Economic Consequences of Anti-money Laundering Regulations: Investigating the Impact on GDP Per Capita across Global Economies

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Abstract

Money laundering is a financial crime that undermines the performance and integrity of financial markets. It is a process through which offenders conceal the origin and control of proceeds derived from criminal activities. The International Monetary Fund (IMF) has established initiatives to combat money laundering and terrorism financing. The Basel AML score provides a quantitative assessment of the effectiveness of measures taken to address money laundering and terrorism financing. This study examines the impact of anti-money laundering (AML) efforts on GDP per capita. The analysis spans the period from 2012 to 2020 and includes 110 countries categorized as low-income, lower-middle-income, upper-middle-income, and high-income economies. The research findings confirm a negative relationship between AML performance and GDP per capita across all economic groups. An increase in the Basel AML (Anti-Money Laundering) score typically signals a heightened risk of non-compliance with AML regulations or greater exposure to money laundering and terrorist financing. Higher Basel AML scores are associated with lower levels of GDP per capita. Poor AML performance undermines investor confidence, as such countries are perceived as high-risk environments, deterring foreign investment. Moreover, high AML risks indicate vulnerabilities in the financial sector, limiting access to international financial markets and restricting capital flows. The findings of this study underscore the importance of targeted policies to enhance transparency and financial sector resilience, thereby mitigating the adverse effects of poor AML performance on economic development.

Keywords: Anti-money laundering Regulations, GDP per capita, Economic Growth, Macroeconomic instability

1. Introduction

Money laundering has a monetary, political and social costs that can debilitate the social texture of money related and law-based establishments. It brings financial mutilations, disinvestment, loss of incomes, political unsteadiness and hens the execution of a nation. It diminishes the government revenues which provoke them to impose more taxes. The tax rate implies with higher rate as compared to regular rate. It additionally, the activities of the state weaken and it brings fluctuations into their economies. The International Monetary Fund (IMF) has assessed the range in the vicinity of two and five for each penny of the world's GDP, washed on the planet. Henceforth, the issue of illegal money transfers is imperative and significant for each nation.

Money laundering has a detrimental economic impact, undermining financial systems and economic stability (Levi, 2022; Chen, 2022). It distorts legitimate business competition by enabling criminal enterprises to outcompete lawful entities, often through lower pricing enabled by illicit funds (Stack, 2021; Ang, 2022). This creates unfair market conditions and discourages honest businesses. Moreover, it hampers foreign investment, as nations perceived as havens for money laundering face diminished investor confidence. Money laundering also burdens regulatory and law enforcement systems with high investigation and compliance costs (Zavoli & King, 2021; Kilyachkov & Chaldaeva, 2021). Over time, it can destabilize economies, as vast sums diverted into illegal channels reduce tax revenues, stifling public services and sustainable economic growth (Osei & Acheampong, 2021).

In the course of the most recent couple of decades, the worldwide marvel of money laundering has been an expanding interest internationally. It does not make issues for a parent economy rather its belongings are worldwide in nature (Mohsin et al., 2021; Ciupac, 2020; Roussel et al., 2021). The force of launderers is more probable in developing nations as a result of their qualities and traits as the tax criminals effortlessly do their act. Most of these nations are delegated unregulated and casual so the accomplishment of money laundering misuses the productive resources. This is the reason that numerous developing nations lose the control of their household financial strategies. Building up nations' systems to set up offshore budgetary focuses (OFCs) as vehicles for financial improvement are likewise hindered by noteworthy money laundering action through OFC channels. Compelling hostile strategies to constrain illegal money holdings fortify an assortment of other great administration approaches that assist to maintain monetary advancement.

To combat money laundering, the anti-money laundering Law (AML) has been recognized by "Financial Reporting Centre "(FRC) and "Assets Recovery Agency" (ARA) to limit the criminal act of money laundering. An effective anti-money laundering law (AML) framework can implement strategies to reduce the profitable aspects of criminal activities effectively. The higher value of AML index augments the veracity and stability of financial segments, which in turn benefits the global financial system. The global financial organizations can depict the countries complex in money laundering, when the quantity of laundered money ultimately streams into the global monetary system.

Money laundering brings the macroeconomic instability through overvalued exchange rate, higher inflation and unemployment. Money laundering reduces the domestic credit to private sector. The lower levels of investment results in lower quantity of goods and services and increases unemployment into the economy. The high rate of inflation reduces the purchasing power of the consumer, less aggregate demand and instable price level. The higher inflation rate actually bring the high cost of goods and services for the public. The most effected element is exchange rate variability due to money laundering. In foreign exchange markets, there are a lot of actors affecting the exchange rate such like hedgers, money brokers, foreign exchange traders and the companies which transfer the funds. Exchange rate variability indicates the continuous change in the foreign exchange market as it depends on the market, location and bank. As we have mentioned before, launderers choose the safe and secure places for money laundering where there are less chances to detect. These factors affect the purchasing power parity (PPP) exchange rate[1] which results in overvaluation and under valuation of the exchange rate. The overvalued exchange rate in turn imbalances the trade and current account. The acceleration effect of the three indicators (inflation, unemployment and exchange rate variability) of macroeconomic instability allow economy to indulge in corruption and criminal activities.

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The existing literature on the relationship between money laundering and economic growth highlights its detrimental effects, yet significant gaps remain. Earlier studies, such as Quirk (1996), provided preliminary evidence of this loose relationship, which was later updated by Ferwerda and Bosma (2005). While researchers like Kleemans (2007) explored the broader consequences of money laundering—ranging from political instability and terrorism to financial sector reputation and macroeconomic volatility—they did not explicitly analyze macroeconomic instability as a by-product of money laundering's impact on economic performance. This study addresses this gap by incorporating macroeconomic instability into the analysis to examine its effect on economic growth. Additionally, it introduces an alternate proxy, the anti-money laundering index, to evaluate potential reverse effects, providing a more comprehensive understanding of the phenomenon.

The study aims to achieve several objectives: to examine the impact of money laundering on economic growth, to analyze the influence of macroeconomic stability, corruption and terrorist incidents on economic growth, and to conduct a heterogeneity analysis to evaluate how money laundering affects economic growth across different income groups, including low-income, lower-middle-income, upper-middle-income, and high-income economies. Studying the economic impact of money laundering is crucial as it disrupts investment, reduces tax revenues, and distorts markets. It undermines financial stability and growth, highlighting the need for targeted policies to promote transparency and resilience. Furthermore, by analyzing its differential impact across income levels, the study provides valuable insights for tailoring interventions in low, middle, and high-income economies.

2. Literature Review

Masciandaro (2006) developed the macroeconomic model which portrays the connection between the money laundering, illegal sector and legal sector. The model presented depicts theconditions a possible interaction can happen among the general anti-crime policies and anti- money laundering regulation. The model also shows the impact of money laundering on lawful income and concludes to anti-money laundering regulations are effective. Amali (2016) examined that the money laundering activities, the economic activities and financial crimes which bring the government budget deficits anddestabilize their local markets. The money laundering influences the financial behaviour andmacro-economic performance in many ways i.e. policy mistakes, instability in interest rates, unpredicted cross border transfers of funds; the monetary uncertainty due to asset structures; tax collection and public expenditure allocation. It further exploits the reporting of revenue, misappropriation of resources, misrepresentations in asset and commodity prices. It also associated the legal transactions have possibility of being associated with crime.

Camera (2001) has established a model of general equilibrium in which it closely observed the associations between the accessibility of currency and the degree of unlawful economic activities happened. According to Bartlett (2002) the role of money laundering facilitates is to provide illegal platform of capital flight from developing economies. In addition, it also observed that the financial institutions in the developing countries could be destroyed through the different means i.e. the possibility that the institutions itself been involved in illegal activities; and theindividual customers could be deceived by the corrupt staff of the institutions (Shair et al., 2024a; 2024b). Mbwayo (2005) investigate on the strategies related to anti-money laundering compliance programs applied bycommercial banks in Kenya. He found the detection of criminal proceeds become greater through the anti-money laundering measures which implemented in financial institutions.

Azevedo Araujo (2006) have examined the money laundering in a Sidrauski framework and have derived its optimal conditions. They show that the effectiveness of anti- money laundering positively affects consumption. They have also established the equilibriumsolutions for the legal and illegal activities. The steady state results revealed that the welfare of the economy is greater where only legal activity exists, than in an economy where legal andillegal activities coexist. Araujo (2006) builds a general equilibrium model to show that how money laundering and terrorism coexist. The model showed that to combat money laundering is an effective wayof preventing terrorist actions. The results revealed that these actions do not affect the optimalstock of capital goods but have a negative impact on per capita consumption. Mutheu (2008) observed that enactment of law is a positive move by the players in the country's banking and financial services sector, through which country's protest against money laundering in the country and region. Azinge-Egbiri (2021) attempt to explain that why development agencies have become increasingly concerned with establishing anti-money laundering (AML) regimes in developing countries. It is very hard to find any substantial evidence for the impact of money laundering on economic growth and development. Li (2023) studied the effectiveness of antimony laundering regulation for consumption and on equilibrium situation of legal and illegal activities within an economy. These results conclude that welfare of economy stand where there exit more legal activities.

Farfán-Méndez (2019) proposed a theoretical model emphasizing that effective anti-money laundering measures reduce criminal activities, enhancing preventive actions. Toroitich (2010) highlighted the adverse effects of money laundering on Africa's economic development, noting its impact on authentic businesses, financial systems, tax revenue, and government control. Aluko and Bagheri (2012) explored the global phenomenon of money laundering, showing its detrimental effects on political and economic stability, with developing countries being more vulnerable. Ulvedal and Mehlum (2013), in a cross-sectional study of 41 developing countries, found macroeconomic instability negatively affects growth, particularly through high debt and inflation, although the economic significance remains weak. Collectively, these studies underscore money laundering's pervasive impact on growth and stability.

Borlini (2008) highlighted the link between globalization and money laundering, noting that while globalization benefits the global economy, it introduces costs like the international laundering of illicit funds. Levi & Reuter (2006) emphasized the economic consequences of money laundering, estimating global annual laundering at $500 billion, approximately 2% of global GDP, and showing its negative impact on money and currency demand. Skinner (2023) revealed inefficiencies in anti-money laundering practices of central banks in Australia and Ukraine, advocating for improved internalization of these measures. Aluko and Bagheri (2012) argued that countries struggle to prioritize anti-money laundering measures alongside macroeconomic stability. Hinterseer (2002) found that money laundering negatively impacts economic development in African states by depressing legitimate businesses and disrupting financial institutions, highlighting its adverse effects on bank performance. These studies collectively underline the pervasive economic risks posed by money laundering and the need for robust regulatory responses.

3. Econometric framework

3.1. Data sources

The sample period for our analysis is from 2012 to 2016 for 110 world economies consisting of main four sub groups. Essentially, we are bound to conduct two analyses in our research framework for different income groups of the world economies individually as well as full sample countries. Fortunately, dependent and set of explanatory variables are common in our each of the frameworks. The data source used for the dependent variables "gross domestic product per capita" (GDPPC) is World Development Indicator (WDI), Basel AML Index, Global terrorism data base (GTD) and World Governance Indicators (WGI).

3.2. Econometric Methodology

This study aims to analyze the influence of anti-money laundering (AML) measures, macroeconomic instability, and financial development on economic growth. To achieve this, the empirical model incorporates key variables to examine their relationships with growth dynamics. The general form of model is expressed as follows:

$$gdppc_{it} = \alpha_0 + \alpha_1 aml_{it} + \alpha_2 amii_{it} + \alpha_3 dc_{it} + \alpha_4 cor_{it} + \alpha_5 inc_{it} + \epsilon_{it} \qquad (1)$$

In the above equation, $gdppc_{it}$ indicates GDP per capita which is taken as a dependent variable. On the right hand side of equation while the aml_{it} indicates anti-money laundering index, $amii_{it}$ shows macroeconomic instability as independent variable which consists inflation, exchange rate and unemployment rate. In addition, dc_{it} indicates domestic credit to private sector and inc_{it} is the incidence of terrorist attacks.

The equation 1 will be run by using the Pooled regression mode, Fixed effect, Random effect and Generalized Method of Moments (GMM). Fixed effect models address unobserved heterogeneity constant over time by differencing data. They assume individual effects relate to exogenous variables and are categorized as one-way (cross-sectional variant intercept) or two-way (time-dependent intercept with time dummies). Key references include Asteriou and Hall (2007) and Gujarati (2009). Random effect models analyze panel data by assuming no fixed effects and accounting for unobserved heterogeneity constant over time. They remove time-invariant elements through differencing and assume individual effects are uncorrelated with regressors, offering advantages over fixed effects if underlying assumptions are met (Gujarati, 2009).

This study emphasizes the importance of addressing endogeneity and causal relationships in analyzing the impact of institutions on sustainable development. Macroeconomic instability is identified as an endogenous factor affecting economic growth, further complicated by the inclusion of variables like anti-money laundering, domestic credit, corruption control, and terrorism. To address these issues, the Generalized Method of Moments (GMM) methodology is applied, which effectively manages heteroskedasticity, serial correlation, and endogeneity. System GMM, as proposed by Arellano and Bond (1991) and Blundell and Bond (1998), is particularly suitable for growth evaluation, enabling the efficient use of lagged variables as instruments. This approach ensures robust results in assessing the dynamic effects of institutional and macroeconomic factors on growth.

3.3. Construction of Variables

3.3.1. Gross-domestic Product Per Capita

The dependent variable is per capita gross domestic product. It is defined as value of the current and final market value of all goods and services produces in a country within one year (GDP) divided by population.

3.3.2. Basel AML Index for Anti-Money Laundering

The process which prevents money laundering to be happen is called Anti-Money Laundering (AML). The definition of 'criminal income by money laundering' differs by authority (some actions are illegal in some republics and not in some others). Likewise, the goals of AML are not essential for the different authorities. The purposes might comprise discouraging and noticing prepared crime, to decrease drug trade, to daunt terrorism or to uphold the status of the financial amenities (Yeandle, et al. 2005). Scores range from 0 (low risk) to 10 (high risk), highlighting the effectiveness of AML measures and associated risks.

3.3.3. Macro Stability

The procedure for the construction of macro instability index (MII) is as follows two steps: At the first step to construct macro instability index, all indicators (exchange rate variability, inflation and unemployment) are not in the similar units and have different ranges(these have different minimums and maximums values). Therefore, it seems not sensible to sum their values or to take their average in order to obtain a composite index. In order to circumvent these problems, individual series are normalized in the range of 0 and 1. So individual indices are constructed by following this method:

$$I_t = \frac{(X_t - X_{min})}{X_{max} - X_{min}}$$

Where I_t mentions to the indicator worth of variable X_t, in year t, X_t refers to the real value of indicator X in year t, and X_{max}, X_{min} refers to the maximum (minimum) value of indicator X. Now all sub-indices have common ranges, i.e. $I \in [0,1]$. In step 2, we assign weights to all sub-indices by applying the Principal Component Methodology. Based on these weights, MII is constructed which is also bounded between 0 and 1 i.e. $MII \in [0,1]$.

$$MII = \sum_{i=1}^{3} \omega_i I_i$$

Where ω is the weight of sub indices. It can be written as follow:

$$MII = \frac{\omega_1 * INF + \omega_2 * UN + \omega_3 * ERV}{3}$$

Where $\omega_1 > 0$, $\omega_2 > 0$ and $\omega_3 > 0$ are the weights of Inflation,, budget deficit, BD, and exchange rate variability, ERV, respectively. These weights are calculated by using Principal Component Methodology (PCM).

3.3.4. Financial Development

The series of financial development is calculated by domestic credit as a share of GDP which is distributed to concealed sector. It is the total sum of c4redit which is circulated by the financial mediators to the concealed sector. Domestic credit to private sector is consider as the pecuniary support to the concealed sector by some financial agencies, for example by loans, acquisition of no equity securities, and exchange credits and receivable accounts, which can setup a assert for reimbursement.

For some economies these asserts comprise credit to public endeavor. The financial corporations including fiscal powers and cash store banks, alsothe other financial corporation's where the information is accessible (as well as those corporations which doesn't agree to transfer deposits yet they do welcome such liabilities. Money laundering can weaken the soundness of a country's financial sector, as well as the stability of individual financial institutions in multiple ways.

3.3.5. Incidence of terrorism
The incidence of terrorism in a country refers to the frequency and occurrence of violent acts or threats by individuals or groups aimed at instilling fear, influencing political or social outcomes, and disrupting peace and security within the nation.

3.3.6. Terrorism Incidents
The terrorism incident measured as the total number of terrorism-related incidents per year.The source defines a terrorist attack as: "the threatened or actual use of illegal force and violence by a non-state actor to reach a radical, financial, spiritual, or social goal through fear,pressure, or pressure." The data source is Global Terrorism Database (GTD).

4. Results and Discussion
4.1. Descriptive Statistics
The descriptive statistics of the variables used in study is presented in table 1. The result shows that the average GDP per capita among the countries included in the full sample is USD14902. The minimum value is USD300.79 and the maximum value is USD119172.74. The deviation value from mean is 20969. On average the anti-money laundering (AML) valueis 5.77. The minimum and maximum value is 2.36 to 8.61. The standard deviation value is 1.20. The macroeconomic instability (MII) mean value is 0.00. Its minimum and maximum value ranges from -0.03 to 2.40. The standard deviation from mean is 1.04. The mean value of corruption (COR) is 0.02.

The range of minimum and maximum value varies from -1.67 to 2.40. The deviation from mean value measures as 1.04. The descriptive result shows that the average value of domestic credit provided by financial sector (% of GDP) among the countries included in the full sample is 78.87. The minimum value is -2.11 and the maximum value is 357.32. The domestic credit provided by financial sector is highly deviate from mean is 64.55.The average number of terrorist's incident is 72.13. The range of terrorist incident occurs formhighest (2214) to lowest (0.00). The standard deviation is 256.61 from the mean value.

Table 1: Descriptive Statistics (Full Sample Economies)

	GDP	AML	MII	COR	DC	INC
Mean	14902.2	5.77	0	0.02	78.87	72.13
Median	5421.34	5.72	-0.06	-0.3	57.05	2
Maximum	119173	8.61	3.18	2.4	357.32	2214
Minimum	300.79	2.36	-2.96	-1.67	-2.11	0
Std. Dev.	20969.5	1.21	1.46	1.04	64.55	256.61

Table 1a: Descriptive Statistics

	GDP	AML	MII	COR	DC	INC
			High Income Economies			
Mean	38844.1	5.45	-0.01	1.3	134.43	10.45
Median	39426.6	5.1	-0.06	1.53	137.23	1
Maximum	119173	8.61	2.57	2.4	357.32	293
Minimum	950.02	2.51	-2.74	-0.41	12.77	0
Std. Dev.	23357	1.38	1.41	0.79	73.42	29.83
			Upper-middle Income Economies			
Mean	7881.22	5.79	-0.03	-0.35	66.75	15.67
Median	7437.18	5.82	-0.11	-0.4	60.72	2
Maximum	13574.7	7.38	2.58	0.76	215.03	231
Minimum	3843.75	4.02	-2.23	-1.13	-2.11	0
Std. Dev.	3025.89	0.91	1.43	0.41	40.45	40.5
			Lower-middle Income Economies			
Mean	2277.45	6.15	0	-0.66	46.13	153.01
Median	2017.56	6.4	0	-0.74	43.84	1.5
Maximum	4804.62	8.34	3.18	0.79	128.35	2214
Minimum	615.59	2.36	-2.73	-1.67	0.63	0
Std. Dev.	1095.91	1.09	1.5	0.48	23.54	361.81
			Low Income Economies			
Mean	760.35	6.03	0	-0.59	25.56	139.3
Median	688.75	5.72	-0.09	-0.67	20.51	4.5
Maximum	2513.88	8.55	2.74	0.76	86.14	1927
Minimum	300.79	3.3	-2.47	-1.61	-2.08	0
Std. Dev.	447.42	1.42	1.41	0.56	18.04	428.23

The descriptive statistics for economies of varying income levels is presented in appendix Table 1a. The descriptive statistics reveal distinct patterns across GDP, anti-money laundering (AML) measures, macroeconomic instability index (MII), corruption control (COR), domestic credit (DC), and incidence of terrorism (INC). High-income economies exhibit the highest GDP (mean: $38,844), stronger AML (mean: 5.45), and higher DC (mean: 134.43), with relatively low INC (mean:

10.45). Upper-middle-income economies have moderate GDP (mean: $7,881), AML (5.79), and DC (66.75), with slightly higher INC (15.67). Lower-middle-income economies show lower GDP (mean: $2,277), higher INC (153.01), and moderate AML (6.15). Low-income economies exhibit the lowest GDP (mean: $760), moderate AML (6.03), and the highest INC (139.3), highlighting disparities in economic, financial, and stability indicators across income levels.

4.2. Regression Analysis

To investigate the impact of money laundering, macroeconomic instability on economic growth, the panel data conventional estimation techniques such as Fixed Effect (FE), Random Effect (RE) and Pooled OLS has been employed. However, the problem with these method is that they could not tackle the problem of endogeneity and heteroscedasticity. A prominent econometric technique to avoid the aforementioned problems of endogeneity, reverse causality, heteroscedasticity and autocorrelation is Generalized Method of Moment (GMM).

Tables 2 presents the relationship between money laundering, macroeconomic instability and other control variables with economic growth of different income economies. Before moving to interpret the results obtained through GMM, we checked the appropriateness and adequacy of the model. The appropriateness and adequacy of model is tested by using Arellano-Bond (AR) test and Hansen test of over identify limits. The null hypothesis of Arellano-Bond(AR 2) test states that instruments are applicable, i.e Instruments are not correlated with error term. The probability value of Arellano-Bond AR (2) ranges from 0.2- 0.5, which is enough high to accept null hypothesis that instruments are valid. While, the null hypothesis of Hansen test states that instruments as a group are exogenous, i.e they are the truerepresentors of the endogenous variables. The probability value of Hansen test ranges to 0.1-0.7 indicating that instruments as a group are exogenous, i.e truly represents the nature of endogenous variable.

Anti-money laundering (AML) refers to a "set of procedures, laws and regulations designed to stop the practice of generating income through illegal actions" .State Bank of Pakistan have issued the booklet "Anti-Money Laundering/ Combating the Financing of Terrorism" to clearly give instruction regarding money laundering (SBP, 2016). The findings reveal that there is a negative and significant impact of AML to the GDP in full sample, high income, upper-middle and low-income economies. The marginal effect ranges from -1119 to -9076. It shows that these countries are not properly followed the banking regulation regarding Anti-money laundering. The negative effect of AML on GDP per capita only confirm in lower-middle economies (Veiga et al., 2008; Mauro, 1995). An increase in the Basel AML (Anti-Money Laundering) score typically signals a heightened risk of non-compliance with AML regulations or greater exposure to money laundering and terrorist financing. Higher Basel AML scores are associated with lower levels of GDP per capita. Poor AML performance undermines investor confidence, as such countries are perceived as high-risk environments, deterring foreign investment ((Issaoui et al., 2017)). Moreover, high AML risks indicate vulnerabilities in the financial sector, limiting access to international financial markets and restricting capital flows.

The empirical findings approve the presence of cointegration between macroeconomic instability and gross domestic products. The macroeconomic instability has profound and damaging impact on gross domestic product (Ali & Rehman, 2015). Macroeconomic instability (MII) has negative and statistically significant impact on economic growth in full sampled economies and results are consistent with the previous findings (Bleaney, 1996; Levine & Renelt, 1992). This negative association indicates that higher the level of Macroeconomic instability; lower the GDP per capita. The reason behind is the high inflation which increases cost of capital. The increase of cost of capital impedes level of investment and capital accumulation, which ultimately reduces the economic growth. The high inflation leads to inflation tax and diminishing the incentive to work. The less incentive to work means the rise of unemployment and lower of per capita income (Mundell, 1963; Tobin, 1965). The coefficient of Macroeconomic instability is observed within the range of -305 to -479 for different set of income econometric models. It implies that a one percentage point increase in MII is associated with a decrease in the per capita GDP by 305 to 479 percentage point.

Levine (2004) define mobilization and pooling of savings as one of the dimensions of financial development. It influences the saving and investment decisions and hence economic growth. In our study we employed domestic credit provided by financial sector to measure the financial efficiency of financial institutes for the economic growth. In all group income economies, the impact of domestic credit provided by financial sector on economic growth is negative and significant. The coefficient value shows that the role of that financial institutes in the growth process vary, from country to country, depending on the rule of law, level of political freedoms and property rights protection. Aghion and Howitt (2009) proposed that well-functioning financial institutions can make the productive use of investor lend money by granting the domestic credit rather than private consumption.

Corruption shows positive and significant effect on GDP per capita, which is consistent with the findings of Mo (2001). Some of the authors (Acemoglu and Verdier, 1998; Huntington, 1968; Leff, 1964) believed that corruption might be needed because it works like piece-rate pay for bureaucrats, which provokes them to perform government services efficiently, more efficient provision of government services. It provides opportunities to businesses to complete their projects without indulging in inefficientregulations. From this perspective, corruption acts as a lubricant which smooth the operations and, hence, raises the efficiency of an economy. The negative effect of corruption lead to develop the income inequality by only favouring certain group of people. Through which the investment opportunities become emaciated and ultimately lead to economic degradation (Mauro, 1995).

The terrorism incident impact on economic growth is insignificant in all income groups except low income economies. It has been observed that terrorism hinders economic growth (Öcal & Yildirim, 2010). It also been revealed that the effect of terrorism in low income economies is more than three times as compared to high income economies (Çinar, 2017). The positive economic consequences of terrorist incidents can be segregated into short-term effects; medium-term effects; and longer-term effect. The short-term effect of terrorist incidents may lead to destruction of lives, property, and infrastructure. The medium aftermath of terrorist incident is undermined consumer and investor confidence. This could affect the normal business cycle of the economy on nationally and internationally. Moreover, the long run effect of terrorism may hinder productivity by rising the costs of transactions. It increased the securitymeasures and counterterrorism regulations (Johnston & Nedelescu, 2006).

Table 2: Results for Full Sample: Dependent Variable; GDP per Capita

	OLS	FE	RE	RE Robust	GMM
MII	-479.2	-305.5***	-354.9***	-354.9***	-441.5*
	(355.2)	(81.36)	(89.33)	(114.3)	(246.3)
DC	59.97***	-79.38***	-7.019	-7.019	-219.2***
	(10.82)	(14.02)	(12.52)	(21.12)	(80.54)
AML	-1,255***	-1,119**	-532.3	-532.3	-9,076**
	(439.0)	(446.5)	(445.8)	(484.1)	(4,089)
COR	15,337***	2,316*	11,776***	11,776***	538.6
	(683.9)	(1,338)	(970.3)	(1,763)	(7,031)
INC	2.472	0.349	-0.513	-0.513	-3.322
	(2.005)	(1.478)	(1.552)	(0.675)	(9.979)
L.GDP					0.259
					(0.212)
Constant	2,904	28,555***	18,846***	18,846***	
	(2,800)	(2,846)	(3,029)	(3,763)	
Observations	498	498	498	498	279
Hausman				0.33	
				(0.13)	
AR1					0.21
AR2					0.36
R-squared	0.722	0.151			0.38
Number of idc		110	110	110	104

*Standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)*

Table 3. Results High Income Countries: Dependent Variable; GDP per Capita

	OLS	FE	RE	FE Robust	GMM
MII	-1,268	-722.0***	-855.3***	-722.0**	-749.0
	(904.7)	(260.3)	(266.7)	(347.7)	(816.2)
AML	-3,682***	-3,970***	-1,180	-3,970***	-25,441*
	(913.2)	(1,383)	(1,200)	(1,218)	(12,912)
COR	19,935***	7,909*	17,221***	7,909**	6,001
	(1,809)	(4,143)	(2,863)	(3,459)	(15,690)
DC	34.75*	-100.9***	-41.43	-100.9***	-130.0*
	(19.99)	(30.32)	(25.38)	(26.92)	(74.71)
INC	-3.887	-7.151	-8.070	-7.151	-8.378
	(39.88)	(17.49)	(18.24)	(12.66)	(37.80)
L.GDP					0.199
					(0.213)
Constant	-9,545	65,870***	30,562***	65,870***	
	(6,087)	(11,093)	(8,762)	(9,714)	
Observations	159	159	159	159	91
Hausman				26.28	
				(0.00)	
AR1					0.03
AR2					0.67
Hansen					0.190
R-squared	0.551	0.272		0.272	
Number of idc		34	34	34	33

*Robust standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)*

Table 3 analyzes the relationship between various factors and GDP per capita in high-income countries using different econometric models. The MII shows a significant negative impact on GDP per capita in FE and RE models, suggesting institutional challenges may hinder economic performance. Anti-Money Laundering (AML) exhibits negative effects, being negatively significant in OLS but negatively significant in FE and GMM models, indicating differing short-term and structural influences. Corruption (COR) positively correlates with GDP per capita, with significant effects in OLS, RE, and FE models, suggesting complex dynamics where corruption might coincide with economic growth in specific contexts. DC shows mixed results, with significant negative impacts in FE and GMM models, reflecting the nuanced relationship between democratic governance and GDP. Lastly, the lagged GDP variable (L.GDP) in the GMM model shows no significant persistence. These findings highlight varying effects across governance and institutional factors.

Table 4 explores the impact of various factors on GDP per capita in upper-middle-income countries using multiple econometric models. The MII has a consistently significant negative effect across most models, highlighting the role of institutional challenges in limiting economic growth. Democracy (DC) shows no significant relationship with GDP, suggesting a weaker connection between democratic governance and economic performance in these countries. Anti-Money Laundering (AML) has insignificant effects, with an exception to GMM model where it is significant negative, indicating potential costs associated with compliance measures. Corruption (COR) shows positive effects in OLS and RE models but becomes negative and insignificant in GMM, reflecting diverse impacts depending on the model. INC and lagged GDP (L.GDP) show no substantial significance. These findings underscore the nuanced and context-dependent effects of institutional and governance factors on economic outcomes.

Table 4: Results Upper Middle Income Countries: Dependent Variable; GDP per Capita

	OLS	FE	RE	RE Robust	GMM
MII	-245.6	-226.7***	-229.9***	-229.9***	-384.4**
	(175.3)	(54.79)	(53.73)	(84.25)	(185.6)
DC	2.253	-11.43	-5.370	-5.370	-61.76
	(5.915)	(10.39)	(7.807)	(8.607)	(67.02)
AML	-146.7	-92.08	-93.82	-93.82	-2,874*
	(294.2)	(281.6)	(256.3)	(391.5)	(1,686)
COR	553.1	114.5	223.2	223.2	-8,151
	(654.4)	(939.0)	(774.8)	(1,032)	(5,050)
INC	0.873	-1.540	-1.283	-1.283	-1.818
	(2.870)	(1.874)	(1.787)	(2.447)	(8.705)
L.GDP					0.0363
					(0.209)
Constant	7,258***	8,523***	8,115***	8,115***	
	(1,825)	(1,800)	(1,709)	(2,174)	
Observations	131	131	131	131	75
Hausman				0.97	
				(0.96)	
AR1					0.563
AR2					0.924
Hansen					0.65
R-squared	0.027	0.176			
Number of idc		28	28	28	27

*Standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)*

Table 5: Results Lower Middle Income Countries: Dependent Variable; GDP per Capita

	OLS	FE	RE	RE Robust	GMM
MII	-115.4**	-93.81***	-95.84***	-95.84***	-96.51**
	(58.02)	(14.03)	(13.90)	(24.19)	(40.45)
DC	11.34***	6.443	8.003**	8.003	-15.25
	(3.793)	(4.203)	(3.716)	(8.671)	(10.91)
AML	-57.45	-119.4*	-97.16	-97.16	-479.6
	(78.99)	(71.96)	(65.81)	(61.52)	(342.6)
COR	564.2***	-48.88	93.79	93.79	245.0
	(187.8)	(216.0)	(188.5)	(307.7)	(275.4)
INC	-0.468*	-0.409**	-0.414***	-0.414*	-0.227
	(0.239)	(0.157)	(0.149)	(0.213)	(0.373)
L.gdp					0.0349
					(0.152)
Constant	2,596***	1,328**	1,423***	1,423**	
	(577.6)	(510.6)	(503.9)	(577.4)	
Observations	141	141	141	141	78
Hausman				3.25	
				(0.66)	
AR1					0.909
AR2					0.256
Hansen					0.115
R-squared	0.204	0.358			
Number of idc		32	32	32	29

*Standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)*

Table 5 evaluates the influence of various factors on GDP per capita in lower-middle-income countries using different econometric models. The MII consistently shows a significant negative impact across all models, underscoring institutional challenges as a barrier to economic growth. DC has a significant positive effect in OLS and RE models but turns negative and insignificant in GMM, indicating variability in its impact. Anti-Money Laundering (AML) presents insignificance results, with a negative effect in FE models but no consistent significance elsewhere. Corruption (COR) significantly boosts GDP in OLS but shows inconsistent effects in other models, suggesting model sensitivity. INC has a small but significant negative impact in most models, highlighting its adverse role. Lagged GDP (L.GDP) remains insignificant in the GMM model. These results highlight complex and varied effects of governance and institutional factors on economic outcomes.

Table 6 examines the relationship between various factors and GDP per capita in low-income countries using multiple econometric models. The MII shows a small negative impact, significant only in FE and RE models, indicating limited institutional influence. DC has a significant negative effect in FE, RE, and GMM models, suggesting challenges in leveraging democratic structures for economic growth. Anti-Money Laundering (AML) displays a strong negative effect in OLS but insignificance in other models, reflecting contrasting short-term and structural dynamics. Corruption (COR) consistently shows a significant negative impact on GDP in OLS, highlighting its detrimental effect on economic performance. INC has a significant negative effect in OLS but no consistent impact in other models. Lagged GDP (L.GDP) remains insignificant in GMM. These results emphasize the complex interplay of governance, institutional quality, and economic outcomes in low-income countries.

Table 6: Results Low Income Countries: Dependent Variable; GDP per Capita

	OLS	FE	RE	RE Robust	GMM
MII	-15.72	-16.36*	-15.11*	-15.11	-13.38
	(32.48)	(8.558)	(8.104)	(15.23)	(20.27)
DC	-1.874	-9.466**	-7.371**	-7.371*	-10.88
	(3.167)	(3.526)	(3.164)	(3.793)	(6.310)
AML	-123.4***	-11.34	-7.214	-7.214	-300.0
	(38.48)	(65.92)	(53.63)	(49.70)	(222.1)
COR	-307.0***	-153.0	-152.0	-152.0	-171.5
	(88.26)	(149.9)	(122.6)	(143.0)	(532.5)
INC	-0.465***	0.237	0.0778	0.0778	0.620
	(0.141)	(0.190)	(0.158)	(0.215)	(0.589)
L.GDP					0.459
					(0.364)
Constant	-50.87	930.9**	796.3**	796.3***	
	(237.8)	(381.6)	(333.4)	(213.7)	
Observations	61	61	61	61	33
Hausman				6.25	
				(0.28)	
AR1					0.68
AR2					0.28
Hansen					0.43
R-squared	0.305	0.215			
Number of idc		14	14	14	14

Standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

5. Conclusion

The study attempts to analyze the impact of anti-money laundering on GDP per capita. The research findings confirm the existence of negative cointegration between anti-money laundering (AML) and GDP per capita in all group of economies (high income, upper-middle and low-income economies). It means all these group of countries are not having banking regulation regarding Anti-money laundering. A negative impact of the Basel AML Index on GDP per capita suggests that higher AML risk, reflected by a higher index score, is associated with weaker economic performance. This can be attributed to several factors. Countries with high AML risks often face weak governance, corruption, and inadequate financial oversight, all of which hinder economic growth. Poor AML performance also undermines investor confidence, as such countries are perceived as high-risk environments, deterring foreign investment. Additionally, high AML risk indicates vulnerabilities in the financial sector, reducing access to international financial markets and restricting capital flows. Furthermore, these countries may struggle to allocate resources effectively due to illicit financial flows and governance inefficiencies. Together, these issues undermine economic productivity and growth, leading to a negative relationship between the Basel AML Index and GDP per capita.

To improve the Basel AML Index and boost GDP per capita, countries should strengthen legal frameworks by aligning anti-money laundering (AML) and counter-terrorist financing (CTF) laws with global standards such as FATF recommendations. Effective enforcement is crucial, requiring investment in training and resources for regulatory agencies to investigate and prosecute money laundering cases. Enhancing transparency through mandatory beneficial ownership disclosure and stronger financial reporting standards can reduce transactional opacity. International cooperation is vital, enabling intelligence sharing and addressing cross-border financial crimes. Promoting financial inclusion by expanding access to banking services can help curb reliance on informal financial systems, thereby reducing illicit financial flows. Additionally, combating systemic corruption is essential, as it undermines AML efforts and deters foreign investment. These measures collectively improve financial integrity, attract investment, and support economic growth.

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