



THE CORRELATION BETWEEN HIDDEN ECONOMY AND MONEY LAUNDERING IN IRAQ 2012-2022

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Article history:		Abstract:
Received:	20 th September 2024	The emergence of hidden economy and money laundering in Iraq resulted from the accumulation of long years of wars and unstable political and economic conditions. However, this phenomenon increased after 2003 due to the radical changes that happened in Iraq, including the great openness of borders to abroad, the absence of government control over imports, and the flow of funds without any control or accountability, in addition to the spread of administrative and financial corruption that led to increasing hidden economy and money laundering, which impacted the Iraqi economy. The research problem of the present study is manifested in the increasing magnitude of hidden economy in Iraq and the consequent increase in illicit income, which contributes to an increase in money laundering operations. The present study aims to estimate the magnitude of hidden economy and money laundering in Iraq from 2012 to 2022. The results of the present study reveal that the high magnitude of hidden economy in Iraq is due to low levels of domestic production of goods in the public sector as a result of the interruption of most production lines due to the widespread destruction of state companies. The present study recommends that it is important to combat administrative and financial corruption and enhance the role of public integrity by all possible means, as corruption is one of the core reasons contributing to the spread of the phenomenon of hidden economy and money laundering in Iraq.
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INTRODUCTION

Regardless of its names, hidden economy is a phenomenon that threatens all developed and developing economies around the world. In light of the global economic convergence, Iraq has become part of the global economic scene. This convergence makes Iraq vulnerable to any economic phenomena or international wars or economic crises, despite the fact that the severity of impact is not the same.

Iraq has witnessed a noticeable spread of hidden economy, especially after the adoption of a policy of global openness and the application of market economy mechanisms, accompanied by the opening of borders to foreign goods that compete with local products in terms of prices and quality, in addition to the absence of necessary control. This has led to the expansion of hidden economy, especially in the illegal aspects, which in turn has contributed to the exacerbation of the phenomenon of money laundering.

Problem Statement

There is an increase in the magnitude of hidden economy in Iraq. It constitutes a large percentage of the GDP. Hence, there is an increase in illicit incomes of people that resort to money laundering operations to legalize them and make them appear as if they are from legitimate sources.

The Research Hypothesis

There is a close relationship between money laundering and hidden economy, as money laundering is the bridge through which illegal funds generated from hidden economy cross to reach the apparent economy.

The Objectives

The present study aims to:

- 1- Clarify the relationship between hidden economy, money laundering, and the apparent economy.
- 2- Estimate the magnitude of hidden economy and money laundering in Iraq 2012-2022.



The Theoretical Framework

First; The Concept, Characteristics, and Causes of Hidden Economy

1. The Concept of Hidden Economy

There are various terms describing this phenomenon, including informal economy, shadow economy, parallel economy...etc. Regardless of these terms, they are not new and are not limited to a specific economic system (Abduladhim, 1991). The definition of hidden economy differs according to the different views of economists. It is defined as all activities contributing to creating total economic value, but they are not estimated in the official economic statistics (Salihi, 2008). It is also defined as 'the production of goods and services based on the market, regardless of legitimacy, avoiding disclosure in the official estimates of GDP (Al-Sharkawi, 2006). It is also defined as All income generating activities that are not recorded in the national income accounts, either because they are deliberately hidden to evade legal obligations related to disclosing these activities, or because these income generating activities are in violation of the legal system prevailing in the country (Ali, 2008). It is also defined as the total income earned but not reported to the tax authorities or the total income not included in the national accounts (Vito, 1980).

2. Characteristics of Hidden Economy

Hidden economy has many characteristics, including:

- 1- Hidden economy is widespread in developing countries, while its prevalence is lower in developed countries, due to a set of factors, such as bureaucracy, widespread administrative corruption, unfair tax systems, economic instability, political unrest, and the spread of crime in society (Nabih, 2008).
- 2- This economy is characterized by non-compliance with legal and regulatory restrictions in most actions, including the organization of labor, production and distribution patterns, marketing, and employment of labor (Muayyad, 2006).
- 3- The ease of entering into the various activities of this economy for workers in the early stages of their career and after retirement. Entering this economic activity does not require many financial and professional capabilities.
- 4- This economy is characterized by low capital, as the purpose of individual work is to meet the requirements of daily life and achieve a decent standard of living, while the goal of work for others is to increase the accumulation of their wealth.
- 5- The type of technology used in this economy depends on the activity used. Activities such as small work units use low technology, while illegal (prohibited) activities such as money laundering and smuggling use advanced and modern technology to stay out of government control (Arab Institute, 2004).
- 6- The income of workers in hidden economy varies based on the type of activity they engage in. Income is lower in relatively non-proscribed activities, such as simple work units, household crafts, and street vendors, while it is higher in some high-risk activities, such as theft and smuggling, due to the difference in the degree of risk of the activity and the level of risk associated with it (ILO, 2004).

3. Activities of Hidden Economy

Hidden economy consists of two types of activities:

- 1- Legitimate activities that are not prohibited
These activities include activities in which the individual earns income without paying taxes, even if the income is unknown to the government and is not recorded in the accounting records, including household chores, street vendors, unlicensed small enterprises (Mahmoud and Ramzi, 2019).
- 2- Prohibited illegal activities
These are illegal activities that are carried out in violation of the laws and regulations of the state in secret and away from official institutions, which leads to the circulation of large amounts of income in the country as derived from legitimate sources and often deposited in banks, such as money laundering, drug trafficking, smuggling, commercial, industrial, and food fraud (Andrews, 2005).

4. Reasons for the Emergence of Hidden Economy

There are many reasons that led to the emergence of hidden economy, including economic, social, political, and administrative reasons as follows:

- 1- Low Income Levels
Low income levels are among the most important reasons that push individuals to practice this economic activity to meet their living demands, especially if they are matched by a rise in prices, which reduces their real income and pushes them to work in the activities of this economy, regardless of legitimacy, to maintain their living standards (Muayyad, 2006).



- 2- The tax burden has a direct impact on reducing the amount of income in the formal economy after tax, providing a strong motivation for tax evasion and engaging in hidden economy (Mustafa, 2009).

- 3- Unemployment and Poverty

The relationship between hidden economy and unemployment is interactive. Disguised unemployment in particular increases workers' free time and thus motivates them to search for more job opportunities (Hussein, 2020). There is also a strong relationship between the phenomenon of poverty and hidden economy. The poorest countries have a higher percentage of hidden economies, as hidden economy expands with the increase in poverty (Houria, 2014).

- 4- Government Restrictions and Regulations

Governments often impose severe restrictions on certain economic activities with the aim of achieving social or economic objectives. This over-restriction drives companies to seek loopholes and alternative solutions to circumvent these restrictions, often resulting in them engaging in illegal activities to generate higher revenues (Al-Mabrouk, 2006).

- 5- Financial and Administrative Corruption

Corruption manifests itself in various forms, such as fees, bribes, tax evasion, smuggling of funds, customs, commercial, industrial, and food fraud, and mediation or nepotism, all of which open the door for individuals to enter hidden economy (Ali, 2007).

- 6- Political Factors

Political factors have a significant impact on the emergence of hidden economy. Political instability, weak state institutions, and lack of control lead to the expansion of illicit activities such as terrorism and civil wars, which destroy the infrastructure of the formal economy (Al-Rajhi, 2021).

Second; The Concept and Stages of the Phenomenon of Money Laundering

1. The Concept of Money Laundering

The term "money laundering" first officially appeared in the United States in 1973 during the Watergate scandal. Prior to this, it was informally used to describe the process of converting illegally acquired funds (black money) into funds of legitimate origin (white money). The purpose of this term was to clarify the process by which the illegal origin of funds is concealed and presented as resulting from legitimate activities (Korejo, Rajamanickam, and Md. Said, 2021). After 9/11, the issue of money laundering gained increasing global attention. This crime has become a major focus. It has been recognized that it constitutes an important source of funding for terrorist activities. Globalization and the revolution in the telecommunications sector have contributed to the expansion of international crimes, making the financial aspects of these crimes more complex as a result of the rapid development of technology. Today, money laundering is seen as a security and economic threat, not just at the state level (Kumar, 2012). Money laundering refers to the process of converting illegally acquired funds into funds that appear to be legitimate. This crime is a modern and complex crime, the seriousness of which some may not realize at first sight compared to traditional street crimes. Although some may describe it as a "victimless crime," the reality is that its effects are widespread. It does not harm a single individual, but is a crime directed against states and their economies, financial systems, and the rule of law in general. Money laundering is a global threat that affects the stability of the international economy and is a major challenge for governments and regulators around the world (Krsteski, 2020). The total amount of money circulating under the guise of money laundering was estimated in a meta-analysis of drugs and crime, at about 2.7% of global GDP, or 1.6 trillion US dollars (Usman, Naveed, and Munawar, 2023).

2. Stages of Money Laundering

Although money laundering operations are diverse and complex, they generally go through three main stages, including:

- 1- Placement

The money laundering process begins with the entry of illegal proceeds resulting from criminal activities into the financial system. During this stage, the funds are transferred to local or international bank accounts in a seemingly legal manner, so that they do not attract the attention of the supervisory authorities or national bodies responsible for combating financial crimes. This step is crucial because it facilitates subsequent disguises. The funds are distributed through multiple financial channels, which reduces their link to their illicit source (Gee, 2014).

- 2- Layering Stage

This stage involves conducting a series of multiple transactions and money transfers with the aim of hiding illegal proceeds and complicating the process of tracking funds. The term "camouflage" refers to the division of



a large amount of money into multiple layers of small transactions. With the advent of digital remittances in the modern era, this process has become very fast. Many transactions can be executed within a short period of time, making it difficult to detect and track the source of funds (Weeks, 2017).

3- Integration Stage

At this stage, laundered funds are introduced into financial systems in ways that appear legitimate. This is the last step in the money laundering process. Illegal funds are mixed with additional legal funds or invested in legitimate activities (Choo, 2015). Once the funds reach this stage, it becomes very difficult for the authorities to trace their original source. The funds appear to be part of regular financial flows and the formal financial system.

3. The Relationship Between Hidden Economy, Money Laundering, and Apparent Economy

There is a relationship between hidden economy and money laundering. This link stems from one of the aspects of hidden economy, which is the illegal aspect. Since hidden economy has legal and illegal aspects, the legal and legitimate part must be integrated with apparent economy, while the illegal part is a criminal part. On the other hand, money laundering operations have been fully criminalized and must be confronted because they are the link between hidden and apparent economy in terms of shading funds, so it is difficult to separate hidden from apparent economy (Kaddawi and Tajuddin, 2007). In order to achieve two goals by all means, those responsible for managing hidden economy seek to establish a relationship between hidden activities and apparent or declared economic activities: the first is to maximize the profits and revenues from the hidden economic activities they practice, and the second is to eliminate illegal activities by transferring these activities to the apparent economy in different forms through money laundering operations (Abdulhameed, 2001). There is also a periodic relationship between hidden and apparent economy that is developed through money laundering operations, which means that hidden economy carries out activities that produce illegal hidden transactions and illicit funds. These funds go to the banking system and financial institutions and the laundering process is carried out in complex ways, starting from depositing in banks and then turning these deposits into financial activities in the form of various investments that feed into the apparent economy. Through this interdependence between those responsible for managing hidden economy and managing the apparent economy, the cycle begins again (Awadallah, 2003). Thus, it can be said that hidden economy is part of the apparent economy and that money laundering operations are part of hidden economy, which is the illegal part. Therefore, the confrontation to reduce money laundering operations means reducing the illegal aspects of hidden economy, which in turn reduces this economy, expands apparent economy, and increases GNP (Kaddawi and Tajuddin, 2007).

Economic Impacts and Magnitude of Hidden Economy and Money Laundering in Iraq

Hidden economy and money laundering did not have a noticeable presence in the Iraqi economy, but they emerged more in the late 1990s and early 2000s, as a result of the weak capacity of the production sector to provide goods and services. This situation led to the emergence of the black market and the spread of smuggling of oil and goods from Iraq due to the economic sanctions imposed. In 2003, with the collapse of the government and its institutions and the destruction of infrastructure, in addition to the unregulated opening of the Iraqi market, Iraq became an environment conducive to the growth of the phenomenon of hidden economy and money laundering (Hameed, 2014).

First; The Economic Impacts of the Phenomena of Hidden Economy and Money Laundering in Iraq

1. The Economic Impacts of Hidden Economy in Iraq

There are several impacts of this phenomenon on the Iraqi economy, including (Kadhim, 2021):

- 1- Smuggling hard currency and capital out of the country, thereby weakening national income.
- 2- The introduction of inferior goods and counterfeit goods, which negatively affected the country's industry
- 3- Weak savings and investment caused the weak production sector.
- 4- Tax evasion has caused a significant loss in tax revenues, and thus a decrease in fiscal revenues.
- 5- Inequity in income distribution and concentration in the hands of a small group.
- 6- High inflation and low standard of living.

2. The Economic Impacts of the Phenomenon of Money Laundering in Iraq

- 1- The flight of funds out of the country and the loss of production of its most important elements, which is capital, hinders the production of goods and services, which leads to the decline in national income (Saad and Misgat, 2020).
- 2- Distortions in the functioning of financial markets due to sharp fluctuations in the prices of securities during sharp rises and declines lead to significant losses for investors (Barakat, 2008).
- 3- The volatility of demand for money or the increase in the volatility of money flow and interest rates, these things make it difficult to achieve sound economic policies (Shaheen, 2009).

- 4- Money laundering affects the value of the national currency because of its association with the smuggling of funds abroad, which requires the conversion of this money into foreign currencies, and this means an increase in demand for these currencies and a decrease in the local currency and thus its decline and deterioration (Saad and Misgat, 2020).

Second; Estimating the Magnitude of Hidden Economy and Money Laundering in Iraq 2012-2022

1. Estimating the Magnitude of Hidden Economy in Iraq

The magnitude of hidden economy as a percentage of GDP is estimated based on previous studies as shown in table (1) below.

Table (1) Estimated percentage of the magnitude of hidden economy in Iraq as a percentage of GDP

Basis of Estimation	Ratio estimated by Schnieder and Looney	The percentage added due to the intensity of the factors driving the growth of hidden economy in Iraq	Estimated percentage in Iraq
Comparison Country Ratio (Schnieder))	35.3%	25-35	60-70%
Looney Ratio	65%	60-70%

Source; Jawad , A. (2011). An Analytical Study of the Factors Affecting the Magnitude of Informal Economy in Iraq , Tikrit Journal of Administrative and Economic Sciences, Vol. 7, Special Issue, Iraq.

As shown in Table (1), the magnitude of hidden economy in Iraq ranges between (60-70) % of the officially estimated GDP. Therefore, the average percentage of the magnitude of this economy is (65%) of the GDP. Through this percentage, it is possible to estimate the magnitude of hidden economy in Iraq 2012-2022. Based upon, it is possible to estimate the magnitude of illegal income, which represents 40% of the magnitude of hidden economy as shown in Table (2).

Table (2) Estimating the magnitude of hidden economy in Iraq 2012-2022 (billion dinars)

Year	GDP 1	Hidden Economy 2	Illicit Income 3	Illicit Income/ GDP% 4
2012	245.2	159	63.7	25.9
2013	267.4	173.8	69.5	25.9
2014	260 ± 6	169	67.7	25.9
2015	191	124.6	85	25.9
2016	196.5	127	51.0	25.9
2017	226	146	58.7	25.9
2018	.251	163,2	65.2	25.9
2019	277.9	180.6	72.2	25.9
2020	219.8	142.8	57.1	25.9
2021	301.4	195	78.3	25.9
2022	1/383	249	99.6	25.9

Source:Column (1); Central Bank, Department of Statistics and Research, Annual Economic Report.

Column (2); Multiplying the value of GDP by (65%)

Column (3); Multiplying the magnitude of hidden economy by (40%).

Table (2) shows the magnitude of hidden economy in Iraq (2012-2022). It ranges between (159 and 249) billion dinars. The lowest value is observed in 2015 and the highest value is observed in 2022. The other years understudy fluctuate between high and low. The magnitude of illicit income ranges between (63 and 99) billion dinars. Its ratio of GDP is (25.9%).

2. Estimating the Magnitude of Money Laundering Operations in Iraq 2012-2022

The magnitude of money laundering is estimated as (60%) of the magnitude of illicit income as shown in Table (3).

Table (3) Estimating the Magnitude of Money Laundering Operations in Iraq 2012-2022 (billion dinars)

Year	Magnitude of Illicit Income	Magnitude of Money Laundering operations 2	Money Laundering/GDP Ratio	Money Laundering Ratio/Hidden Economy Magnitude
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	1		3	4
2012	63.7	38.2	15.5	23.9
2013	69.5	41.7%	15.5	23.9
2014	67.7	40.6	15.5	23.9
2015	85	29.8	15.5	23.9
2016	51.0	30.6	15.5	23.9
2017	58.7	35.2	15.5	23.9
2018	65.2	39.1	15.5	23.9
2019	72.2	43.3	15.5	23.9
2020	57.1	34.2	15.5	23.9
2021	78.3	46.9	15.5	23.9
2022	99.6	59.7	15.5	23.9

Source; Multiplying the value of illicit income by (60%), which represents the laundered part.

Table (3) shows that the magnitude of money laundering operations ranges between (38.2 and 59.7) billion dinars. The lowest value is observed in 2015 and the highest value is observed in 2022. The magnitude of laundered money represents approximately (24%) of the magnitude of hidden economy, while its ratio of GDP is (15.5%).

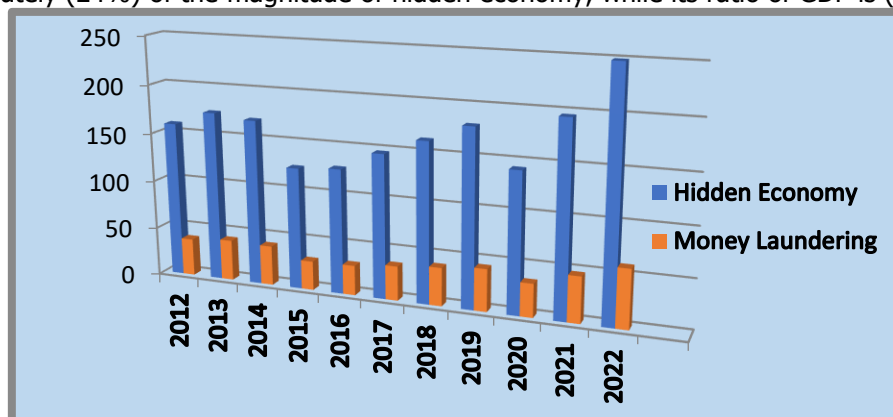


Figure (1) The Correlation Between Hidden Economy and Money Laundering in Iraq 2012-2022

Source: The two researchers based on the data of tables (2 and 3).

CONCLUSION

- 1- The spread of such phenomena as hidden economy and money laundering has many negative consequences on the economy, including the destruction of infrastructure by smuggling operations and the disruption of service projects.
- 2- Hidden economy is not a crime in its entirety but only the illegal part while money laundering is a crime in its entirety.
- 3- Capital flight out of the country leads to a decline in investment at a time when these funds are supposed to be used to create economic development projects that support the national economy.
- 4- The high magnitude of hidden economy in Iraq is due to the low levels of local production of goods in the public sector as a result of the suspension of most production lines as a result of the massive destruction of state companies.
- 5- The high percentage of hidden economy leads to an increase in money laundering due to the increase in illicit income, which constitutes a high percentage of GDP and impacts the national economy.

RECOMMENDATIONS

- 1- Providing a stable and secure economic environment, activating control over all transactions that take place within the national economy, seeking to control external borders to reduce smuggling operations, and imposing fines on importers and promoters of counterfeit and inferior goods.
- 2- Combating administrative and financial corruption as it is one of the core reasons contributing to the spread of the phenomenon of hidden economy and money laundering in Iraq by enhancing the role of public integrity by all possible means.
- 3- Monitoring banks and identifying the sources of the funds that are deposited because banks are the most important channel used to pass illicit funds and legitimize them.



- 4- Reducing the magnitude of hidden economy by addressing the economic imbalances in Iraq, such as inflation, unemployment, poverty, and low wages that push individuals to enter hidden economy as a means of coping with the burden of living.
- 5- Supporting the legal and legitimate part of hidden economy represented by small projects through tax exemption or reduction, the ease of obtaining the required licenses and providing ways to ensure that these projects join the formal economy.

REFERENCES

1. Al-Mabrouk, A. (2006). Causes, Magnitude, and Economic Impacts of Hidden Economy in Libya, *Journal of Economics and Economic Sciences*, Al-Fateh University in Libya , Issue 5, p. 7.
2. Ali, O. (2007). Hidden Economy in Libya , Research and Statistics Department, Central Bank of Libya, p. 8.
3. Central Bank, Department of Statistics and Research, Annual Economic Report.
4. Ali , B. (2008). Causes and Solutions of the Problem of hidden economy in Algeria, *Journal of Human Sciences*, p.374, Algeria.
5. Houria, B. (2014).Informal Economy in Algeria: A Study of the Parallel Exchange Market, An MA Thesis, University of Oran, p. 35.
6. Abduladhim, H. (1997). Money Laundering in Egypt and the World, House of Studies in International Economics, p. 10, Cairo.
7. Kadhim, R. (2021). Economic Impacts of Hidden Economy on Iraq, *Al-Kut Journal of Economic and Administrative Sciences*, Vol. 13, No. 39, p. 332.
8. Mahmoud, R. and Ramzi, M. (2019). Shadow Economy Mafias and Offshore Banks, University Education House, p. 13, Alexandria, Egypt.
9. Kadawi, T. and Tajuddin, M. (2007). The Mutual Impact between Money Laundering and hidden economy: A Case Study of Some Developed and Emerging Countries 1990-2002), *Al-Rafidain Development Journal*, 87 (29), pp. 86-87.
10. Hameed, T. (2014). The Effect of Implementing Anti-Money Laundering Mechanisms in the Banking System in Iraq on Reducing the Spread of this Phenomenon: A Field Study in a Sample of Private Banks, *Journal of Baghdad College of Economic Sciences*, No. 39, p. 193.
11. Andrews, A. (2005). Concepts , Components , and Causes of Shadow Economy, , University Youth Foundation, Alexandria , p. 78.
12. Jawad, A. (2011). An Analytical Study of the Factors Affecting the Magnitude of Informal Economy in Iraq, *Tikrit Journal of Administrative and Economic Sciences*, Vol. 7, Special Issue, p. 195, Iraq.
13. Mustafa, A. (2009). Tax Evasion and Black Economy, New University House, p. 36, Alexandria, Egypt.
14. Al-Sharqawi, A. (2006). Tax Evasion and Black Economy, New University Publishing House, p. 15, Alexandria.
15. Awadallah, A. (2003). The Role of Banks in Combating the Economic Impacts of Money Laundering Operations, *Al-Nahda Al-Arabiya Publishing House*, p. 53, Cairo.
16. Barakat, A. (2008). Economic and Social Impacts of the Phenomenon of Money Laundering at the Global Level, *Journal of North African Economics*, No. 4, p. 223.
17. Abdulhameed, A. (2001). The Correlation Between Globalization and the Economics of Banks, University House, pp. 238-239, Alexandria.
18. Shaheen, A. (2009). Banking Strategies to Combat Money Laundering and Ways to Develop Them: An Applied Study on Banks Operating in Palestine, *Journal of the Islamic University*, Vol. 17, No. 2, p. 655.
19. Hussein, A. (2020). Implications of Hidden Economy for Economic Development, Fourth Conference, University of Tikrit, No. 16, p. 148.
20. Arab Institute for Training and Statistical Research, (2004). A Study on the Informal Sector, p. 13, Yemen.
21. International Labor Office, (2014). The Transition from the Informal to the Formal Economy, International Labour Conference, Fifth Report, p. 4, Geneva, Switzerland.
22. Saad, M. and Masjit, F. (2020). Causes, Impacts, and Ways to Limit the Spread of the Phenomenon of Money Laundering in Iraq, Fourth Scientific Conference, University of Basra, Faculty of Administration and Economics, p. 11.
23. Salih, H. (2008). How Today's Economy Works, 1st Edition, Al-Obeikan Publishing House, p. 91, Riyadh, Saudi Arabia.
24. Al-Rajhi, Y. (2021). The Role of Shadow Economy in Economic Growth, MA Thesis, University of Karbala, p. 34.
25. Vito. T. (1980). Estimations and Implications of Underground Economy in the United States, *Bance national, Review*, N135, p. 428.



26. International Labor Office (ILO), (2004). *Woman and Men in the Informal Economy*, Employment Sector, p. 12, Geneva.
27. Choo, K. (2015). Cryptocurrency and Virtual Currency: Corruption and Money Laundering/Terrorism Financing Risks? In *Handbook of Digital Currency*, 283–307, Elsevier.
28. Gee, S. (2014). *Fraud and Fraud Detection, + Website: A Data Analytics Approach*, John Wiley and Sons.
29. Krsteski, N. (2020). Concept, Definition and Characteristics of the Money Laundering Phenomenon, *Journal of Process Management and New Technologies*, 8 (2).
30. Kumar, V. (2012). Concept, Significance, and Impact of Money Laundering, *European Journal of Business and Management*, 4 (2).
31. Atif, U. Naveed, N. and Munawar, S. (2023). Intelligent Anti-Money Laundering Fraud Control Using Graph-Based Machine Learning Model for the Financial Domain, *Journal of Cases on Information Technology*, 25 (1): 1–20.