MONEY LAUNDERING MEASUREMENT. MICROECONOMIC AND MACROECONOMIC APPROACHES

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Abstract
The purpose of this paper is to emphasize the volume of money laundering, using measurements and concepts issued by policymakers, and to highlight the macroeconomic effects on a state's economy. The secret existence of these fraudulent acts makes it difficult to get an overall estimation of its scale and rate of growth. The condition was widely debated in economic literature, which revealed a variety of illicit economic developments calculating methods. Unfortunately, several ways used to calculate the black economy, appear to underestimate or overestimate the magnitude and dynamics of the money laundering. Furthermore, calculating the size and amount of monetary assets produced by organized crime is an exceptionally challenging job, due mainly to the lack of adequate knowledge. There have been developed a variety of estimation methods by the researchers that will be analyzed in the following article.
The methodology used for this paper is made of scholarly articles and articles relevant to the current topic, retrieved from the web as sources of information. Different approaches will be considered to determine the dynamics of money laundering.
Findings and contribution to the field of study: money laundering alters a state's economy by creating a fertile territory for the shadow economy to exist and grow, for the criminal groups to prevail and thus for illicit activities to thrive. To reduce these adverse consequences, it is fundamental to measure the volume of money laundering phenomenon and to determine the most sensitive features related to money laundering in a state.

Keywords:
Money laundering, illegal transactions, organized crime, fraud, microeconomics, macroeconomics

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Introduction

Money laundering is a term of relatively recent origin. Money laundering is a complex activity that no one in civilization would take seriously at first sight. It's an entirely new offense compared to street crimes. Critics often refer to it as a victimless crime, but it is not a crime against a single person but a crime against countries, governments, and the whole world. Money laundering has become a significant threat.

Historically, there are multiple interpretations for money laundering based on how you look at the issue, from a legal, economic, or social point of view. For this article, I will choose the interpretation used by the Australian Criminology Institute, which notes that: "[... .] money laundering is the process by which the proceeds of crime are put through a series of transactions, which disguise their illicit origins, and make them appear to have come from a legitimate source" (Graycar and Grabosky, 1996, page 8).

Another definition that I find complex enough to express the nature of this phenomenon is the one issued by Robinson: "Money laundering is called what it is because that perfectly describes what takes place – illegal, or dirty, money is put through a cycle of transactions, or washed, so that it comes out the other end as legal, or clean, money. In other words, the source of illegally obtained funds is obscured through a succession of transfers and deals so that those same funds can eventually be made to appear as legitimate income" (Papanicolaou, 2015, page 1).

Money laundering is a mechanism in which vast sums of money acquired unlawfully (through cocaine dealing, criminal activities, or other severe crimes) seem to have come from a lawful source. But in plain words, it's the turn of black capital into white wealth. It is going to be necessary to clean up big piles of money. If this is achieved effectively, it will enable the offenders to keep ownership of their earnings and thereby have legal protection for their source of income.

If an illegal act produces considerable income, the entity or organization responsible must find a way to manage the proceeds without attracting publicity to the actual crime or the individual involved. The camouflage of the origins of the funds, by altering the shape or by shifting the funds to a position where they are less likely to draw suspicion, is what the criminal groups are trying to achieve.

Money laundering plays a crucial role in promoting the plans of the drug dealers, terrorists, organized crime groups, the tax evaders and people who ought to stop the suspicion from the government that unexpected money arises from illicit activities. Such criminal organizations attempt to gain capital and influence by illegal activity and aim to penetrate the legal community, thus distorting the conditions of the fraud. They produce millions upon millions of dollars for the leaders of the company and encourage their employees to enjoy luxurious lives that have been created by the poverty and deprivation of their illegal behavior.

Money laundering is a worldwide burden and, at the same time, a critical link in the monitoring of criminal activities, especially from organized crime. Criminals attempt to cover their illegal profits by laundering money through monetary networks, foreign trade, or other efforts. The purpose of their actions is to conceal these funds obtained from criminal activities, and also to hide the origin of the funds, thus making it impossible to track them and also to make them appear as legitimate.

There has been made a noticeable improvement in the battle against money laundering and terrorism funding in the economic context, in particular through the implementation of stricter anti-money laundering and counter-terrorism funding laws (AML- Anti Money Laundering and CTF- Counter-Terrorism Funding) and strengthened rates of inter-agency coordination and assistance.

Several studies have centered on criminalizing money laundering to reduce the level of this type of crime. Yet, only limited literature analyzes the economic effect of money laundering in a territory, and it does not provide empirical evidence for the most part. Besides, most

studies focus on developed countries and therefore isn't enough evidence, based work that explores the magnitude of the money laundering phenomenon in developing countries. For this reason, this paper will pursue this inconsistency by elaborating on the economic influence of money laundering and finding alternative metrics to determine the status of money laundering, especially for developing countries. The findings can be used to determine the hazards and susceptibility in a region.

Literature review of the existing approaches for ways of quantifying the money laundering

Over the years, a variety of efforts have been made to assess the extent and nature of the issue of money laundering and take a closer look at how the funds are being laundered (Unger et al., 2006; Unger, 2007) and terrorist acts are being funded (Walker, 1999; Roth et al., 2004; Schott, 2006; Zdanowicz, 2009; Schneider, 2010). However, the highly clandestine existence of money laundering and terrorism funding renders it very complicated to achieve such activities. Many of the attempts to qualify the magnitude of the issue have provided a variety of widely differing figures, none of which can be irrefutable proved (Reuter, 2013).

There have been made attempts to describe how the mechanism of money laundering works and how terrorist funding may be carried out, but they are vague and typically do not address in depth the players, financial transactions, and actions involved in carrying out such operations.

Additionally, numerous foreign organizations develop outstanding research works at strategies and procedures for money laundering by publishing annual statements and reports. These statements, which provide specifics of sanitized, effectively-identified incidents of money laundering and terrorist funding, include a wealth of knowledge on emerging risks and developments, methods utilized, and, in certain instances, the sum of funds involved.

Researchers have identified four critical methods to quantify money laundering (Quirk, 1996):

- Methods that analyze money laundering in terms of constraints and case studies raised by financial institutions:
- Practices that concern the underground economy; they use monetary aggregates to quantify the amount of money laundering in the underground economy.
- The third type of analysis reflects on the illegal environment, demonstrating the unlawful implications of financial well-being, social consequences and economic effects, including acts that fall under criminal law
- A fourth method analyzes the irregular money transfers involved in cross-border transactions.

Measuring the sum of money lost through money laundering income is highly tricky, so it is important to highlight several points of view depending on the methods utilized by offenders. The best option for money-launderers to cover their profits from criminality is to move the funds out of the territory, resulting in cash transfers between countries connected with funds-laundering being misunderstood as capital flight.

Measuring the money laundering phenomenon

In 1989, the Financial Action Task Force (FATF) “Working Group on Statistics” report on “Narcotics Money Laundering – Assessment on the Scale of the Problem" acknowledged the absence of accurate metrics to quantify money laundering. In 199, the European Union adopted the Convention on the Laundering, Search, Seizure, and Confiscation of the Proceeds from Crime, and the FATF's "40 Recommendations" has been written on the prevention of money laundering.

The International Monetary Fund (IMF) study estimate of between 2-5 percent of global Gross Domestic Product (GDP) is the most frequently quoted statistic for the magnitude of money laundering (Camdessus, 1998). A decade on, this statistic is still used by other

scholars. In fact, in a new survey, the Australian Transactions Reports and Analysis Centre (AUSTRAC) measured the expense of violent and organized crime in Australia at about 10-15 billion USD a year or between 1.2-1.8 percent of the Australian GDP, representing the possible volume of capital that needs to be "cleaned" by money launderers (AUSTRAC 2011). In comparison, using an empiric approach to calculate the overall volume of money trafficking globally, Walker (1999) reports that approximately 2.8 trillion USD per year is concentrated in Europe and North America. That is around 6.5 percent of GDP worldwide, and it is higher than the original range of IMF figures.

A later analysis by Masciandaro and Barone in 2008, using a multiplier model of the relationship between illegal business profits and money laundering practices, estimated that the volume of money laundering would be 2.7 percent of GDP worldwide, meaning 1.2 trillion USD.

Another significant effort to measure money laundering was made by Walker in 1995, by defining the "*Walker Gravity Model*". According to this estimate, the amount of global money laundering was 2.85 trillion USD in 1995 (Walker, 1995). Many countries tend to reduce the anti-money laundering laws to draw more financial capital to their economies. This is the best opportunity for business transactions of filthy capital. According to Walker's Gravity Model, money moves globally, and the legalization of income from the black market is now a cross-border issue (Walker et al., 2009). This method has become famous over the last few years.

Current approaches, case reports, mathematical or econometric tools used to quantify the scale of the illegal economy continues to under evaluate or over evaluate the importance of money laundering. Other scholars (Levi and Gold, 1994) attempted to examine financial data, especially "suspicious transactions" data, to determine the level of money laundering, the Walker methodology was somewhat specific. Because money laundering includes several phases – "placement" (placing illegal money), "layering" (distributing cash across the globe to conceal its illegitimate origin) and "integration" (investing the cleaned money) – the same money will go through several separate channels in the laundering system, so tracking financial transactions details were likely to mean double -or perhaps more – following. Worse, tracking suspicious transactions was likely to entail significant mistakes in both directions ("suspicious" operations that were technically legal, and "legitimate" deals that were criminal).

Walker's gravitational concept is an entirely different solution. It allows quantifying the illegal financial transactions across various jurisdictions around the world. Walker's model seems to be the most compelling as it has a quantitative approach. This acknowledges that a practical quantification of money laundering will incorporate criminology, economics, and financial components.

Walker's theory is based on Newton's universal law of gravitation, established in 1687. Due to the theorem of the law of gravity, the power of attraction between two bodies depends on their mass, the physical distance between them, and the force of gravity (Head, 2003).

$$F_{12} = \frac{g*M1*M2}{d_{12}^2} \quad (1)$$

Where:

F_{12}= the attraction force between objects 1 and 2

$M1, M2$ = the objects mass

d_{12} = the distance from object 1 to object 2

g= the gravitational constant

Other researchers classify the strategies for calculating money laundering and funding extremism within micro-economic and macro-economic approaches.

Micro-economic methods include:

- Multi-source/multi-method calculations focused on institutional crime statistics and probability sample victimization surveys
- Possibilities and non-possibilities professional opinion interpretation surveys
- Analysis of suspicious activity reports (SARs) to show volumes of money trafficking
- Review of reports of criminals or law enforcement case records.
- Micro-economic estimates

Macro-economic methods include:

- Models based each country estimates.
- Models based on import/export pricing anomalies
- Calculations focused on "sensitive" variables, such as demand for the currency.

The multi-source/multi-method calculations used by (Unger et al., 2006; Walker, 1997; Walker, 1999; Stamp and Walker, 2007), utilized crime statistics and victimization survey statistics to assess the profits of crime based on the form of crime. Unger et al. (2006) used the “attractiveness model” and the “distance deterrent model” developed by Walker (1997) to measure the proportion and volume of criminal gains that have been laundered or diverted to another country. Such two equations were then used together to measure the proportion of money moving from one country to another (Unger et al., 2006).

Money laundering may also be assessed by surveys. Experts and law enforcement officials can be consulted. However, polls often suffer from several prejudices. The survey may not be universal, and the individuals consulted or surveyed may have had their interpretation differences. For starters, there could be an overestimation of money laundering by the authorities responsible for the fight against money laundering, as it is their everyday activity and their priority. Around the same time, the same individuals can still be misunderstood because they believe they are doing their mission of combating crime successfully and performing their job well. But, although understanding biases, comprehension biases, non-response biases, and questionnaire biases could affect these data, at the same time, they can provide valuable perspectives, especially when working with otherwise unobservable data.

SARs research, also known as irregular activity data, is used by Stamp and Walker (2007) to evaluate patterns in the reporting market, activity values, and the complexity of the conduct as measured by Financial Intelligence Unit (FIU) researchers.

A variety of scholars assessed the participation of terrorist groups (Kane and Wall, 2005) and the funding of terrorism (Roth et al., 2004) using case-related law enforcement details. Kane and Wall (2005) utilized detail obtained from imprisoned offenders, law enforcement records to research the modus operandi of alleged attackers and leaders of terrorist groups. Roth et al. (2004) utilized a variety of outlets to include a high-level overview of al-Qaeda-related funding of terrorism, including raw and completed information as well as law enforcement and other evidence points.

Police reports and their analysis suffer not just from the underestimation of the scale of the problem, but also from the reality that they are worthless for calculating regional or global money laundering since they have an underlying conceptual difficulty when aggregated. The tougher the battle against launderers, the more likely the police become stricter in reporting the cases of money laundering. When police archives are used to make general claims on corruption, the statistics will suggest that money smuggling is rising despite a tougher anti-money laundering strategy. Logically, one should expect money laundering to decrease with a more successful strategy and not to rise.

Money laundering may also be measured by using proxy variables. Tanzi (1997), from the IMF, used the discrepancy between money supply and capital circulation in the US economy to predict money laundering. He reported that 5 billion USD a year had been smuggled out of the US in cash by the illicit drug trade in 1984 and was now absent from the money supply. Even then, he cautioned that this would generate a possible risk for the global financial system owing to the fact that such dollars might be dumped in return for the foreign currencies.

Nevertheless, the study excludes forms of offenses other than narcotics, limits itself to money that enters a nation in currency, and does not take into consideration the usage of the normal financial mechanism or the flow of exchange.

Another method to quantify money laundering is to use methods from calculating the black market economy, such as the Dynamic Multi-Case Indicators (DYMIMIC) model. It uses two collections of measurable variables and connects them to an unobservable variable as a proxy. One collection of factors that can be identified is the triggers (for the black economy) such as legislation, taxation, and enforcement. The other package is considered a predictor. Such measurable factors are similar to money laundering, which involve rising competition for capital, reduced official development, and a rise in crime levels. The DYMIMIC model utilizes component analysis to evaluate how well the various trigger factors describe the unobservable variable and the factors that can be clustered together. The same is achieved with the variable factors. This implies that statistics determine which measure shapes the main cluster of triggers of the secret economy and which are important for parallel measures of the shadow economy. Indicators are categorized into subgroups and are meant to reflect portions of the unobservable element. However, data cannot override theory. The approach distinguishes variable that is strongly correlated and calculates the same component of the proxy variable and eliminates redundancies in the collection of proxy variables.

To date, Walker Model seems to be the most favorable of all the above methods, in particular, since it can be used by all territories and jurisdictions, and because it can be offered a theoretical basis that is far better and more realistic than all the other global money laundering calculation methods reported so far. Measuring money laundering involves a mixture of criminology, economics, and banking, all of which are part of the Walker Model.

Conclusions

Money laundering has had a significant adverse effect on the economies of both industrialized and developing countries. To reduce adverse impacts, it is essential to quantify the volume of money laundering in a nation compared to its total economic operations.

This paper introduced the concept of a model for estimating money laundering movements around the world. Although there are several issues with incomplete and non-comparable evidence, there do tend to be logical approaches for utilizing expert information to fill such holes. The approaches rely on gathering or predicting details that can be cross-checked, meaning that while it may undoubtedly be in error in some instances due to insufficient data or erroneous conclusions, there are many possibilities for cross-checking with other model results. For example, forecasts based on statistics and observations about the degree of crime and income can not logically clash with projections based on economic or financial results. A variety of ratios an indexes are often determined for each nation in the model that can be measured by professional opinion. Whenever they are in disagreement with the pattern, that is an indication that a third viewpoint is required, and further work has to be conducted specifically in the field of data controversy.

Many of the figures estimated for the world money laundering fall within the framework of the IMF's estimation as 2-5 percent of global GDP (Camdessus, 1998). For, eg. Baker (2005) estimates 2.4-3.6 percent, Schneider and Windischbauer (2008) calculate it as 3.4 percent, and Masciandaro and Barone (2008) estimate it at 2.7 percent. Walker (1999) measured money trafficking at 9.5 percent, which is higher than that of the IMF. As a consequence, Walker's estimation was criticized for being too high, not considering laundering fees, and the data sources were too ambiguous, particularly for fraud and drug trafficking (Reuter, 2013). However, these reviewers have not given accurate forecasts, nor recommended any concrete changes to fix the perceived shortcomings in the Walker Model.

There is no absolute solution or universal model that outlines the exact situation in every region. Each model has its imperfections and flaws. Therefore, the figures can be presented

from several specific viewpoints. Notwithstanding the limitations and lack of precision of such statistics, the literature review offers clear proof of the importance of the extent of money laundering at both national and international levels, and the findings also indicate substantial quantities that cannot be overlooked in the growth of a region.

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