# EVALUATING THE RELATIONSHIP BETWEEN ANTI-MONEY LAUNDERING POLICIES AND PER CAPITA CONSUMPTION EXPENDITURE - A FRESH INSIDE FROM MIDDLE-INCOME COUNTRIES

Laeeq Razzak JANJUA<sup>14</sup>
Erraiteb MERYEM<sup>15</sup>
Maryum Sajid RAJA<sup>16</sup>

#### Abstract:

Money laundering appears to be most common types of financial and economic crime. Significant unlawful earnings are produced by criminal activity, and these profits must be covered before they can be reintroduced into the legal, financial system. Money laundering is most prevalent in nations with lax financial sector regulations and controls, as is the case with all forms of economic and financial crime. Foreign direct investment is halted, capital markets are distorted, and their financial institutions' integrity is compromised. Therefore, money laundering (ML) contributes to worldwide poverty for several reasons. This paper aims to examine the relationship between anti-money laundering policies and per capita consumption expenditure used as a proxy for poverty for 46 middle-income countries over the period 2012 to 2021. Using Driscoll-Kraay as a static model estimation and two-step system GMM, dynamic model estimations, the results indicate that anti-money laundering policies decrease the per capita consumption expenditure, thus increasing poverty in middle-income countries. Furthermore, the results also indicate that the economic and FDI inflow positively decrease poverty. In contrast, inflation reduces per capita expenditure as well.

**Keywords:** Poverty, Economic growth, Anti-money laundering index, social sustainability

**JEL classification :** D6, G28, O190

### 1. Introduction

This paper questions the money laundering-economic growth-social sustainability trilemma by presenting empirical discoveries which fill a lacuna in the empirical literature. This research paper empirically examines the impact of money laundering, economic growth, and other exogenous variables on social sustainability, which is proxied by per capita consumption expenditure growth which indicates poverty. Conclusion reveal inters alia although economic growth positively impacts social sustainability by reducing poverty, money laundering and inflation appear to be hurdles in achieving social sustainability. Considering that social sustainability is the major for developing countries, thus health, education, and well-being are

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<sup>&</sup>lt;sup>14</sup> PhD Student, Vistula University- Poland, janjua.ue @gmail.com (corresponding author)

<sup>&</sup>lt;sup>15</sup> PhD, Center of economic research, Shandong University, China, meryem-erraiteb @hotmail.com

<sup>&</sup>lt;sup>16</sup> PhD Student, School of management science and engineering, Southwest Jiaotong University- China, marysajid222 @gmail.com

not available equally for all the habitants. Furthermore, high corruption, financial instability, and crimes adversely impact social sustainability. This paper examines the impact of financial crimes such as money laundering and social sustainability in terms of poverty under the shadow of economic growth literature, which justifies engaging this study – especially from the perspective of middle-income countries. Recent literature indicates that social sustainability is heavily debated among researchers, social practitioners, and policymakers. Likewise, the literature suggests that numerous factors harm social sustainability during economic growth and development, such as income inequalities -Bourguignon, (2015), health- Dunning et al., (2010) and multidimensional poverty (Tsui, 2002). Most developed countries hold adequate health and education systems and a social benefit system that reduces social inequalities; however, in developing countries, the situation is apparently more critical. In developed countries, high accountability and a strong financial sector play a significant role in collecting the funds for public spending (Caddy et al., 2007). On the other hand, high-level corruption, lack of accountability, and ineffective government effectiveness hinder social progress (Bird et al., 2008). Lack of accountability and weak regulation allows the flow of monetary funds from the financial system, further creating insufficient public funds for local habitants Padil et al. (2021) highlighted in their research work those financial crimes slower down the economic growth process. Likewise, Janjua & Khan (2020) further endorse that money laundering is a threat to achieving sustainability.

To probe the discourse, a panel of 46 middle-income countries and 3 main variables, such as the money laundering index, economic growth, and poverty proxied by the growth in per capita consumption expenditure, are analyzed along with other exogenous variables from 2012 to 2021. The results of this empirical investigation offer a new fresh inside for interpreting the nexus between the anti-money laundering index and social sustainability for developing countries which regulatory and social policy makers further use in middle-income countries.

Social sustainability contributes to sustainable development in multiple ways. Initially, providing justice in society encourages the distribution of economic resources equally. Furthermore, social sustainability emphasizes the influential role of government by providing essential social services such as health, education, and saving drinking water to everyone (Hoff, 1998). Social sustainability depends on economic growth (Vallance et al., 2011). Several studies highlight that economic growth reduces poverty (Klasen, 2005; Kakwani, 1993; Škare & Družeta, 2016). Roemer & Gugerty (1997) argue that effective economic growth on poverty reduction depends on many factors. Initially, it depends on the economic structure of the countries, and further, it is associated with the income distribution level and stability of the financial sector. Nevertheless, institutional governance also plays a significant role in poverty reduction. Kessides (2006) found that economic growth's impact on poverty depends on demographic factors and population attitudes toward local laws and regulations.

Couchoro et al. (2021) used data from 29 Sub-Saharan African countries from 2010 to 2015. In their empirical analysis, they used panel data threshold estimation and concluded that poverty incidence and high levels of unemployment appear to be hurdles against money laundering. Furthermore, the fight against corruption and strong political stability helps to control money laundering. Likewise, Quirk (1997) argues that anti-money laundering law and regulations undermine efforts to liberalize financial markets. Similarly, Aluko & Bagheri (2012) can reduce money laundering by applying effective regulatory and compliance laws. They further argue in their analysis that money laundering increases social inequality and slow down economic growth. Bidabad (2017) highlighted that in the current digitalization system, reducing money laundering flow requires an adequate detection system; thus, it requires effective transaction monitoring and detection system. Safdari et al. (2015) suggested that a sound banking system and effective monetary appear helpful in illicit financial flows.

Financial development improves human well-being (Nathaniel, (2021). Furthermore, financial development enhances economic growth in developing countries by improving productivity and

creating employment opportunities (Pagano & Pica, 2012). Several studies highlight that financial development decreases poverty by increasing individual income (Donou-Adonsou & Sylwester, 2016; Rewilak, 2017). Regarding empirical studies, Alam and Alam (2021) also used time-series data for India and applied ARDL estimation from 1960 to 2016. Their results indicate that financial development and economic growth reduce poverty in the short run; however, its impact is insignificant in the long. Majid et al. (2019) also applied ARDL estimation for Indonesia from 1980 to 2014. They also concluded that a long-run relationship exists between financial developments, growth, and poverty; however, in the short run, a bidirectional causal relationship exists between the financial sector and poverty. Regarding the impact of trade on poverty reduction, Vos (2007) argued that trade opening probably adds to aggregate welfare and thus might be helpful for poverty reduction. As Mitra (2016) highlighted that international trade could contribute to economic growth and thus can help many poor people escape poverty. Similar evidence has also been provided by (Winters et al., 2004). Gnangnon (2019) highlighted that multilateral trade liberalization is conducive to poverty reduction in developing countries. In their research, Goldberg & Reed (2020) argued that international enables low and low-middle-income countries to integrate with other countries at the international level, therefore; helpful in poverty reduction. Literature indicates mixed evidence concerning the impact of external financial flows on poverty reduction. In terms of remittance impact on poverty reduction, McKay & Deshingkar (2014) empirically analyze the impact of remittance inflow on poverty reduction for Nigeria, Rwanda, South Africa, Uganda, Bangladesh, and Vietnam. They concluded that internal and external remittances flow to many receiving households, mainly in poor rural areas. Furthermore, they also highlighted that remittance inflow does not look helpful in reducing poverty; however, it improves living standards and overall well-being. Similarly, regarding the impact of remittances on poverty reduction, Adams et al. (2008) find that internal remittance inflow is more efficient than outward remittance in poverty reduction for Ghana. They also used primary data to examine the relationship between remittance and poverty reduction. In terms of foreign direct investment, a study by Israel (2014) examined the impact of FDI inflow on poverty reduction in the presence of other control variables such as human capital, inflation rate, government spending, infrastructure, and proportion of outstanding debt to GDP. He used time data for giving variables for the period 1980 to 2009. His results indicate that FDI reduces poverty in Nigeria. Sharma & Gani (2004) used panel data from middle and low-income countries from 1975 to 1999 to examine the impact of FDI on socio-economic progress. They used the human development index as a proxy for poverty and socio-economic progress. Their panel expected least regression results indicate that foreign direct investment positively impacts human development, thus in poverty reduction. Literature indicates mixed evidence regarding the impact of foreign aid on poverty reduction. Mahembe (2018) used panel data from Sub-Saharan African countries from 1981 to 2011 to examine the impact of foreign aid on poverty reduction. He used dynamic panel estimation techniques and found that foreign aid does have a statistically significant poverty reduction effect. Similar results were also indicated by Anetor et al. (2020) for Sub-Saharan African countries. External capital flight increases the capital deficiency for public expenditure. Thus, the government usually increases the tax burden on the population to increase their revenue (Ndikumana & Boyce, 2011). The extra tax burden increases the prices of local production; thus, inflation is usually experienced. Therefore, high inflation increases poverty incidences in the long run (Chani et al., 2017).

Based on the discussion, we have formulated our description of the problem, which is mentioned in next section 2 however; however, the rest of the paper consists of data and methodology (section 3), analysis of research, and discussion (section 4), and conclusion (section 5).

## 2. Description of the Problem

Our study highlights the nexus between poverty, economic growth, and money laundering index in the panel of 46 middle-income countries from 2012 to 2021. Based on the previous section, the diagram below indicates this paper's research framework.

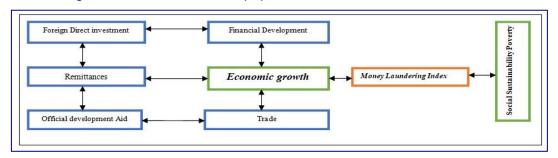


Figure 1. Research Framework

Source: Author Own framework based on discussion

According to the research framework mentioned in figure 1, the following equation will be examined.

LNPOV<sub>it</sub> = 
$$\alpha_0 + \beta_1 LNY_{iT} + \beta_2 LNFD_{it} + \beta_3 LNT_{it} + \beta_4 LNINF_{it} + \beta_5 LNFDI_{it} + \beta_6 LNREM_{it} + \beta_7 LNODA_{it} + \beta_8 AMLI_{it} + \epsilon_i (Equation 1)$$

In equation 1, LN refers to the log transformation of all used variables. AML index in the above equation refers assessment of the annual ranking of money laundering and terrorist financing. This index is based on ranking 0 to 10 (where 0 indicates the lowest ML risk and 10 indicates the highest level of ML risk). Furthermore, to make our interpretation, we rescale the AML index values using the formula -1\* (AMLI-10); thus, AMLI refers to the anti-money laundering index. The new rescaling indicates that a lower score means a less effective system, and a higher score means a more effective system in reducing money laundering. Similar methods were also used by (Ofoeda et al., 2022).

# 3. Data and Methodology

The source of the variable, unit and description are mentioned in Table 1.

Data Source

Table 1

Variable	Description	Source
POV	Change in per capita consumption expenditure (Poverty)	PovcalNet
Υ	GDP growth rate (%)	WDI
AMLI	Anti-money laundering index	Basel committee
DI	Foreign direct investment inflow	WDI
REM	Remittance inflow	WDI
ODA	Official development aid	WDI
FD	Domestic credit of private sector	WDI
Т	Trade	WDI
INF	Inflation (consumer price index)	WDI
	Note: FDI, REM, ODA, FD and T are (% of GDP)	·

Source: Author Own conception

## **Summary Statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
POV	460	2.509	3.700	-19.337	22.301
Υ	460	3.662	2.735	-10.079	14.047
AMLI	460	5.977	0.907	3.210	8.460
FDI	460	3.189	3.160	-11.625	20.601
REM	460	6.259	6.325	0.000	31.432
ODA	460	1.693	1.850	-0.280	10.856
FD	460	48.052	32.239	10.247	149.373
Т	460	76.310	31.771	20.723	211.500
INF	460	4.943	4.361	-3.749	29.800

Source: Author Own conception

Table 2 indicates the summary statistics by limiting the discussion to the variable of interest; for POV, the mean value is 2.509, with Azerbaijan having the highest at 22.3011 in 2012 and Ukraine with the lowest at -19.336 in 2016. Similarly, the mean for Y appears to be 3.662, with Ghana having the highest at 14.047 in 2012 and Ukraine with the lowest at -10.079 in 2015. Furthermore, AMLI means appear to be 5.977, with Cambodia having the highest at 8.46 in 2012 and Bulgaria with the lowest at 3.21 in 2021

Table 3
Correlation Analysis

	POV	Υ	FDI	REM	ODA	FD	Т	INF	AMLI
POV	1								
Υ	0.472	1							
FDI	0.117	0.126	1						
REM	-0.021	-0.027	0.068	1					
ODA	-0.090	0.172	0.255	0.353	1				
FD	0.043	-0.132	0.079	0.067	-0.121	1			
Т	0.172	0.017	0.383	0.024	0.086	0.563	1		
INF	-0.164	-0.162	-0.122	0.009	-0.065	-0.256	-0.167	1	
AMLI	0.001	0.218	0.035	0.002	0.236	-0.045	0.000	0.121	1

Source: Author Own conception

Table 3 Indicate the correlation matrix; as per the outcome, the correlation coefficient appears to be below 0.75, which indicates that no multicorrelation exists among the variables.

#### a) Fixed Effect Driscoll-Karav

We estimate the results by considering the possibility of heterogeneity by applying the fixed effect model. It incorporates the sampled country's policies and practices regarding the social factors and shows the effects in the intercept coefficient. " $\alpha_{1j}$ ". The intercept of one country differs from the other country but is time-invariant. The fixed effect captures the countries' specific effects by takings the different economic, geological and social characteristics. Ramoutar (2017) also affirms in his empirical analysis that the advantage of fixed effects with Driscoll and Kraay standard errors is that the problems of heteroscedasticity, autocorrelation, and cross-sectional dependence are all corrected.

## b) Two Step Dynamic System-GMM Estimation

The dynamic system-gmm estimation used a dynamic model in the estimation, which serves as a robust model. This approach is suitable because in our analysis N>T; 46>10 thus short panel. Furthermore, system-gmm is suitable for short panel data analysis, and it includes the fact that the process may be dynamic by incorporating lagged dependent variables in estimation. In our case, it would be (1-LNPOV<sub>it</sub>). In this case, the dependent variable is also influenced by the past value. Similar estimation techniques were also used by (Adeleye, & Jamal, 2020; Adeleye et al., 2020).

## 4. Results

Table 4 reports the impact of economic growth, external financial inflows, money laundering index, and other exogenous variables on poverty proxied by the change in per capita consumption expenditure empirically examined by fixed-effect Driscoll-Kraay estimation. Column (1) shows that among five exogenous variables, besides LNY and LT, increase per capita consumption expenditure, thus decreasing poverty; however, LNFD, LN INF, and AMLI decrease per capita consumption expenditure, thus increasing poverty. Results indicate that 1 unit increase in LNY and LNT increases per capita consumption expenditure by 0.323% and 0.943%, whereas 1 unit increase in LNFD, LNINF, and AMLI decrease per capita expenditure by 0.617%, 0.301%, and 0.076%.

Table 4
Fixed-Effect Driscoll-Kraay (Static model estimation)

Variable	1	2	3	4	5
LNY	0.323	0.319	0.325	0.302	0.293
LINI	(0.163)*	(0.165) *	(0.159) *	(0.141) *	(0.132) **
LNT	0.943	0.862	0.857	0.668	0.545
LINI	(0.483) *	(0.433) *	(0.428) *	(0.463)	(0.373)
LNFD	-0.617	-0.671	-0.549	-0.515	-0.465
LINFD	(0.152) ***	(0.158) ***	(0.176) **	(0.203) **	(0.230) *
LINF	-0.301	-0.307	-0.293	-0.310	-0.298
LINE	(0.110) ***	(0.107) ***	(0.111) **	(0.075) ***	(0.072) ***
AMLI	-0.076	-0.074	-0.103	-0.119	-0.148
AIVILI	(0.058) **	(0.059) **	(0.068) **	(0.063) *	(0.082) *
LNFDI		0.111	-	-	0.013
LINFOI	-	(0.145)			(0.115)
LNREM	_	_	0.215	_	0.414
LIVICLIVI	_	_	(0.107) **	_	(0.208) *
LINDA	_			0.167	0.197
LINDA	_			(0.146)	(0.147)
Constant	-0.641	-0.204	-0.182	-0.416	-1.372
Constant	(2.314)	(2.174)	(2.042)	(2.094)	(1.582)
Number of Groups	46	46	46	46	46
Number of Observation	357	350	357	337	330

Source: Author Own conception

Similarly, in Column (2), by incorporating LNFDI, the estimated results indicate the statistical significance and consistent signs of all variables as mentioned in Column (1); however, the magnitude of coefficients is slightly different. By incorporating LNREM in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2); however, the LNREM indicates a positive contributor to reducing poverty. 1 unit increase in the LNREM reduces poverty by 0.215%. By incorporating the LNODA in Column (4), the estimated results indicate the statistical significance and consistent signs of all variables as mentioned in Columns (1) to (3); however, the magnitude of coefficients is slightly different. Similarly, Column (5) presents the impact of 8 exogenous variables on poverty. The estimated results reveal that LNY, LNT, and LNREM positively reduce poverty. However, LNFD, LNINF, and AMLI do not contribute to poverty reduction in sample countries. According to the results, a 1 unit increase in LNY, LNT, and LNREM increases per capita consumption by 0.293%, 0.545%, and 0.414%, thus decreasing poverty. Similarly, a 1 unit increase in LNFD, LNINF, and AMLI tends to reduce per capita consumption expenditure by 0.465%, 0.298%, and 0.148%, thus increasing poverty.

Table 5 reports dynamic system-GMM results; the impact of economic growth, external financial inflows, money laundering index, and other exogenous variables on poverty proxied by a change in per capita consumption expenditure System-GMM estimation is used as a robust model compared to fixed-effect Driscoll-Kraay estimation. The results indicate that the lagged dependent variable coefficient lag.LNPOV is significant and positive for all estimated equations, as indicated in columns (1) to (5).

Table 5
Two Step System-GMM (Dynamic model Estimation)

Variable	1	2	3	4	5
	0.816	0.710	0.839	0.816	0.846
Lag.NOV	(0.250) ***	(0.342) **	(0.279) ***	0.342) **	(0.254) ***
_	0.655	0.612	0.728	0.713	0.678
LNY	(0.377) *	(0.399) *	(0.426) *	(0.430) *	(0.350) **
	0.393	0.697	0.421	0.476	0.706
LNT	(0.401)	(0.493)	(0.383)	(0.442)	(0.453)
	-0.452	-0.385	-0.352	-0.323	-0.382
LNFD	(0.271)	(0.306)	(0.278)	(0.291)	(0.260)
	-0.015	-0.012	-0.143	-0.078	-0.075
LINF	(0.100) ***	(0.104) **	(0.104) **	(0.107) **	(0.108) ***
	-0.101	-0.040	-0.023	-0.046	-0.023
AMLI	(0.204) *	(0.202) **	(0.191) **	(0.019) **	(0.178) **
	-	0.231	-	-	0.185
LNFDI		(0.189)			(0.170)
	-	-	0.072	-	0.028
LNREM			(0.116) **		(0.164) **
	-	-	-	0.036	0.013
LNODA				(0.065)	(0.095)
	-2.151	-3.251	-2.270	-2.310	-0.343
Constant	(2.107)	(2.219)	(2.138)	(2.222)	(2.094)
Number of Groups	44	44	44	44	44
Number of Observation	269	269	269	269	269
Number of instruments	21	23	23	23	27
AR (2)	0.109	0.246	0.131	0.150	0.112
Hansen	0.310	0.264	0.290	0.275	0.329

Source: Author Own conception

The lag value positively impacts poverty, which means that LNPOV has had a positive and significant impact on the current value of poverty in the past few years. Column (1) shows that among five exogenous variables, LNY increase per capita consumption expenditure, thus decreasing poverty; however, LNINF and AMLI decrease per capita consumption expenditure, thus increasing poverty. Results indicate that a 1 unit increase in LNY increases per capita consumption expenditure by 0.655%, whereas a 1 unit increase in LNINF and AMLI decreases per capita expenditure by 0.015% and 0.101%. Similarly, in Column (2), by incorporating LNFDI, the estimated results indicate the statistical significance and consistent signs of all variables as mentioned in Column (1); however, the magnitude of coefficients is slightly different. By incorporating LNREM in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2); however, the LNREM indicates a positive contributor to reducing poverty. 1 unit increase in the LNREM reduces poverty by 0.072%. By incorporating the LNODA in Column (4), the estimated results indicate the statistical significance and consistent signs of all variables as mentioned in Columns (1) to (3); however, the magnitude of coefficients is slightly different. Similarly, Column (5) presents the impact of 8 exogenous variables on poverty. The estimated results reveal that LNY and LNREM positively reduce poverty. However, LNINF and AMLI do not contribute to poverty reduction in sample countries. According to the results, a 1 unit increase in LNY and LNREM increases per capita consumption by 0.678% and 0.028%, thus decreasing poverty. Similarly, a 1 unit increase in LNINF and AMLI tends to reduce per capita consumption expenditure by 0.075% and 0.023%, thus increasing poverty. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 4, with the estimated results system-GMM (robustness analysis) in table 5, the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNY and LNREM appear to reduce poverty in the sample countries, whereas LNINF and AMLI increase poverty incidences.

## 5. Discussion

This research work aims to highlight the impact of money laundering and other exogenous variables on social sustainability, which is proxied by per capita consumption expenditure growth. Based on our estimation in Tables 4 and 5, results indicate that economic growth positively impacts the income basket of habitants of middle-income countries, thus decreasing poverty. Similar findings were also affirmed by (Adeleye et al., 2020; Fosu, 2017). Furthermore, results also indicate that the inflow of remittances from abroad positively impacts the income basket, thus allowing them to spend more on their general expenditure, which also decreases poverty. Chimhowu et al. (2005) and Inoue (2018) also confirmed similar results in their findings that; remittance inflow decreases poverty incidences. On the other hand, once the consumer price index increases, it decreases the ability to spend more on general expenditure; thus, it increases poverty. Our results endorse this finding, which was previously affirmed by (Tsaurai, 2018; Abbas et al., 2018). Similarly, in terms of the anti-money laundering index, the results indicate that more strict laws and regulations decrease the ability to spend. Thus, banks usually hold an individual's account in terms of trigger event of money laundering or either due to extra measures which eventually decrease spending ability; thus decreasing per capita consumption growth. Furthermore, it is also true to argue that majority of the population living in middle-income countries is part of the undocumented economy, therefore once due to local laws and regulations; people start being part of the formal economy by opening bank accounts and performing the majority of the transaction via banking channel its impact on their daily expenditure thus it also reduces their per capita consumption and increases poverty.

### 6. Conclusion

To reduce social instability and poverty by increasing social sustainability, this study aligns with the 2030 SDG agenda, thus goal 1 and goal 17, which represent ending poverty and strengthening the financial linkage between the governments indicating FIU (financial intelligence unit) system for combating financial crimes. The empirical research work contributes to the debate on anti-money laundering, economic growth, and social sustainability from the sample of 46 middle-income countries from 2012 to 2021. Finding reveals that economic and remittance inflow from abroad increases the spending capability of habitats from middle-income countries. However, on the other hand, since the financial system of middleincome countries is not so effective and economic growth major part consists of a shadow and undocumented economy; therefore, applying more regulations and financial screening methods reduces the spending capability of the majority of the population. That particular factor increases poverty in the sample countries. Based on finds this research work, from a policy perspective, the government of sample countries should increase the awareness of adaptation of the financial system by increasing the trust level of habitats on banks and other financial institutions. In case of threshold or anti-money laundering screenings, the government should instruct the bank to perform all remediation steps speedily and adequately to avoid hassles by blocking the accounts.

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