.

organizations such as the OECD.<sup>49</sup> The OECD is leading the research on counterfeiting and published in 2008 a remarkable paper which introduced the concept of General Trade-Related Indices (GTRI) of counterfeiting and piracy.<sup>50</sup> GTRI coefficients were constructed to measure the relative propensity of a country to trade counterfeit goods, compared to a baseline average. For instance, with a baseline average of 1, a GTRI coefficient of 2 would mean that a country is two times more likely to export counterfeit goods than in the case of the baseline average. The GTRI methodology has two main limitations: it does not include domestically produced and consumed products, or non-tangible pirated digital products, and neither does it provide relative estimates or the absolute volume of counterfeited goods being traded. According to the OECD, the most probable baseline scenario would be that 5% of total international trade is made up by counterfeited goods.<sup>51</sup> This is regarded by the International Anti-Counterfeiting Coalition, an industry lobby group, as a conservative estimate.<sup>52</sup>

46. In order to find the absolute values of proceeds from counterfeiting and piracy activities in Mexico and the U.S., we multiplied the baseline percentage (5%) by the GTRI coefficient attributed to Mexico. Then we applied this percentage to the value of total trade in 2008, and we obtain a value of US\$2.5 billion.
47. This approach has one major weakness: it only captures the phenomenon from an international trade perspective and consequently excludes the local production and consumption of counterfeited goods from our analysis. As reports indicate that significant amounts of counterfeited goods are consumed locally in Mexico,<sup>53</sup> this bias must be corrected.
48. The Institute for the Protection of Intellectual Property and Legal Commerce, a Mexican trade group, estimates the market size for counterfeiting and pirated goods at US\$12.5 billion per year. We therefore come to the conclusion that about US\$10 billion of counterfeited and pirated goods are produced and consumed locally.

<b>Crime</b>	<b>Mexico Trade</b>	<b>GTRI coefficient</b>	<b>Money Generated</b>
Counterfeiting (Trade)	643,028,032,392.36	0.3854%	\$ 2,478,037,128.43
Counterfeiting (Domestic)			\$ 10,021,962,871.57
<b>Total Counterfeiting</b>			<b>\$ 12,500,000,000.00</b>

<sup>49</sup> Peggy Chaudhry and Alan S. Zimmerman, *The Economics of Counterfeit Trade: Governments, Consumers, Pirates, and Intellectual Property Rights*, (Berlin: Springer, 2009), 9-15.

<sup>50</sup> Organisation for Economic Co-operation and Development, *The Economic Impact of Counterfeiting and Piracy*, 2007. Accessed April 1, 2011 <http://www.oecd.org/dataoecd/13/12/38707619.pdf>

<sup>51</sup> *Ibidem*.

<sup>52</sup> International AntiCounterfeiting Coalition. *The Truth About Counterfeiting*, Accessed on April 1, 2011 <http://www.iacc.org/about-counterfeiting/the-truth-about-counterfeiting.php>

<sup>53</sup> José Luis Ramos Zurita, *Anti-counterfeiting in Mexico*, (Britain: World Trademark Review, March-April 2008), 66-68.

## United States

### i. Drug Trafficking

49. Our estimates for revenues generated from the sales of specific drugs rely heavily on UNODC and NDIC Drug Threat Assessment reports. We combined price, purity and consumption data to estimate revenues for each drug category. For cocaine revenues, the NDIC reported an average retail price of US\$81.32 per gram with purity of 0.51 grams per retail gram sold.<sup>54</sup> We divided these to get the price per pure gram, converted this number to metric tons, and multiplied it by the UNODC estimate of 165 pure metric tons being consumed in the U.S., and find US\$26 billion in revenues. We averaged this with the UNODC estimate of US\$35 billion in cocaine revenues in the U.S. and we report an estimate of US\$30.5 billion total revenues.<sup>55</sup> We followed a similar process for estimating heroin revenues except that we had to differentiate price according to the source of the heroin. The NDIC reports the percent of heroin seized that comes from South America, Mexico and South Asia. By taking UNODC estimates for the average retail price of heroin in the U.S. for each of these sources regions, and applying these percentage and price estimates to the total amount of heroin consumed in the U.S., we calculate total revenues from heroin sales. This calculation can be seen below. Our methodology changed slightly to estimate revenues for marijuana. Since there are no consistent estimates for average price of marijuana, and particularly not of the amount of marijuana consumed, we investigated a range of academic and official source documents that estimate revenues based on demand side analysis. We then took the average of this range to provide a best estimate based on our assembled “expert panel.”

Source:	Mexico	South America	Southern Asia	Total Revenues
% Seized Heroin:	39%	58%	3%	
Price/kg:	\$21,000	\$58,000	\$30,000	
Money Generated:	\$163,800,000	\$672,800,000	\$18,000,000	\$854,600,000
Supply:	20 metric tons			

50. As anti-drug policies have become a significant priority of the U.S. government since the 1980s, many official reports provide estimates of drug revenues. However, official reports have

<sup>54</sup> United States Department of Justice National Drug Intelligence Center, *National Drug Threat Assessment Report*, (United States: U.S. Department of Justice, February 2010). Accessed Jan 18, 2011. <http://www.justice.gov/ndic/pubs38/38661/index.htm>

<sup>55</sup> United Nations Office of Drugs and Crime, 2010 *World Drug Report*, <http://www.unodc.org/documents/data-and-analysis/WDR2010/AllSeizures.pdf>

not so far been able to produce an estimate of proceeds from methamphetamines trafficking. As law enforcement officers consider that only 10% of the production of methamphetamines is seized each year, it can be deduced that total methamphetamines production in the U.S. are about 10 times the amount of reported seizures.<sup>56</sup>

<b>Drug</b>	<b>Seizures (kg)</b>	<b>Street Price (USD/kg)</b>	<b>Estimated Proceeds</b>
Methamphetamines	6308.26	\$ 65,650.00	\$ 4,141,372,690.00

## ii. Fraud

51. Our fraud estimate relies on FBI reports compiled by the U.S. Census Bureau in 2011, which shows that total revenues from fraud in the U.S. amounted to US\$12 billion in 2008.<sup>57</sup>

<b>Crime</b>	<b>Money Generated</b>
Corporate fraud	\$ 6,100,000,000.00
Securities/commodities fraud	\$ 2,100,000,000.00
Insurance fraud	\$ 22,900,000.00
Marketing fraud	\$ 4,400,000.00
Health care fraud	\$ 1,300,000,000.00
Mortgage fraud	\$ 2,540,000,000.00
<b>TOTAL Fraud</b>	<b>\$ 12,067,300,000.00</b>

52. Fraud is the only item for which we use raw official data without adjusting for unreported cases. Given the nature of the offense, we believe that few fraud cases go unreported, particularly since insurance covers the loss and tight accounting standards provide additional incentives for corporation victims of fraud to declare the loss.
53. An estimated loss of US\$12 billion due to fraud may seem like a low estimate compared to a generally accepted figure of US\$625 billion per year, which was issued by the Association of Certified Fraud Examiners (ACFE) in 2002 after its researchers sent survey forms to 10,000 of its members. The larger figure has become a “fact by repetition.” We share the concerns raised by scholars such as Levi and Reuter (2006)<sup>58</sup> and decided to discard the ACFE methodology as containing significant faults. The sample was particularly limited: fewer than 10 percent of the surveyed members responded. Respondents had to provide specific information about cases of

<sup>56</sup> *Idem*, Seizures appendix.

<sup>57</sup> United States Census Bureau, *Statistical Abstract of the United States 2011*, Accessed January 25, 2011 <http://www.census.gov/compendia/statab/2011/tables/11s0336.pdf>

<sup>58</sup> Michael Levi and Peter Reuter, *Money Laundering, Crime and Justice: A Review of Research* 34 (Chicago: Chicago University Press, 2006), 289-375.

which they were aware and to estimate the percentage of revenues that they would lose in case of occupational fraud and abuse. As the median figure was 6 percent, using an estimate for U.S. GDP of US\$10.4 trillion in 2002 leads to an estimate of US\$625 billion. No effort was made to adjust for non-response or to ask whether respondents were in fact in a position to make such estimates. Nor did the study consider whether GDP was the correct base for these calculations. If each examiner estimated the share of the flow through his or her corporation, then the right base was much larger, namely the total volume of transactions through corporations.<sup>59</sup> Although relying on official data may be considered as overconfident, we believe this estimate is conceptually the most accurate.

### **iii. People Smuggling**

54. According to the UNODC Drug and Crime Report of 2010,<sup>60</sup> revenues from smuggling Latin American unauthorized migrants into the U.S. reach some US\$6.6 billion per year. The UNODC report also suggests that the portion of non-Latin American undocumented migrants entering Mexico is minor and that non-Latin Americans undocumented migrants tend to enter the U.S. territory by their own means rather than through organized networks. We therefore use the UNODC figure as an estimate of the total proceeds from people smuggling into the U.S.
55. As explained earlier, the main weakness of our methodology lies in the potential overlap in the forced labor, prostitution and people smuggling categories.

### **iv. Forced Labor**

56. In a 2005 study on forced labor profits,<sup>61</sup> the International Labor Organization set proceeds from forced labor at an average of US\$30,154 per year per person in industrialized countries. Given that the U.S. has the largest GDP of all industrialized countries, we believe this estimate is probably conservative.
57. Our analysis relies on the landmark 2005 Pew Research Center Study on the unauthorized migrant population in the US,<sup>62</sup> which estimated approximately 7.2 million undocumented migrants work in the U.S. As law enforcement officers assess that 1% of those workers are potentially working under forced labor conditions, we believe forced laborers could be 72, 000 in the U.S., providing US\$2.1 billion to criminal networks. This figure is consistent with

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<sup>59</sup> *Idem*, 331.

<sup>60</sup> United Nations Office of Drugs and Crime, *Drug and Crime Report*, op.cit., 66.

<sup>61</sup> Belser, *Forced Labor and Human Trafficking: Estimating the profits*, op.cit.

<sup>62</sup> Jeffrey Passel, *The Size and the Characteristics of the Unauthorized Migrant Population in the U.S., Estimates based on the March 2005 Current Population Survey* (United States: Pew Hispanic Center, 2006).

official data: the Department of Justice estimates that about 17,000 people are trafficked into the U.S. each year, while less than 1,000 are rescued during law enforcement operations.<sup>63</sup>

58. This methodology employs a broad definition of forced labor and relies on the assumption that most cases of forced labor are found within the undocumented foreign community and therefore excludes potential cases in which forced laborers could be documented foreigners or U.S. nationals. However, when looking at data collected by law enforcement agencies, we could not find recent examples of such cases.<sup>64</sup>

<u>Crime</u>	<u>Number of workers</u>	<u>Proceeds per worker</u>	<u>Money generated</u>
<b>Forced Labor</b>	72,000	\$ 30,154	\$ 2,171,088,000

**v. Prostitution**

59. In its study on forced labor profits, the International Labor Organization also gave an estimate of revenues for prostitution, setting it to US\$67,200 per year per person in industrialized countries. However, there is currently a lack of official reports to estimate the size of this industry. In the U.S., prostitution remains a taboo and the most recent figure, which originates from a 1984 study, estimates the number of sex workers in the U.S. at about 1 million. Since then, this figure is repeatedly used in the public debate by sex workers defense organizations, without any real statistical research to back this argument. We turned to the 2007 FBI arrest reports on charges of prostitution. As law enforcement officers assess that only one in ten prostitutes are arrested each year, we therefore estimate the number of sex workers to reach about 776,000 in the U.S. Coupling this estimate with the ILO figures, we assess the proceeds from illegal commercial sex at about US\$42 billion.

<u>Crime</u>	<u>Number of workers</u>	<u>Proceeds per worker</u>	<u>Money generated</u>
<b>Prostitution</b>	77,600	\$ 67,200	\$ 5,214,720,000

**vi. Counterfeiting**

60. Figures for counterfeiting and piracy are obtained by using the previous methodology based on GTRI coefficients (cf Mexico section paragraph 46). Due to lack of existing data, our estimate will however focus exclusively on traded counterfeit goods and not on domestic consumption.

<sup>63</sup> Tracey Kyckelhahn, Allen J. Beck and Thomas H. Cohen, T., *Characteristics of Suspected Human Trafficking Incidents 2007-2008*, (United States: Bureau of Justice Statistics, January 2009).

<sup>64</sup> *Ibidem*.

Crime	GTRI Coefficient	Baseline percentage	Total Trade (2008)	Money Generated
Counterfeiting	0.137188	5%	4,454,421,000,000	\$ 30,554,655,407.40

### 4.1.3 Defining the economic rationale for laundering criminal proceeds

61. Original studies of money laundering conducted by Unger *et al* and John Walker apply arbitrary percentages to determine the portion of criminal revenues that are likely to be laundered. This methodology is based on a survey of law enforcement professionals, but does not explain in detail the economic rationale behind those percentages.
62. The economics of crime suggests that, like in every other business, a portion of criminal revenues is reinvested in the criminal business cycle,<sup>65</sup> while another share is set aside as profits. This distribution is a trade-off between various individual needs such as purchasing consumption goods or proving legal income to the tax authorities.
63. The definition of money laundering, understood as “any act or attempted act to conceal or disguise the identity of illegally obtained proceeds so that they appear to have originated from legitimate sources,”<sup>66</sup> implies that the money laundering process results in transferring a significant portion of criminal revenues from the shadow economy<sup>67</sup> to the formal economy. The money laundering process is achieved only when the profits are “integrated,” which, in the words of the Board of Governors of the Federal Reserve, involves converting “illegal proceeds into apparently legitimate business earnings through normal financial or commercial operations.”<sup>68</sup> However, such transfer does not necessarily result in an increase in government revenues, as it is often carried along with tax evasion, particularly when the money laundering process occurs between two countries. Conceptually, we can think of laundered criminal proceeds as the amount of money that enters the formal economy, whilst the criminal proceeds which are not laundered remain in the “underground” or “shadow economy.”
64. In a 2000 paper, economists Schneider and Enste<sup>69</sup> found a positive correlation between the dynamism of shadow economies and poor law enforcement, weak institutions and high

<sup>65</sup> Donato Massandro, Elod Takats and Brigitte Unger. *Black Finance: The Economics of Money Laundering*, (Massachusetts: Edward Elgar Publishing, 2007), 27-74.

<sup>66</sup> Official definition provided by INTERPOL.

<sup>67</sup> We define the shadow economy as “All economic activities that contribute to the officially calculated (or observed) gross national product but are currently unregistered.” Schneider and Enste, “Shadow Economies: Size, Causes, and Consequences,” *op.cit.*.

<sup>68</sup> Board of Governors of the Federal Reserve System, *Report to Congress in Accordance with §356c of the USA PATRIOT Act* (Washington, D.C.: Board of Governors of the Federal Reserve System, 2002), 7.

<sup>69</sup> Schneider and Enste, “Shadow Economies: Size, Causes, and Consequences,” *op.cit.*, 77-114.

unemployment. Those three factors are often associated with high levels of criminal activities, suggesting a direct link between the relative size of criminal revenues (as a share of GDP) and the size of the shadow economy in a given country (as a share of total economic activity). We come to the conclusion that a large informal sector will be a disincentive for laundering money, as it enables criminals to use large amounts of cash without being detected. Criminals operating in Mexico, where the shadow economy accounts for approximately 31.5% of total GDP,<sup>70</sup> are therefore less likely to feel the need to launder money, compared to more industrialized economies with stronger tax and law enforcement institutions, such as the U.S. In the case of Mexico, the dollarization of the economy in border regions and tourist areas provides criminals with an additional incentive to retain their cash and not to enter the money laundering process.

65. As a consequence; we assume the following:
- In order to find the most likely percentage of proceeds being laundered, one needs to first find the size of the informal economy in one country, as a share of total economic activity.
  - The portions of criminal revenues which stay in the underground economy vary from one country to another, depending on the size of the underground economy as a share of the total economic activity.
66. Schneider and Enste (2000) estimates the size of the so called "shadow economy" at 7.9% of GDP in the U.S. and 31.7% in Mexico for the year 2005-2006.<sup>71</sup> The informal economy therefore represents  $7.9/(100+7.9)=7.32\%$  of the total economic activity<sup>72</sup> in the U.S. and  $31.7/(100+31.7)= 24.07\%$  for Mexico.
67. We assumed that criminal revenues are likely to be distributed according to the following pattern

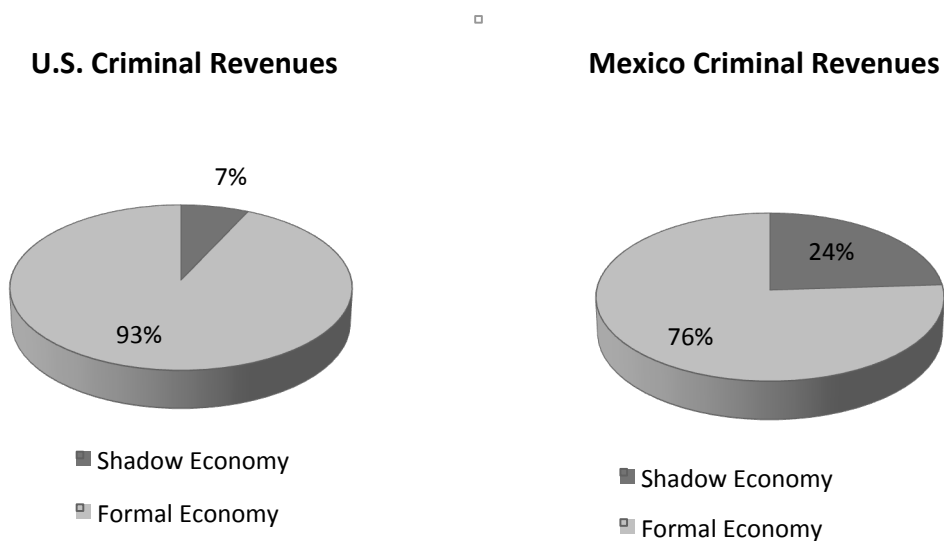
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<sup>70</sup> Francois Roubaud, *La Economía Informal en México. De la esfera doméstica a la dinámica macroeconómica [Informal Economy in Mexico. From the Domestic Circle to the Macroeconomic Dynamic]*, (Mexico: Fondo de Cultura Económica, 1995).

<sup>71</sup> Schneider, *Shadow Economies and Corruption All Over the World: New Estimates for 145 countries*, Unpublished paper, 2007.

<sup>72</sup> We understand "total economic activity" as the sum of GDP and the shadow economy.

CHART 1 : U.S. AND MEXICO CRIMINAL REVENUES



- 68. Exceptions to this pattern can be identified for the following categories: fraud in both countries, forced labor in Mexico and domestic counterfeiting in Mexico.
- 69. *Fraud in the U.S. and Mexico* — Fraud revenues are by definition entirely re-invested in the formal economy and have to be laundered. Applying a coefficient of 100% is therefore conceptually more accurate.
- 70. *Forced labor in Mexico* — On the contrary, forced labor and domestic counterfeiting are activities which in the Mexican case are characterized by a significant degree of informality. Our definition of forced labor in Mexico, which emphasizes the phenomenon of illegal child labor, infers that such activity is carried as an informal business within a familial environment. Although local law enforcement officers report an increasing trend in forced labor after abductions,<sup>73</sup> most of the revenues generated by forced laborers go to family, or sometimes to owners of legal businesses, which does not require any form of money laundering.<sup>74</sup>
- 71. *Counterfeiting in Mexico* — For the case of counterfeiting in Mexico, a distinction has to be made between the revenues from counterfeited goods that are being internationally traded and the revenues from counterfeited goods sold in the domestic market. The revenues from the production of counterfeited goods which are being imported or exported have to be laundered,

<sup>73</sup> Arthur Brice, “107 Slave Laborers Freed in Mexico City,” *CNN*, April 12, 2009. Accessed March 17, 2011 <http://edition.cnn.com/2009/WORLD/americas/12/04/mexico.slave.labor/index.html>

<sup>74</sup> Comisión Inter-Americana de Derechos Humanos de la Organización de Estados Americanos, *La Trata de Personas: Un reto para México y Centro América [People Smuggling: A Challenge for Mexico and Central America]* (United States: Global Rights, 2005), 12-26. Accessed March 2, 2011 <http://www.oas.org/atip/Regional%20Reports/Report%20TIP%20CIDH.pdf>

since they tend to go through the customs and are ordered by legitimate businesses. Applying a 76% coefficient for this category may thus be a more realistic reflection of the activity. On the contrary, counterfeited goods meant for local consumption are sold on a more informal basis and the revenues generated are probably not laundered. Local experts report that counterfeited products tend to be sent on local markets and in informal shops, leading to cash payments which are particularly likely to stay in the underground economy.

72. Thus, in the specific cases of domestic sales of counterfeited goods and forced labor in Mexico, we apply low percentages of proceeds laundered and set it at 10%, which is the figure that John Walker used in his original paper for activities with a “small” propensity for money laundering.

TABLE 4: TOTAL CRIMINAL MONEY GENERATED FOR LAUNDERING IN THE UNITED STATES

<b>Crime</b>	<b>Money Generated</b>	<b>Percent Laundered</b>	<b>Total Money Laundered</b>
Cocaine	\$ 30,513,756,250.00	92.7%	\$ 28,279,662,882.30
Marijuana	\$ 55,000,000,000.00	92.7%	\$ 50,973,123,262.28
Heroin	\$ 854,600,000.00	92.7%	\$ 792,029,657.09
Methamphetamines	\$ 6,212,059,035.00	92.7%	\$ 5,757,237,289.16
<b>TOTAL Drugs</b>	<b>\$ 92,580,415,285.00</b>	<b>92.7%</b>	<b>\$ 85,802,053,090.82</b>
Corporate fraud	\$ 6,100,000,000.00	100%	\$ 6,100,000,000.00
Securities/commodities fraud	\$ 2,100,000,000.00	100%	\$ 2,100,000,000.00
Insurance fraud	\$ 22,900,000.00	100%	\$ 22,900,000.00
Marketing fraud	\$ 4,400,000.00	100%	\$ 4,400,000.00
Health care fraud	\$ 1,300,000,000.00	100%	\$ 1,300,000,000.00
Mortgage fraud	\$ 2,540,000,000.00	100%	\$ 2,540,000,000.00
<b>TOTAL Fraud</b>	<b>\$ 12,067,300,000.00</b>	<b>100%</b>	<b>\$ 12,067,300,000.00</b>
Forced Labor	\$ 2,171,088,000.00	92.7%	\$ 2,012,129,749.77
Prostitution	\$ 52,147,200,000.00	92.7%	\$ 48,329,193,697.87
People Smuggling	\$ 6,600,000,000.00	92.7%	\$ 6,116,774,791.47
<b>TOTAL Human Trafficking</b>	<b>\$ 60,918,288,000.00</b>	<b>92.7%</b>	<b>\$ 56,458,098,239.11</b>
<b>TOTAL Counterfeiting</b>	<b>\$ 30,554,655,407.40</b>	<b>92.7%</b>	<b>\$ 28,317,567,569.42</b>
<b>TOTAL REVENUES</b>	<b>\$ 196,120,658,692.40</b>		<b>\$ 182,645,018,899.35</b>

TABLE 5: TOTAL CRIMINAL MONEY GENERATED FOR LAUNDERING IN MEXICO

<b>Crime</b>	<b>Money Generated</b>	<b>Percent Laundered</b>	<b>Money Laundered</b>
Cocaine	\$ 4,833,260,750.00	75.93%	\$ 3,669,901,860.29
Cannabis herb	\$ 2,652,564,891.20	75.93%	\$ 2,014,096,348.67
Heroin	\$ 135,838,500.00	75.93%	\$ 103,142,369.02
Methamphetamines	\$ 136,423,600.00	75.93%	\$ 103,586,636.29
Cannabis resin	\$ 2,009,404.80	75.93%	\$ 1,525,743.96
<b>TOTAL Drugs</b>	<b>\$ 7,760,097,146.00</b>		<b>\$ 5,892,252,958.24</b>
Corporate Fraud	\$ 896,340,000.00	100%	\$ 896,340,000.00
<b>TOTAL Fraud</b>	<b>\$ 896,340,000.00</b>		<b>\$ 896,340,000.00</b>
Forced Labor	\$ 12,994,800,000.00	10%	\$ 1,299,480,000.00
Illegal Prostitution	\$ 3,640,000,000.00	75.93%	\$ 2,763,857,251.33
People Smuggling	\$ 1,000,000,000.00	75.93%	\$ 759,301,442.67
<b>TOTAL Human Trafficking</b>	<b>\$ 17,634,800,000.00</b>		<b>\$ 4,822,638,694.00</b>
<b>Weapons Trafficking</b>	<b>\$ 20,000,000.00</b>	<b>75.93%</b>	<b>\$ 15,186,028.85</b>
Counterfeiting (Trade)	2,478,037,128.43	75.93%	\$ 1,881,577,166.61
Counterfeiting (Domestic)	\$ 10,021,962,871.57	10%	\$ 1,002,196,287.16
<b>TOTAL Counterfeiting</b>	<b>\$ 12,500,000,000.00</b>		<b>\$ 2,883,773,453.77</b>
<b>TOTAL REVENUES</b>	<b>\$ 38,811,237,146.00</b>		<b>\$ 14,510,191,134.86</b>

#### 4.2 Initial Findings: Some evidence for money laundering patterns in U.S. and Mexico.

73. For the U.S., we estimate US\$196.1 billion revenues were produced from criminal activities, US\$182.6 billion of which was likely to be laundered. In Mexico, an estimated US\$38.8 billion in revenues were generated, US\$14.5 billion of which was likely laundered. The above tables show that while more than 90% of criminal revenues are laundered in the U.S., only a third of criminal proceeds generated in Mexico are injected into the formal economy. These figures support the idea that the amount of criminal proceeds is negatively correlated to the size of the shadow economy. The most informal criminal activities, such as forced labor and domestic counterfeiting, account for 59% of total criminal proceeds in Mexico and can be identified as the key drivers for the difference between the U.S. and Mexico coefficients.
74. Since this is the most recent study of its type for the U.S., and the first research of its type for Mexico, to the best knowledge of the authors of this project, it is difficult to directly compare to existing research and evaluate the accuracy of the findings. The IMF sets the amount of money being laundered globally within a range of 2 to 5 % of world GDP.<sup>75</sup> This estimate would include money laundered from both illicit activities, such as trade mispricing schemes created by private sector agents, and illegal activities, such as criminal sources.

<sup>75</sup> IMF, “Money Laundering: the Importance of International Countermeasures” Address by M. Camdessus, *op.cit.*

75. Our figures show that in 2008, criminal revenues in the U.S. accounted for 1.36% of the total GDP, compared to 3.6% for Mexico. Those findings equate the lower range of the IMF estimate. Due to the larger size of the shadow economy in Mexico, laundered criminal revenues drop to 1.3% of total GDP in this country, which equates the amount of criminal revenues being laundered in the neighboring U.S. economy (1.27% of U.S. GDP).
76. However, the original IMF estimate refers to a broad definition of money laundering which encompasses money laundered from both illicit activities, such as trade mispricing schemes created by legally registered companies, and illegal activities, such as criminal sources. Our results tend to be more precise and to focus exclusively on organized crime and illegal activities generating large money transactions. Our data shows that U.S. criminal revenues contribute to 18% of the shadow economy and U.S. laundered money to only 16.5%. In comparison, laundered criminal money in Mexico does not exceed 5%, while criminal revenues account for less than 12% of the size of the shadow economy. Those figures support the argument made by Schneider that monetary illegal activities do not represent the most important part of the shadow economy.
77. Another comparison can be made in the case of the U.S. by comparing our finding to a similar study done by Michael Levi and Peter Reuter in 2006. In their paper, they report an estimated criminal income of US\$224 billion in 2000. This figure is based on proceeds from crimes including illicit drug trade, human trafficking, burglary, larceny-theft, motor vehicle theft, robbery, fraud, counterfeiting, illegal gambling, loan sharking and prostitution.<sup>76</sup> Our model estimates US\$196 billion criminal proceeds which accounts for about 88% of the 2000 estimate, while not including a large subset of crimes which are less relevant to laundering and/or organized crime activities in the U.S. and Mexico.
78. The relevance of the results displayed above is also confirmed by the relative accuracy with which it reflects the current crime trends in the U.S. and Mexico. Despite the different size of the U.S. and Mexican criminal economies, the size of each category of crime in the total laundered revenues does not vary from a country to another: for instance, the figures indicate that between 40% and 45% of laundered money originate from drug trafficking activities, which echoes the views of prominent crime experts regarding the distribution of revenues made by criminal networks such as the Mexican cartels.<sup>77</sup> Once the impact of the size of shadow economies is isolated, our data suggests that the sources of laundered money are

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<sup>76</sup> Levi and Reuter, *Money Laundering, Crime and Justice: A Review of Research*, *op.cit.*

<sup>77</sup> Edgardo Buscaglia, "Mexico and the War on Drugs," *The European*, October 15, 2010. Accessed February 4, 2011 <http://theeuropean-magazine.com/44-buscaglia-edgardo/43-mexico-and-the-war-on-drugs>

proportionally similar in the U.S. and Mexico. The analysis of the data also shows that 72.4% of laundered criminal proceeds in the U.S. and 65% in Mexico are accounted for by the following categories: Drugs, Fraud, People Smuggling and Counterfeiting (Trade). This conclusion matches the results of previous studies,<sup>78</sup> which were able to state that 70% of money laundering proceeds come from three categories of offense: “drugs,” “fraud” and “other types of smuggling.”

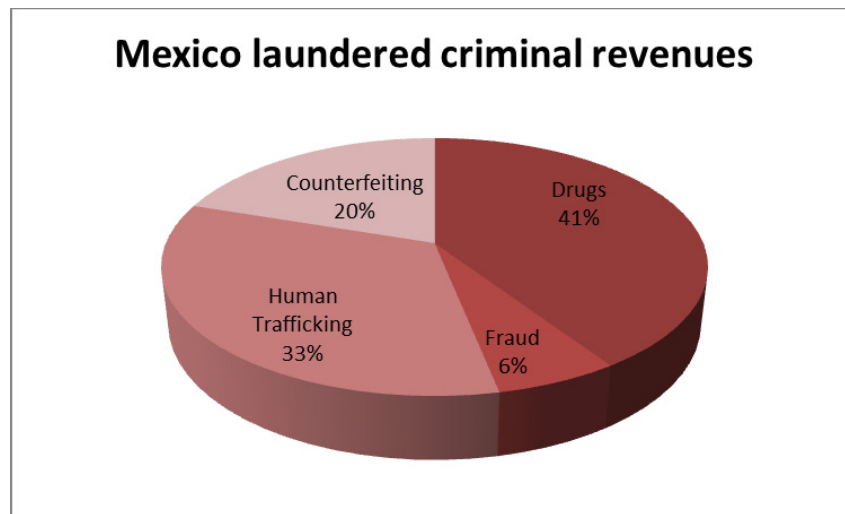
TABLE 6: COMPARATIVE TABLE OF CRIMINAL PROCEEDS IN THE UNITED STATES AND

COMPARATIVE TABLE OF CRIMINAL PROCEEDS IN THE US AND MEXICO					
US Criminal Revenues (% of total)			Mexico Criminal Revenues (% of total)		
Crime	Money generated	Money laundered	Crime	Money Generated	Money Laundered
Cocaine	15.56%	15.48%	Cocaine	12.45%	25.29%
Marijuana	28.04%	27.91%	Cannabis herb	6.83%	13.88%
Heroin	0.44%	0.43%	Heroin	0.35%	0.71%
Methamphetamines	3.17%	3.15%	Methamphetamines	0.35%	0.71%
<b>TOTAL Drugs</b>	<b>47.21%</b>	<b>46.98%</b>	<b>TOTAL Drugs</b>	<b>19.99%</b>	<b>40.61%</b>
Corporate fraud	3.11%	3.34%	Corporate Fraud	2.31%	6.18%
Securities/commodities fraud	1.07%	1.15%	Securities/commodities fraud	N/A	N/A
Insurance fraud	0.01%	0.01%	Insurance fraud	N/A	N/A
Marketing fraud	0.00%	0.00%	Marketing fraud	N/A	N/A
Health care fraud	0.66%	0.71%	Health care fraud	N/A	N/A
Mortgage fraud	1.30%	1.39%	Mortgage fraud	N/A	N/A
<b>TOTAL Fraud</b>	<b>6.15%</b>	<b>6.61%</b>	<b>TOTAL Fraud</b>	<b>2.31%</b>	<b>6.18%</b>
Forced Labor	1.11%	1.10%	Forced Labor	33.48%	8.96%
Prostitution	26.59%	26.46%	Illegal Prostitution	9.38%	19.05%
People Smuggling	3.37%	3.35%	People Smuggling	2.58%	5.23%
<b>TOTAL Human Trafficking</b>	<b>31.06%</b>	<b>30.91%</b>	<b>TOTAL Human Trafficking</b>	<b>45.44%</b>	<b>33.24%</b>
<b>TOTAL Counterfeiting</b>	<b>15.58%</b>	<b>15.50%</b>	<b>TOTAL Counterfeiting</b>	<b>32.21%</b>	<b>19.87%</b>
<b>TOTAL REVENUES</b>	<b>100.00%</b>	<b>100.00%</b>	<b>TOTAL REVENUES</b>	<b>100.00%</b>	<b>100.00%</b>

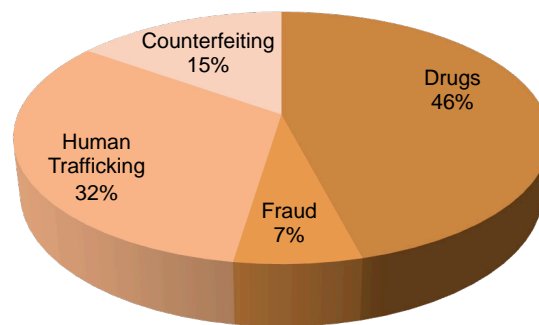
MEXICO

<sup>78</sup> Peter Reuter and Edwin Truman, *Chasing Dirty Money: The Fight against Money Laundering* (Washington, D.C.: Institute for International Economics, November 2004).

CHART 2: MEXICO AND U.S. LAUNDERED CRIMINAL REVENUES



### US laundered criminal revenues



79. The analysis above demonstrates that the estimates derived from the first half of our model as applied to the U.S. and Mexico are consistent and relevant. Although data is scarce, and there is debate about the accuracy of the estimates presented in official studies, the estimates generated by the model are consistent with the prevailing literature on the subject. Importantly, these data appear to fill a gap in existing literature. As the GFI report on Illicit Financial Flows from Developing Countries (2011) states, “As the revenue generated from such commercial, corrupt, and criminal activities are seldom reflected in official statistics, (CED and GER) models using official data are likely to seriously underestimate the magnitude of illicit capital leaving the country in a clandestine manner.”<sup>79</sup> Thus, our findings complement the current work done to estimate total illicit flows from the U.S. and Mexico, and help provide a more complete understanding of the phenomenon.

<sup>79</sup> Jeremy Haken, *Transnational Crime in the Developing World*, (U.S.: Global Financial Integrity, 2011), 7.

## SECTION V

### METHODOLOGY (PART II)

### CALCULATING ILLEGAL FINANCIAL FLOWS BETWEEN THE U.S. AND MEXICO

80. After having calculated the money generated from criminal activities and presented a pattern for money laundering, our analysis will turn to the construction of a model which will assess the flows of criminal proceeds transferred from one country to another to be laundered. In the following section, we will use a gravity model to estimate the illegal financial flows transiting between the U.S. and Mexico. Our model aims at summarizing the rules that govern money laundering flows in the form of an equation in order to provide policy makers with the best understanding of the extent of the phenomenon. The following sections will (i) explain the relevance of this model and its assumptions; (ii) provide estimates of illegal financial flows between Mexico and the U.S.; and (iii) suggest improvements to the model so that it will be more adequate to the bilateral case of U.S. and Mexico.

#### 5.1 An economic approach to the concept of gravity

81. The gravity model is an economic adaptation of the erstwhile “Law of Universal Gravity” exposed in 1687 by Sir Isaac Newton: two objects  $i$  and  $j$  generate an attractive force between them which depends on their masses  $M_i$  and  $M_j$ , the square distance between these objects  $D_{ij}$  and a gravitational constant  $G$ .

$$F_{ij} = G * M_i * M_j / (D_{ij})^2$$

Where  $F_{ij}$  = Attractive Force between object  $i$  and  $j$

$M_i$  = Mass of object  $i$ ,

$M_j$  = Mass of object  $j$

$D_{ij}$  = Distance between object  $i$  and object  $j$

$G$  = Gravitational constant

82. In his landmark paper of 1962, Dutch Nobel Prize winner and international trade specialist Tinbergen provided trade economics with a direct application of the established Newton formula, demonstrating that trade flows between two economies were determined by their mass (measured by GDP) and the distance between them:

$$\text{Trade}_{ij} = \frac{\alpha \text{GDP}_i \text{GDP}_j}{\text{Distance}_{ij}},$$

- Where:
- $\text{Trade}_{ij}$  = value of the bilateral trade between countries  $i$  and  $j$
  - $\text{GDP}_i$  and  $\text{GDP}_j$  = country  $i$  and  $j$ 's respective national incomes
  - $\text{Distance}_{ij}$  = measure of the bilateral distance between the two countries
  - $\alpha$  = constant of proportionality.<sup>80</sup>
83. The first gravity model for money laundering was developed by Walker (1995), who applied it to estimate the amounts of money laundered from criminal proceeds generated in Australia. By using the gravity model in the context of money laundering, criminal economy specialists, such as Walker, established a parallel between trade flows and illegal financial flows. The underlying assumption is that the transfer of criminal proceeds is made through the same channels that are being used for profits made by the formal sector.
84. The Walker paper of 1995 was the first economic study ever conducted to quantify worldwide money laundering on a country by country basis. The first outputs of his model suggested that US\$2.85 trillion are laundered each year in the world economy.
85. To produce this estimate, Walker used the conceptual findings of Tinbergen to design the following formula:

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<sup>80</sup> Jan Tinbergen, *Shaping the World Economy; Suggestions for an International Economic Policy* (New York: Twentieth Century Fund, 1962).

$$Q_{ij} = \frac{\text{Attractiveness}_j}{\text{Distance}_{ij}^2}$$

$$\text{Where: } Q_{ij} = \frac{(\text{GNP per capita})_j \times (3\text{BS}_j + \text{GA}_j + \text{SWIFT}_j - 3\text{CF}_j - \text{CR}_j + 15)}{\text{Distance}_{ij}^2}$$

Where:	$Q_{ij}$	= Amount of proceeds of crime that flows from country i to j
	BS	= Banking Secrecy
	GA	= Government Attitude
	SWIFT	= SWIFT member
	CF	= Conflict
	CR	= Corruption

86. The formula provides a series of percentages that can be applied to the amounts of laundered money in order to produce estimates of how much illegal money is flowing between two given countries.
87. The distance index is the second element of the Walker-Unger model for calculating percentage values of laundered money being transferred to another country. The concept of distance originally referred to physical distance and relied on the assumptions that distance infers significant additional costs. Those additional costs tend to originate in cultural disparities as well as information costs.<sup>81</sup> This assumption does not however perfectly fit the context of money laundering, which has increasingly become a purely financial transaction. With the spread of the Internet and the lowering costs of telecommunications, the assumptions made by Walker in 1995 clearly do not apply to today's era of information technology. When assuming that money laundering is essentially a financial process, we also came to the conclusion that physical distance was a double-edged argument, as physical distance could also be considered as an incentive for financial investment. Empirical studies show a declining correlation of business cycles in distance, which therefore implies that investments in distant countries generate benefits of portfolio diversification. This argument is particularly relevant in the case of money laundering, when criminal networks look for distant countries which are less likely to have developed law enforcement cooperative agreements.

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<sup>81</sup> Claudia Buch, "Distance and International Banking," *Kiel Working Paper* (Germany: Kiel Institute of World Economics, April 2001), number 1043.

88. Unger has significantly revised the distance index of the original Walker model,<sup>82</sup> by integrating those findings and switching the focus from physical distance to cultural distance. Pre-existing trade, ethnic, colonial and linguistic links provide investors with a more favorable background for bilateral transfers of money. Those factors of deterrence and attractiveness can also be applied to the case of money laundering and are included in the following equation:

$$\text{Distance}_{ij} = \text{language}_{ij} + \text{trade}_{ij} + \text{colonial background}_{ij} + \text{physical distance}_{ij}$$

89. Additionally, Unger augmented Walker’s attractiveness index to include variables she felt were highly correlated with attracting illicit money flows. These variables were financial deposits as a percent of GDP, SWIFT membership of local financial institutions, and whether the country is a member of the Egmont Group. In the context of the Unger Model, a weighted average of “attractiveness” over “distance” is used to estimate a proportion of laundered money that will flow from the base country to each other country in the world. The formula as presented in Unger 2006 is as follows, where  $P_{ij}$  represents the proportion on money flowing from the base country ‘i’ to country ‘j’ to be laundered:

$$P_{ij} = \frac{1}{\sum_k^{world} \left[ \frac{\text{attractiveness}_k}{\text{distance}_{ik}} \right]} \times \frac{\text{attractiveness}_j}{\text{distance}_{ij}}$$

90. For example, if ‘i’ is the U.S. and ‘j’ represents Mexico, the proportion of money flowing from the U.S. to Mexico equals the attractiveness of Mexico divided by the “distance” between the U.S. and Mexico. This must be weighted by the sum of the attractiveness and distance for all countries in order to ensure that the estimated proportions add up to 1. The attractiveness index captures specific features of destination country ‘j’ that would make a country a more or less favorable destination to launder money, and the distance index comprises a set of variables that capture aspects that increase or decrease money laundering “distance” specific to the relationship between the base country ‘i’ and destination country ‘j’.

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<sup>82</sup> Brigitte Unger, “The Amounts and The Effects of Money Laundering,” *Report for the Dutch Ministry of Finance*, (The Netherlands: Ministry of Finance, February 2006).

## 5.2 The Modified Model for Estimating Illicit Financial Flows in Mexico and the U.S.

91. Using the Unger model as a base specification, we have designed a gravity model specifically to estimate money laundered from organized crime revenues in the U.S. and Mexico. The new model includes additional variables and assumptions designed to improve the predictive power of the gravity model for our purposes by taking into account the specific nature of organized crime transactions. While the framework of attractiveness and distance should hold, there are many variables that could be significant determinants of illegal financial flows in Mexico and the U.S. countries that are not considered in the baseline model. The factors that we will consider are: remittance inflows, foreign nationals living in a country, and whether countries have a trafficking relationship relevant to organized crime. Additionally, we will adapt some of the assumptions made in the baseline model, including the role of physical distance in deterring laundering, the assumption that corruption is negatively correlated attractiveness, and the weights assigned to certain variables in the model.
92. Therefore, our new gravity model for estimating illicit flows from organized crime uses the following attractiveness and distance indices (new or adapted variables are in bold).

$$\text{Attractiveness}_j = (GDP_j) * (3 * BS_j + GA_j + SWIFT_j + FD_j + \text{Remit}_j - CF_j + CR_j - EG_j + 15)$$
$$\text{Distance}_{ij} = \text{Language}_{ij} + \text{Trade}_{ij} + \text{Colonial Background}_{ij} + \text{Physical Distance}_{ij} + \text{Dias}_{ij} + 4 * \text{MTP}_{ij}$$

93. The following section will explain the rationale and the coding of the specific variables in the distance and attractiveness indices, and section 5.4 will present the results of the new model for the U.S. and Mexico.

## 5.3 Attractiveness and Distance Indexes

94. First, we will examine the variables included in the attractiveness index:

*i. GDP*

95. A country with a large developed economy will attract more money than a smaller or less developed economy, thus the attractiveness of a country is scaled by its GDP per capita proportionate to GDP per capita of the base country (i.e.  $GDP_i / GDP_j$ ). This represents the

“mass” of attractiveness in the gravity theory. Data is taken from the IMF World Economic Outlook (WEO) data set for year 2008.<sup>83</sup>

ii. *Bank Secrecy (BS)*

96. A country with more provisions to ensure bank secrecy is a more attractive destination to launder money than a country where state authorities have more rights to infringe on bank secrecy provisions. This theory is reflected in the coding of the variable; the more authority the state has in pursuing financial information of bank clients, the lower value that country receives on the indicator. Data is taken from the Bank Secrecy section of the OECD Report: Tax Co-operation 2010, and ranges from 0-4, 0 being low bank secrecy and 4 having many measures in place to ensure secrecy.<sup>84</sup>

0: Bank secrecy arises purely out of the relationship between the bank and its customer (e.g. contract, privacy, common law)

1: Bank secrecy is reinforced by statute

2: Jurisdiction does not have access to bank information for exchange of information purposes in all tax matters

3: Jurisdiction’s competent authority does not have the power to obtain bank information directly; separate authorization is required

4: Jurisdiction does not have measures in place to compel the production of information if a bank refuses to provide information to the jurisdiction’s authorities.

iii. *Government Attitude (GA)*

97. Some governments are more proactive in establishing effective AML regimes than others. Some countries purposely avoid establishing international AML standards in order to attract financial flows to their countries. This variable attempts to capture government attitude using FATF membership as a proxy, with the assumption that those who are members of the FATF

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<sup>83</sup> International Monetary Fund, “World Economic Outlook Database,” *International Monetary Fund Website* (United States: IMF, April 2010).

<sup>84</sup> Organisation for Economic Co-operation and Development, *Tax Co-operation 2010: Towards a Level Playing Field*, (France: OECD Publishing, 2010), 142-162. Accessed March 17, 2011 <http://dx.doi.org/10.1787/taxcoop-2010-en>

will be less attractive destinations for laundering money because of their more rigorous AML regimes, which is subject to a regular peer review process.

98. This variable is used to measure the government attitude towards money laundering along a scale of 0 – 3.
- 0 Countries who are members of the FATF
  - 1 Countries who are members of FATF-Styled Regional Bodies (FSRB)
  - 2 Countries who were previously on the FATF list of non-cooperative countries and territories (NCCT) and who are members of an FSRB; and countries who are non-members of an FSRB
  - 3 Countries who were previously on the FATF list of non-cooperative countries and not a member of the FATF or an FSRB<sup>85</sup>

iv. *SWIFT Membership (SWIFT)*

99. SWIFT stands for the Society for Worldwide Interbank Financial Telecommunication, a member-owned cooperative. In this variable, we let 0 represent non-member countries and 1 represent member countries, as per Unger *et al.* SWIFT provides a communications platform that allows its customers to exchange financial messages in a standardized format. These messages include payments, treasury, security and trade messages, of which payments and securities make up more than 90 percent of the traffic. The volume of traffic on this platform is thus associated with the ease of use of the financial system of a country. Data was obtained from the SWIFT Annual Report 2009.

v. *Financial Deposits (FD)*

100. Financial Deposits represent the size and activity of a country's financial sector. The larger the financial sector, the more attractive the country is for laundering. Financial Deposits are a ratio of financial system deposits to GDP. This includes demand, time and saving deposits in deposit money banks and other financial institutions, and is calculated using the following

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<sup>85</sup> In 2007, the FATF International Cooperation Review Group embarked on a process to review “high-risk jurisdictions”, and has identified jurisdictions which have strategic AML/CFT deficiencies for which they have developed an action plan with the FATF. This new information has not been reflected in the GA variable for two main reasons. Firstly, each jurisdiction has provided a written high-level political commitment to address the identified deficiencies, and secondly a large number of jurisdictions have not been reviewed yet by the FATF. For the latter reason, including the information that is currently available will unfairly bias those countries which are currently being monitored.

deflation method:  $\{(0.5) * [F_t/P_{et} + F_{t-1}/P_{et-1}]\} / [GDP_t/P_{at}]$  where F is the sum of deposits, P<sub>e</sub> is end-of period Consumer Price Index (CPI), and P<sub>a</sub> is average annual CPI. Data on deposits was taken from IMF's International Financial Statistics (IFS) database (lines 24, 25, and 46b). Data on GDP in local currency and CPI indices were gathered from the IMF World Economic Outlook (WEO) database. The base year for all calculations is 2008.<sup>86</sup>

vi. *Remittances (Remit)*

101. Remittance inflows are an easy way to launder small amounts of money into a country. One can send money in amounts less than US\$10,000 to or from the U.S. and Mexico, and because it is below the threshold, it is less likely to generate a suspicious transaction report or a currency threshold report. Through “smurfing” and structuring schemes, one can send multiple transactions below this threshold and it will appear to be a simple remittance transaction, even if it is actually a form of money laundering. In this way, large amounts of money can be laundered through relatively small “remittance” transactions. Though estimates of the amount of money laundered through “smurfing” remittance schemes are not available, it is believed to be a significant method by which criminal money is laundered between the U.S. and Mexico.
102. Thus, the amount of remittance inflows can be positively correlated with the attractiveness of a country to launder illegal money, as it provides an additional avenue for cross border transactions of illegal money. Remittances inflows are coded on a scale of 0-4 (0=very low remittance flows, 1=low, 2=medium, 3=high, 4=very high). The values chosen for the coding result in a similar mean value across all countries compared to other variables in the attractiveness index scaled to 0-4.<sup>87</sup>

- 4: Remittance Inflows > \$1 billion
- 3: Remittance Inflows > \$500,000 million
- 2: Remittance Inflows > \$250,000 million
- 1: Remittance Inflows > \$125,000 million
- 0: Remittance Inflows < \$125,000 million

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<sup>86</sup> Unger, “The Amounts and The Effects of Money Laundering,” *op.cit.*

<sup>87</sup> World Bank. Migration and Remittances Factbook 2011.

vii. *Conflict (CF)*

103. Conflict is assumed to be negatively correlated with the attractiveness of a country for laundering, as conflict represents instability which could threaten reliability of efficient financial transactions. We have updated the coding on conflict to be as relevant to financial transactions as possible, but we have also removed the weighting of 3 on the conflict coefficient that Unger and Walker used in their models. While we believe that conflict is likely to be negatively correlated with attractiveness in general, when looking at revenues from organized criminal activities, conflict is less likely to be as significant a deterrent as it would be for other categories of laundering.
104. The conflict component of the distance index used by Unger focused on a series of historical data. Some of the conflicts observed to determine the conflict coding of each country date back to the 1950s. One major loophole in the typology designed by the Uppsala Center for Peace, from which we obtained our data, is that it adopts a historical perspective rather than an economic one, and does not clearly distinguish between interstate conflict and civil war. We designed a new scaling for this index, which would take into account alternative forms of conflict (terrorism or gang related violence). The new coding also enables us to better assess the geographic extent of conflicts, which are more likely to affect the economy if confrontations are undergoing on the entire territory rather than in localized areas. This new methodology makes a distinction between “frozen” and “raging” conflicts, by using specific and quantified criteria such as the number of casualties or the duration of the confrontations. Our updated conflict component is scaled from 0 to 4 and looks at each country’s conflict situation in 2008.

Where 4 = countries with an ongoing all-out civil war, interstate war.

- By “All-out,” we mean a conflict which is raging on more than 25% of the entire territory. We define “Civil war” as a state of violence caused by confrontations between a state and a non-state actor for a period exceeding 1 month. “Interstate war” refers to a state of violence caused by confrontations between two state actors for a period exceeding 1 month.

3 = countries with a localized civil war/ interstate war

- “Localized” is a term which designates a conflict which is raging on less than 25% of the territory.
- 2 = countries facing an ongoing state of insecurity created by non-state actors OR low intensity civil war/interstate war
- We define “state of insecurity” as a state of violence caused by non-state/ non-political organized armed groups and “low intensity” as a conflict causing less than 4 deaths/ week or 204 deaths/ year.
- 1 = countries where minor incidents occur in localized areas, caused by non-state armed actors or countries in a situation of "frozen conflict."
- We define “Minor” as a conflict causing less than 3 incidents per year resulting in more than 10 deaths.
  - The expression “Frozen conflict” refers to an ongoing state of war temporarily paused due to a diplomatic (such as a ceasefire) or informal agreement.
- 0 = countries in a state of security
- The expression “security” designates countries where none of the above has occurred in the past 5 years.

### *viii. Corruption (CR)*

105. The Unger attractiveness index assumes that corruption is negatively correlated with money flows into that country. Research on the case of the U.S. and Mexico suggests that corruption can be a catalyst for illicit flows. Unger herself questions the negative correlation with corruption in her 2009 re-examination of using a gravity model to estimate money laundering.<sup>88</sup> Thus, in our adaptation, we changed the sign on the corruption coefficient to a positive, implying that money is more likely to flow to a country with more corruption. With higher levels of corruption, laundering is more likely to go unnoticed or be accepted by corrupt individuals or institutions. For this variable, we used the Transparency International Corruption Perception Index (CPI) 2008. For the 2008 data, we let 8.7=1, which was the score

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<sup>88</sup>Brigitte Unger, “The Gravity Model for Measuring Money Laundering and Tax Evasion,” *Paper prepared for the Workshop on Macroeconomic and Policy Implication of Underground Economy and Tax Evasion*, (Italy: Bocconi University, February 5-6, 2009).

given to Australia and Canada which are jointly at 9<sup>th</sup> position. The CPI ranks gives countries a score from 1 (most corrupt) to 10 (least corrupt). The scores were transposed according to the following scale:

CPI Range of Scores	Transposed score
8.7 - 10	1
6 - 8.7	2
4 - 5.9	3
2 - 3.9	4
0 - 1.9	5

*ix. Egmont Group (EG)*

106. The Egmont Group is a grouping of Financial Intelligence Units (FIU), aimed at providing a forum for FIUs to improve cooperation in combating ML and TF. An FIU is a government agency that is responsible for receiving, analyzing and disseminating financial information to the relevant national authorities, which concern suspected proceeds of crime or potential terrorism financing.<sup>89</sup> As explained in Unger *et al* (2006), this variable gives more weight to countries' attitudes towards money laundering, by considering firstly whether a country has established an FIU and secondly, international cooperation efforts.<sup>90</sup> We retain this variable from the Unger model, and let 0 represent a non-member, and 1 represent a member of Egmont. Having an FIU makes a country less attractive for laundering.

*x. + 15*

107. This addition of 15 is for scaling purposes. Because of the scale of the other variables in the attractiveness index, without the addition of 15, the index predicts negative flows to many countries. By adding 15 to the index, the estimates reveal positive flows to all countries. Using a value lower than 15 as a scaling factor begins to estimate negative flows to some countries, for this reason, we retain the addition of 15 to the attractiveness index.

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<sup>89</sup> The Egmont Group of Financial Intelligence Units. [www.egmontgroup.org](http://www.egmontgroup.org)

<sup>90</sup> Unger, "The Amounts and The Effects of Money Laundering," *op.cit.*, 52

108. Next we will examine the variables included in the distance index.

*i. Language*

109. Language difference is a major source of information costs. Unger bases this assumption on empirical studies of money laundering schemes, which show that criminal networks tend to favor the transfer of funds to a country which has the same official language or the same widely used language. The language component of the distance index is coded on a scale from 0 to 1. Unger attributes a 0 to a country sharing a common language and 1 if it is a different language.

*ii. Colonial Background*

110. Colonization processes have significantly affected the legal, economic and social system of colonized countries, creating common institutional frameworks and generating migration and trade flows between the former metropolises and the former colonized countries.<sup>91</sup> This colonial legacy tends to reduce information costs and create a favorable background for bilateral trade and investment. Colonization processes are multi-layered processes and do not necessarily imply effective political annexation, as they can also stem from economic dependency.<sup>92</sup> This component of the index is scaled from 0 or 1 (same background=0, different =1). Data was extracted from the CIA World Fact Book.

*iii. Trade*

111. Trade is a significant component of the distance index, as many law enforcement professionals we interviewed identified trade mispricing schemes as a major vehicle for laundering money. Using World Trade Organization (WTO) data, Unger originally looked at each country's main trading partners for imports and exports. When the country which is a receiver of laundered money is a major trading partner of the sending country, Unger coded it as a 0, implying that there is less economic and social distance between the two countries. A

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<sup>91</sup> Mahmood Mamdani, *Citizen and Subject: Contemporary Africa and the Legacy of Late Colonialism*, (Princeton: Princeton University Press, 1996).

<sup>92</sup> Jean-Francois Bayart, *The State in Africa: The Politics of the Belly* (New York: Longman, 1993).

country is considered a major trading partner if it is a one of the five top import or export partners of the source country.

iv. *Distance*

112. In the Unger distance index, physical distance represents variable for which there is the largest range, taking values from 1 to 7, based on distance from the base country. This implicitly weights physical distance as the most significant determinant of laundering flows between two countries. While transportation costs and perishable goods make this a reasonable assumption for trade flows, we believe this relationship does not hold for financial flows. In the case of money laundering, it is unlikely that someone would be deterred to this extent by physical distance. It is not any more difficult for someone in the U.S. or Mexico to transfer money to, for example, a Japanese bank than in an Argentinean bank. Thus, we have shifted the focus of the physical distance variable. The more important aspect of physical distance for this case is whether the countries share a border. The reason that this factor is especially important is because it provides the opportunity for bulk cash smuggling, or other methods of physical transfer of money, such as prepaid stored value cards. For this reason, we have reduced the physical distance index to two categories: same region (value of 1) and other region (value of 2). Then we include a measure of having a shared border (value of 0 if there is a shared border, 1 otherwise). Thus physical distance as a whole can take on values ranging from 1 to 3. This coding encounters the same issue as it does in the original Unger model, specifically that distance cannot take a value of zero, so the base country has to take a value of one, in this case equal to the coding for having a shared border.

v. *Diaspora Index (Dias)*

113. The amount of foreign nationals living in a country is another proxy for economic and cultural distance. The more foreign nationals living in a country, the closer those countries are. In laundering terms, there are more opportunities to transfer money out of the country where the foreign national is living to their home country. Also, there is more opportunity to participate in organized crime activities in that county. Transfers could be done through bank deposits, money transfers, remittance flows or cross border smuggling. In order to account for the increased attractiveness to launder money in countries with proportion of their population

living in the base country, we have included a diaspora variable to the attractiveness. The data is of migrant stocks in 2010, taken from the “Migration and Remittances Factbook 2011.”<sup>93</sup> The data is indexed 0–4 based on the migrant stock of country ‘j’ as a % of the total population of the base country ‘i’. This represents that a higher percent of foreign nationals as a proportion of the population opens channels for laundering to their home countries. Higher migrant stock is associated with more opportunity to launder. Since this is in the denominator, 0=very high % foreign nationals; 1=high; 2=medium; 3=low; and 4=very low. This also helps imply a direction for potential money laundering using remittance flows. The base country always takes the value of 0 because they have the largest percent of the total population and the largest opportunity to be involved in organized crime and to launder money.

vi. *Major Trafficking Partner (MTP)*

114. In our adaptation of the model, we are focusing on revenues generated from organized crime activities, which principally fall into a category called trafficking or illicit trade crimes. Drugs, humans, counterfeit goods, and arms all fit into this category. This encompasses all of the categories we investigate besides fraud, therefore we added a variable to account for this. Though the distance index already accounts for legal trade relationships, the Major Trafficking Partner (MTP) variable allows us to account for illicit trade relationships which are directly relevant to the flows of revenues generated from trafficking crimes. The MTP variable takes a value of 0 or 1, similar to the trade variable, with 0 representing a major trafficking partner and 1 otherwise<sup>94</sup>. If a country is considered a trafficking partner for any one of the categories of organized crime analysed in the first stage of the model, they are coded as a major trafficking partner.<sup>95,96,97</sup>
115. We believe that this is a relevant variable for any assessment of money laundering that includes trafficking crimes in the analysis, since these crimes are likely to generate significant amounts of money to be laundered. Yet, since this analysis is narrowly focused on organized crime, comprised almost exclusively of trafficking crimes, we added a weight of 4 to this variable.

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<sup>93</sup> World Bank. Migration and Remittances Factbook 2011.

<sup>94</sup> If a country was listed as a major exporter or transit country to the U.S. or Mexico for any of the crimes in used in our analysis, that country took a value of 0.

<sup>95</sup> UNODC, 2010 *World Drug Report*, *op.cit.*

<sup>96</sup> United Nations Office on Drugs and Crime, *The Globalization of Crime. A Transnational Organized Crime Threat Assessment* (Austria: UNODC, 2010).

<sup>97</sup> United States National Drug Intelligence Center, *National Drug Threat Assessment* (U.S.: NDIC, 2009).

116. The attractiveness and distance indexes are combined in order to generate percentage values of how much criminal money is generated for laundering in a given country will flow to another one according to the formula presented in paragraph 89. Below are the coefficients that the U.S. and Mexico were assigned for the attractiveness index variables with GDP prorated to U.S. GDP. The next section will apply an index to the revenue calculations from part 1 of the methodology in order to analyze the estimates of illegal money flows out of and between the U.S. and Mexico.

**Attractiveness Index**

<u>Country (j)</u>	<u>GDP/capita</u>	<u>GDP (prorated)</u>	<u>BS</u>	<u>GA</u>	<u>SWIFT</u>	<u>FD</u>	<u>CF</u>	<u>CR</u>	<u>EG</u>
Mexico	10,216.02	0.22	3	0	1	0.22	1	4	1
United States	47,155.32	1.00	2	0	1	0.79	1	2	1

**5.4 Findings: Estimated Flows of Money Laundered from Organized Crime Revenues in the U.S. and Mexico**

117. In this part of our analysis, we apply the attractiveness and distance indices to estimate where the money flows out of the U.S. and Mexico, and the magnitude of those flows for each country. The attractiveness and distance indices were calculated for 177 countries. Instead of assessing the results across all 177 countries, our analysis will focus on countries most relevant to money laundering in the U.S. and Mexico. This includes flows between U.S. and Mexico, flows from Mexico and U.S. to trafficking partners with specific focus on Central American countries which are increasingly involved in trafficking activities relevant to organized crime in the U.S. and Mexico. Also, we will examine tax haven countries and financial centers typically involved in illicit financial transactions. Table 7 below presents the subset of countries used in this analysis, and Table 8 presents the baseline results for these countries.<sup>98</sup>

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<sup>98</sup> For Tax Haven and Financial Center categories, we use the OECD classification as presented in A Progress Report on The Jurisdictions Surveyed By The OECD Global Forum In Implementing The Internationally Agreed Tax Standard, April 2009. The data on tax standards was only for the year 2008.

TABLE 7: CATEGORIES OF COUNTRIES

Category	Countries
Base Countries	United States, Mexico
Countries Relevant to Laundering/Trafficking in U.S. and Mexico	Canada, Colombia, China, Costa Rica, Guatemala, El Salvador, Honduras, Belize, Nicaragua, Panama
Tax Haven Countries	Antigua and Barbuda, Bahamas, Bahrain, Belize, Cayman Islands, Dominica, Liberia, Panama, St. Kitts and Nevis, St. Lucia, St. Vincent & Grenadines, and Samoa
Financial Centers that Have not Complied with Internationally Agreed Tax Standards	Austria, Belgium, Chile, Guatemala, Luxembourg, Singapore, Switzerland

TABLE 8: ESTIMATED FLOWS OF MONEY LAUNDERED FROM ORGANIZED CRIME REVENUES IN THE U.S. AND MEXICO

Base Country:	Mexico		United States	
	%	Total flows	%	Total Flows
United States	19.6%	\$ 2,782,629,123.55	17.4%	\$ 31,863,297,965
Mexico	5.6%	\$ 791,021,442.43	5.0%	\$ 9,057,819,349
Central America	2.5%	\$ 359,496,508.81	1.2%	\$ 2,237,402,041
Tax Havens	4.0%	\$ 564,163,521.52	4.0%	\$ 7,371,700,021
Financial Centers	13.2%	\$ 1,876,485,234.06	12.4%	\$ 22,702,063,536
Canada	2.6%	\$ 375,404,485.25	7.1%	\$ 12,896,032,248
China	0.2%	\$ 30,480,641.91	0.3%	\$ 523,541,082
Colombia	0.3%	\$ 47,384,028.71	0.2%	\$ 452,153,748
Others	52.0%	\$1,419,708,736,505.10	52.4%	\$18,312,240,209,770.10

### *United States*

118. By applying the attractiveness and distance indices to the illegal revenues generated for laundering, the model estimates that 5% of this money will flow to Mexico to be laundered, representing over US\$9 billion. An estimated 17.4% will remain in the U.S. to be laundered, representing US\$32 billion. The model also estimates that 4% flows to the tax haven countries and 12.4% to financial centers, equaling US\$7.4 billion and US\$22.7 billion respectively. Other countries worth noting are: Canada with 7.1%, US\$12.9 billion and Colombia with 0.2%, US\$452 million; and China with 0.3%, US\$523 million.

## *Mexico*

119. Of the US\$14 billion generated to be laundered in Mexico, the baseline model estimates that 19.6%, by far the highest percent for any country, flows to the U.S., representing US\$2.8 billion. 5.6% or US\$791 million are expected to remain in Mexico to be laundered. For tax haven countries, we estimate 4%, about US\$564 billion of flows, and other financial centers, we estimate 13.2% or US\$1.9 billion of flows. Other countries worth noting are: Canada with 2.6%, US\$375 million; Colombia with 0.3%, US\$47 million and Central American countries with 2.5% or US\$359 million. The flows to Central America are larger than the flows to any single country except Luxembourg, Norway, the U.S., Canada, or Mexico.

### **5.5 Interpretation of Findings**

120. While it appears from a broad-based comparison that the first part of the model, estimating criminal revenues to be laundered (see Section 4.2), is consistent with mainstream findings, the predictions from the second half of the model seem less consistent. Estimates of the amount of money laundered in Mexico from cartel related activities range from US\$6 billion to US\$36 billion.<sup>99</sup> By adding the money flowing from the U.S. to the amount laundered in Mexico, this model estimates almost US\$10 billion laundered in Mexico, putting our estimate at the low end of the range of reported estimates. While the majority of estimates referenced in other sources do not present any methodology for how they came to those numbers, our estimates flow from a systematic and transparent methodological process. Also, our methodology allows us to focus on laundering from the particular crimes of interest, for our purposes these are organized crime activities.
121. The figures presented by the U.S. congress, KPMG, and various academics, routinely estimate between US\$18 billion and US\$36 billion being laundered to Mexican crime organizations per year. These estimates generally come unaccompanied by supporting methodology, but when a methodology is presented, it usually relies on studies of U.S. banknotes repatriated from Mexico to the U.S. This analysis calculates the difference between documented legal

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<sup>99</sup> Farah, "Money Laundering and Bulk Cash Smuggling: Challenges for the Mérida Initiative," *op.cit.*, 143.

inflows and outflows of U.S. dollars between U.S. and Mexico, and concluding that this difference represents the amount of money laundered in Mexico from cartel activities.

122. Our analysis does not confirm these claims. Our results imply that, while US\$18-US\$36 billion might represent the laundered revenues to Mexican cartels, only US\$10 billion of those revenues are actually laundered in Mexico. It is likely that any other revenues generated by Mexican cartels from activities in the U.S. first flow to third-party locations and later find their way back into Mexico. Significantly, this model only captures the first phase of money laundering, the placement phase, where it is generated and where it is initially sent to be laundered. It does not capture the layering phase of money laundering to estimate the final destination of the illicit flows. Because of the ease in laundering money in tax havens, financial centers, and through layering schemes, it should not be surprising that sophisticated crime organizations would use layering schemes to launder significant portions of their revenues. The currency repatriation method does not tell us anything specific about what activities the laundered money come from (i.e. legal, illegal, criminal) or where that money was actually laundered. Our model allows us to more accurately and precisely assess where money laundered from organized crime is initially laundered.
123. Also, worthy of mention is the often referenced NDIC which estimated that between 2003 and 2004, at least US\$17.2 billion was smuggled into Mexico in bulk cash shipments, also using a currency repatriation methodology. Though we have already explained why the currency repatriation methodology is problematic to make any specific judgment of where the laundered money comes from, it is worth addressing the issue of bulk cash smuggling estimates.
124. The isolated act of bulk cash smuggling across borders does not represent laundering. It does not constitute laundering until the cash received on the other end is “washed” through the formal financial system. Cash smuggled to criminal organizations in Mexico can be laundered or can be used in the shadow economy. Since a large portion of revenues generated by Mexican cartels must go to funding their activities, we might expect that a large portion of this cash is not laundered. For example, the UNODC estimates that of the US\$5.8 billion revenues generated by cartels from trafficking cocaine across the border to the U.S., half goes to fund the resupplying of product.<sup>100</sup> It is likely that smuggled cash plays a large part of this

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<sup>100</sup> UNODC, *2010 World Drug Report, op.cit.*, 79.

process because it does not make sense for a crime organization to risk the laundering process just to re-inject the money into the underground economy. Additionally, the shadow economy is large in Mexico, providing less incentive to launder the money once it has crossed the border. Therefore, where some percent of smuggled cash is certainly laundered, a large portion is likely to remain in the shadow economy and be used to fund operations and supplies for cartels.

125. Therefore, our estimates have two important implications with regards to traditional accounts of money laundering from criminal activity in Mexico. First, it provides a baseline estimate of cartel profits sent directly to Mexico to be laundered, and paves the way for further research on the portion of cartel profits which are likely to be laundered through a layering process, and not sent directly to Mexico to be laundered. Second, it is likely that including bulk cash smuggled across the border from the U.S. to Mexico in laundering estimates for Mexico, overestimate the amount actually laundered. A significant portion of proceeds in cash would likely go to paying for operations and for resupplying in the case of drug trafficking, and therefore would not be laundered through the formal financial system. This suggests that when policymakers want to track or disrupt financial flows to cartels in Mexico from criminal revenues generated in the U.S., they should not only focus on flows directly between the two countries, but also on suspicious flows coming and going to other parts of the world.

## SECTION VI

### ROBUSTNESS CHECK

126. Our model includes implicit and explicit assumptions about the weighting of the variables in the distance and attractiveness indices. For example, the Unger model used a coefficient of 3 on the Bank Secrecy variable and on the Conflict variable. In our model we chose to retain the coefficient of 3 on Bank Secrecy, remove the coefficient from Conflict, but added a coefficient of 4 to the Major Trafficking Partners variable. These are explicit weighting assumptions we made considering the specific case of modeling money laundered from organized crime revenues in Mexico and the United States. The implicit weighting assumptions come from the scaling of the variables. Some variables are scaled 0-1, others 0-4 and the Financial Deposit variable is a ratio that can take any value. The differences in scaling imply differential importance of some variables by allowing them different weights in the function. This section is intended to test whether our model is robust to these implicit and explicit assumptions. By presenting alternative permutations of the model and analyzing the results across the countries of interest summarized in section 5.4, we find that our model with the chosen specifications is robust to the assumptions made in the attractiveness and distance indices.
127. In this section, we will analyze 5 different specifications of the model and check for robustness of our original specification, “Official.”
128. The first specification (“No Weights”) we checked was removing all explicit weights from the variables. We see that this does affect our estimates for money laundered in the U.S. and Mexico, but has little effect on the other categories. This is to be expected. Since we chose those weights to help us more accurately model the relationship between our countries of interest, the U.S. and Mexico, these weights should have an impact on this outcome of interest, but we have shown that they do not skew the results for other countries.
129. The second specification, “No weights & Rescaled,” includes a rescaling of all variables in the distance and attractiveness indices. It applies weights to each variable in the attractiveness index so all values on all variables range on a scale from 0 to 4. The same was done in the

distance index. This was done to eliminate implicit assumptions about the weight of a variable, making sure all variables can only take the same maximum and minimum values. The results are similar to the “No Weights” model but all values are slightly smaller for our countries of interest, except for tax haven countries.

130. The third specification, “Rescaled with weights,” includes the rescaled variables described above, but adds the explicit weighting back into the model. We find that the estimates are quite similar to those in the official model. This is important because it shows that our results are driven to a much greater extent by the explicit assumptions that the researcher makes than by implicit assumptions based on scaling differences. This implies that this model could be used to test explicit assumptions on weighting the variables, based on qualitative research of specific country conditions, and could be fairly certain that their results reflect these assumptions, as opposed to remnants of the implicit scaling issue.
131. Fourth, we tested the Official specification, but assumed a positive correlation between attractiveness and conflict. Since we are estimating organized crime activity, one could hypothesize that there would exist this positive correlation. We find that this assumption has little effect on the results.
132. Finally, we test the official model, except we exclude the Trade variable from distance. Since, the amount of trade flows is highly correlated with other variables captured in this index, one might want to exclude it from the analysis. Again, we see that this does not have much of an effect on the results. We choose to include trade in our official model to account for the specific opportunity of trade mispricing.

TABLE 9: ROBUSTNESS CHECK (UNITED STATES)

UNITED STATES						
Destination (y)	Official		No Weights		No Weights & Rescaled	
Mexico	5.0%	\$ 9,057,819,349	3.8%	\$ 6,873,155,427	3.1%	\$ 5,660,985,428
United States	17.4%	\$ 31,863,297,965	13.6%	\$ 24,898,577,998	12.6%	\$ 23,322,730,461
Central America	1.2%	\$ 2,237,402,041	1.3%	\$ 2,497,230,720	1.4%	\$ 2,528,086,056
Tax Havens Financial Centers	4.0%	\$ 7,371,700,021	4.4%	\$ 7,999,518,341	4.7%	\$ 8,500,408,260
Canada	12.4%	\$ 22,702,063,536	12.2%	\$ 22,291,248,604	11.7%	\$ 21,329,805,673
China	7.1%	\$ 12,896,032,248	6.0%	\$ 10,911,945,990	6.8%	\$ 12,409,830,011
Colombia	0.3%	\$ 523,541,082	0.2%	\$ 431,252,672	0.2%	\$ 402,581,221
	0.2%	\$ 452,153,748	0.2%	\$ 482,272,374	0.3%	\$ 467,573,028

Destination (y)	Rescaled with Weights		Positive Correlation on Conflict		No Trade	
Mexico	4.6%	\$ 8,353,346,436	5.1%	\$ 9,317,006,708	4.7%	\$ 8,539,715,317
United States	17.9%	\$ 32,684,548,240	18.2%	\$ 33,391,013,964	16.4%	\$ 30,040,728,702
Central America	1.2%	\$ 2,104,463,980	1.2%	\$ 2,247,109,170	1.3%	\$ 2,352,657,237
Tax Havens	3.9%	\$ 7,183,978,046	3.9%	\$ 7,165,489,647	4.2%	\$ 7,684,964,479
Financial Centers	11.5%	\$ 20,989,444,552	12.0%	\$ 21,963,205,255	12.8%	\$ 23,301,855,234
Canada	9.1%	\$ 16,677,556,265	6.8%	\$ 12,466,396,626	6.7%	\$ 12,158,383,810
China	0.3%	\$ 552,049,844	0.3%	\$ 506,099,136	0.3%	\$ 493,594,719
Colombia	0.3%	\$ 480,808,871	0.3%	\$ 581,451,781	0.3%	\$ 511,548,883

TABLE 10: ROBUSTNESS CHECK (MEXICO)

MEXICO						
Destination (y)	Official		No Weights		No Weights & Rescaled	
Mexico	5.6%	\$ 791,021,442	4.4%	\$ 621,087,896	3.7%	\$ 525,914,923
United States	19.6%	\$ 2,782,629,124	15.8%	\$ 2,249,942,635	13.1%	\$ 1,865,786,917
Central America	2.5%	\$ 359,496,509	2.0%	\$ 287,356,639	2.4%	\$ 337,716,604
Tax Havens	4.0%	\$ 564,163,522	4.0%	\$ 573,224,896	4.9%	\$ 699,645,194
Financial Centers	13.2%	\$ 1,876,485,234	12.8%	\$ 1,816,015,913	12.2%	\$ 1,737,463,058
Canada	2.6%	\$ 375,404,485	2.6%	\$ 375,404,485	2.4%	\$ 338,953,025
China	0.2%	\$ 30,480,642	0.2%	\$ 30,480,642	0.2%	\$ 31,411,105
Colombia	0.0%	\$ 3,847,031	0.0%	\$ 3,847,031	0.0%	\$ 5,138,286
Destination (y)	Rescaled with Weights		Positive Correlation on Conflict		No Trade	
Mexico	5.3%	\$ 760,877,006	5.7%	\$ 810,845,136	5.2%	\$ 742,296,068
United States	18.5%	\$ 2,628,239,435	20.4%	\$ 2,905,969,923	18.4%	\$ 2,611,224,611
Central America	3.3%	\$ 466,397,607	2.5%	\$ 362,341,804	3.4%	\$ 490,146,694
Tax Havens	4.6%	\$ 657,194,053	3.9%	\$ 548,281,773	4.1%	\$ 581,399,100
Financial Centers	12.4%	\$ 1,769,064,992	12.8%	\$ 1,814,543,380	14.1%	\$ 2,002,771,446
Canada	3.1%	\$ 439,739,492	2.5%	\$ 361,643,941	2.5%	\$ 352,280,303
China	0.3%	\$ 41,581,234	0.2%	\$ 29,363,366	0.2%	\$ 28,603,094
Colombia	0.0%	\$ 3,971,316	0.0%	\$ 4,092,490	0.0%	\$ 3,887,759

## SECTION VII

### CRITICAL ANALYSIS

#### **7.1 Benefits and Limitations to Gravity Model Analysis of Money Laundering in the U.S. and Mexico**

133. A gravity model, such as the Unger Model, is a valuable tool to estimate the illegal money generated in an economy and predict where it will flow. Since data are often scarce or inconsistent, having a framework by which to compile and analyze data relevant to illegal money flows is an advantage unto itself. This exercise displays that when modelling laundering, one must consider what type of illegal flows are being modelled. Because we are attempting to model flows from organized crime, it was important that we included variables relevant to these crimes. While we found that the predictive power of the model increased by including these variables for this case, the adaptations made might not be applicable to other country studies or categories of crimes. For example, if we were modelling tax evasion, the addition of robust financial variables might take precedence over shared border or remittance variables. Additionally, we examined the case where a certain proportion of illegal money generated in the U.S. would flow directly to Mexico because of the trafficking relationship between the two countries. This exemplifies how the process of estimating illegal revenues generated from specific crimes provides the opportunity for deeper analysis the laundering relationship between two countries with a specific criminal link. Finally, the model is able to account for illegal flows that do not appear in official data by examining the origins of the illegal revenues and then examining the likely determinants of their movement.
134. Our analysis also highlights some of the limitations to the gravity model approach. Principally, this model only estimates the first phase of money laundering, and does not predict the complex layering or final destination of the illegal money. In this context, we found two ways to predict the amount of money laundered in Mexico, but they both likely underestimate the total amount of illegal money that eventually returns to Mexico from organized crime

activities. Thus, though the model should help estimate the amount of money laundered in Mexico, it suggests that a significant proportion of money generated from trafficking activities to the U.S. returns to Mexico through other sources besides direct flows from the U.S. It may be that this total amount of illegal money returning to Mexico, not the amount of money laundered in Mexico as this model predicts, that is a better predictor of the macro level consequences of organized crime.

## 7.2 Future Applications of the Model

135. With this model's demonstrated advantages and limitations, it provides a strong framework for future studies of this type. First, such analysis allows us to account for illegal money that does not show up in official statistics by isolating illegally generated money. In this way it captures money laundering through smuggling of cash, stored value cards or goods, as well as "hawala-style" swap arrangements and structuring. Though it does not specifically predict the quantity transacted by these methods, it does account for criminal revenues that would move through these channels. In this way, it complements and expands on the work that GFI does using GER and CED models based on official statistics.
136. Additionally, though this model only presents data from a point in time, the most interesting application of the model would be to look at the data over time and analyze how well it predicts changes in flows based on changes in the values of certain variables. For example, if a country strengthens or weakens their bank secrecy laws or increases their trade with the base country, one could examine how well the model predicts changes in illegal money flows. This type of analysis could also provide insight into which variables are most important to include, the best way to weight the variables, and the best way to index relevant variables so they best model changes in policy.
137. Finally, this exercise highlights the importance of systematically compiling data relevant to money laundering activities in a country. By collecting these data and compiling them in this way, it opens further opportunities to explore predictions and hypotheses about the money laundering regime within countries or specific activities. Once the data are available, there are a number of investigations and adaptations to this model which would allow researchers and policymakers make more informed judgements about how to combat money laundering.

## SECTION VIII

### POLICY DISCUSSION

138. In this study, we used an economic model to estimate the proceeds from organized crime generated for laundering, and the amount of money that flows between the U.S. and Mexico. This model provides a useful estimate of money laundering that could be useful for policy discussion and reform of financial and criminal laws at the national and bilateral level.
139. Firstly, our work on the model has led us to believe the importance of having reliable sources of data. We believe that both the U.S and Mexico would benefit from having more reliable estimates to quantify the problem of money laundering and organized crime, sharing information between agencies, and where feasible, a centralized source for such data.
140. Secondly, our research suggests that a thorough implementation of the restrictions for the uses of U.S. dollars in Mexico will change the patterns for money laundering between the U.S. and Mexico. While the Mexican financial sector has long been lambasted for its quick acceptance of suspicious cash amounts, the new Mexican regulations deposits of U.S. dollars, which came into force in September 2010 (see case study: *USA v Wachovia*), are likely to prevent money launderers from repatriating their proceeds in U.S. dollars, so that their money laundering activities will not be detected. With this new development, U.S. law enforcement must take strong action in order to force money launderers to resort to other means of illicit financial flows such as cash transfers, which would give more opportunities for Mexican law enforcement and U.S. customs to detect them and seize their proceeds.
141. Our research leads us to propose a more creative use of the regulatory tools provided for in the Bank Secrecy Act, such as the Geographic Targeting Order (GTO), which is an order issued by the Secretary of Treasury requiring any domestic financial institution operating within a given geographic area to report transactions exceeding a specified ceiling (defined under section 31 U.S.C. § 5326(a), Bank Secrecy Act). The State of Arizona has employed the use of GTOs<sup>101</sup> and further study is needed on how GTOs would be applicable to other states not located at the border. The GTO would effectively block criminals from laundering

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<sup>101</sup> FATF, *Third Mutual Evaluation Report on Anti-Money Laundering and Combating the Financing of Terrorism: United States of America*, op.cit., 197.

their proceeds through financial institutions. It would force them to use less secure methods, such as bulk cash smuggling in the form of money couriers, to transfer their money to Mexico or other countries.<sup>102</sup> Coupled with recent Mexico legislation about the use of cash, criminal networks would be under tight scrutiny by law enforcement officials and financial institutions.<sup>103</sup>

142. We suggest the imposition of a GTO that would require money transmitters and banks to report any transaction exceeding more than twice the average amount. In March 2011, the Banco Bilbao Vizcaya Argentaria estimated the average remittance between the U.S. and Mexico at US\$297.60, which would set the GTO ceiling at US\$600 per transaction.<sup>104</sup> Areas should be specifically targeted when state regulators' data indicate that money transmitters and banks transactions volumes do not accord with the size and the median household income of the Mexican communities living in those areas. We also emphasize that the use of GTOs will not be fully effective in combating money laundering unless it is also extended to non-banking financial actors producing non-monetary payment instruments. The increasing use of telephone debit cards, prepaid global system for mobile communications services (GSM) and similar types of e-cash money instruments by money launderers indicates that this could be a severe loophole in the BSA.<sup>105</sup>
143. Finally, Mexico and the U.S have executed law reforms in order to decrease illicit businesses managed by organized crime and have established an anti-money laundering regime that is in line with international standards set by the Financial Action Task Force. We are conscious that as U.S. and Mexico continue to strengthen their anti-money laundering regime, build on their data collecting capacity, bilateral cooperation and data sharing, that criminals will consequently, find ways to expand their businesses to countries in Central America, such as Guatemala, Honduras, El Salvador and Nicaragua to avoid Mexican and U.S. laws. This economic model may thus provide information to national authorities and

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<sup>102</sup> Robert Litt, "Use of Geographic Targeting Orders in Money Laundering Cases," *Testimony before the Subcommittee on General Oversight and Investigations*, (Washington, D.C.: House Committee on Banking and Financial Services, March 11, 1997).

<sup>103</sup> Edward Jurith, "International cooperation in the fight against money laundering," *Journal of Financial Crime* 9, number 3, February 2002.

<sup>104</sup> Banco Bilbao Vizcaya Argentaria, "Mexico Economic Watch," *BBVA Research*, March 2011.

<sup>105</sup> David Birch, "E-cash issues: electronic cash is not just about technology," *European Business Review* 99, number 4, 1999, 211-218.

regional/international organizations to focus their resources and act in a timely fashion to limit money laundering, and consequently, control the spread of organized crime. If done on a range of countries, this methodology could potentially create a form of global database of illicit financial flows and allow for further studies of key originator or destination countries.

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