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The impact of shadow economy on capital flight: An African evidence

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Abstract

This study explores the impact of the shadow economy on capital flight by using African panel data from 1993 to 2018. While controlling for other driving force of capital flight, our estimate shows that the shadow economy has a positive effect on capital flight. This effect becomes more pronounced when controlling endogeneity problem and in the post-2008 financial crisis. As a result, this study proposes policy recommendations focused on reducing the scale of the informal economy by implementing stringent regulatory measures aimed at minimizing capital flight.

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1. Introduction

Capital flight, characterized by the illicit movement of assets across borders, constitutes a significant challenge to global economy, particularly for developing countries where it poses a significant barrier to sustainable development and economic stability (Le, 2009). The reasons behind capital flight are multifaceted, including economic instability, political uncertainty, and the anticipation of adverse macroeconomic policies (Aizenman and Marion, 2004). The consequences are universally damaging, leading to a vicious cycle of reduced investment, slowed growth, and diminished public trust in financial and governmental institutions (Ndikumana and Boyce, 2011). Within this context, the shadow economy emerges as both a symptom and a catalyst of the conditions that foster capital flight. However, the empirical examination of the shadow economy's impact on capital flight remains scant. Therefore, this paper aims to address this scholarly deficiency and illuminates the intricate dynamics between these economic phenomena.

Existing literature has predominantly focused on the determinants and consequences of the the shadow economy and capital flight in isolation, largely neglecting the reciprocal dynamics that might exist between them. The shadow economy, while possibly serving as an economic stabilizer during periods of downturn by sustaining employment and generating unrecorded income (Williams and Schneider, 2016), simultaneously engenders vulnerabilities through facilitating tax evasion and diminishing state revenues, thereby potentially exacerbating capital flight as entities seek to safeguard assets amidst governance and economic instability (Hermes and Lensink, 2003). Slemrod and Yitzhaki (2002) argue that the evasion of taxes, a predominant feature of the shadow economy, reduces the cost of capital flight, incentivizing individuals and corporations to move assets abroad. This reduction in tax obligations enables entities to accumulate more capital, which can then be transferred out of the country with relative ease. The interplay between tax evasion and capital flight highlights the intricate linkages between the shadow economy and the movement of illicit funds across borders. Furthermore, the lack of trust in governmental institutions, often associated with large shadow economies, can lead to an erosion of confidence in the domestic economy, further encouraging capital flight (Shaxson, 2011). When individuals and corporations perceive their governments as corrupt or inefficient, they are more likely to engage in capital flight as a means of protecting their assets from potential expropriation or devaluation. This distrust is exacerbated by the presence of a substantial shadow economy, which signals weak regulatory frameworks and governance. Studies have indicated that countries with larger shadow economies experience higher rates of capital flight. For instance, Hermes and Lensink (2003) suggest that as the shadow economy grows, so does the propensity for capital to flee. This correlation is supported by Ndikumana and Boyce (2011), who find that countries with significant informal sectors tend to have higher levels of capital flight. Their research underscores the importance of addressing the root causes of the shadow economy to mitigate capital flight. Janský (2018) further examines the correlation between the size of the shadow economy and the level of capital flight, suggesting that informal economic activities create opportunities for illicit financial flows. His findings indicate that informal sectors provide a cover for the illegal transfer of funds, thereby exacerbating capital flight. This dynamic is particularly pronounced in developing countries, where regulatory oversight is often weaker, and the informal sector plays a significant role in the economy. Building on foundational insights by Schneider and Enste (2000), Jung and Hwang (2024), have further clarified how weak institutional environments and insufficient property rights enforcement contribute to the growth of the shadow economy, thereby intensifying capital flight risks. Incorporating these perspectives underscores the importance of institutional quality in shaping the relationship between informality and illicit financial outflows.

To investigate the correlation between the shadow economy and capital flight, African countries present an appropriate context. These economies are characterized by significant informality, with a considerable portion of economic activities occurring beyond formal regulatory frameworks (Williams, 2013). Medina and Schneider (2018) and Njangang et al. (2018) show that around 38% of the continent's GDP is attributed to the unofficial economy. This informality not only fuels the shadow economy but also facilitates the concealment and transfer of illicitly acquired funds, exacerbating capital flight dynamics (Ajayi and Mwambu, 2017). Consequently, understanding the nuances of these dynamics is paramount for designing effective policy interventions aimed at curtailing illicit financial flows, improving economic transparency, strengthening financial regulation and fostering sustainable economic development in the region.

Understanding the relationship between the shadow economy and capital flight is crucial for developing countries, particularly in Africa, where these issues are most pronounced. The shadow economy, while providing short-term economic relief, contributes to long-term economic vulnerabilities that exacerbate capital flight. This dynamic undermines economic stability and development, making it imperative to investigate these interlinked phenomena. The study examines the effect of the shadow economy on capital flight in Africa from 1993 to 2018, utilizing 606 observations and employing both the Panel-Corrected Standard Errors (PCSE) model and the Generalized Least Squares (GLS) method. Futhermore, to address endogeneity, the Instrumental Variable (IV) method is employed, using the degree of economic complexity as the IV, which is validated through various endogeneity tests confirming the robustness of the selected instrumental variable. By focusing on specific regional contexts, this study aims to fill the existing gap in literature and provide a comprehensive understanding that can inform policy interventions to enhance economic stability and growth.

2. Data and methodology

2.1. Model specification

To investigate the effect of the shadow economy on capital flight, we adopt the following specification

$$\text{Capital Flight}_{ijt} = \alpha_i + \alpha_t + \beta_1 \text{Shadow Economy}_{it} + \beta_2 \text{CONTROL}_{ijt} + \varepsilon_{it} \quad (1)$$

where subscript *i* captures nations and *t* implies years. *Capital Flight* is the real value of capital flight measured in billion dollars. *Shadow Economy* is the percentage of shadow economy in GDP. Based on the growing literature, we incorporate other control variables that may alter the capital flight. Particularly, we include *Income* (Natural logarithm of GDP), *Polity* (Polity IV score), *Political Corruption* (political corruption index), *Capital Control* (financial liberalization), *Trade Openness* (Total value of import and export to GDP), *Financial Development* (financial development), *Regime Durability* (the number of years since the most recent regime change), and *Inflation* (growth rate of CPI). ε_{it} is the error term. In order to mitigate the potential endogeneity problems, we apply IV method.

2.2. Data and sample overview

Data used in this study were retrieved from various sources and cover 158 countries in the period from 1993 to 2018. We have collected data on the shadow economy from Elgin et al. (2021) and capital flight of African countries from Ndikumana and Boyce (2021). Other macroeconomic variables are gathered from the World Development Indicators database by the World Bank. After cleaning data, we have 606 observations from 26 African countries. Descriptive statistics and a correlation matrix of our main variables in this study are in Table 1. Financial liberalization is obtained from Chinn and Ito (2006).

Table 1: Statistical summary and correlation matrix

	Mean	Sd.	Capital Flight	Shadow Economy	Income	Polity	Political Corruption	Capital Control	Trade Openness	Financial Development	Regime Durability	Inflation
Capital Flight	1.86	6.45	1									
Shadow Economy	40.26	7.47	0.0320	1								
Income	-0.04	1.09	0.268***	-0.283***	1							
Polity	0.94	5.14	0.166***	-0.0980*	0.0752	1						
Political Corruption	0.69	0.21	-0.0182	0.197***	-0.186***	-0.429***	1					
Capital Control	0.30	0.29	-0.108**	-0.0852*	0.0626	0.129**	-0.298***	1				
Trade Openness	0.64	0.25	-0.0560	-0.0158	0.464***	0.0605	-0.0826*	-0.0830*	1			
Financial Development	0.15	0.10	0.348***	-0.430***	0.549***	0.191***	-0.300***	0.0933*	0.00573	1		
Regime Durability	12.35	12.86	-0.0124	-0.309***	0.297***	-0.183***	-0.233***	0.167***	0.148***	0.350***	1	
Inflation	10.27	18.07	-0.0236	0.196***	-0.202***	0.00166	0.0484	-0.0347	0.109**	-0.100*	-0.140***	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

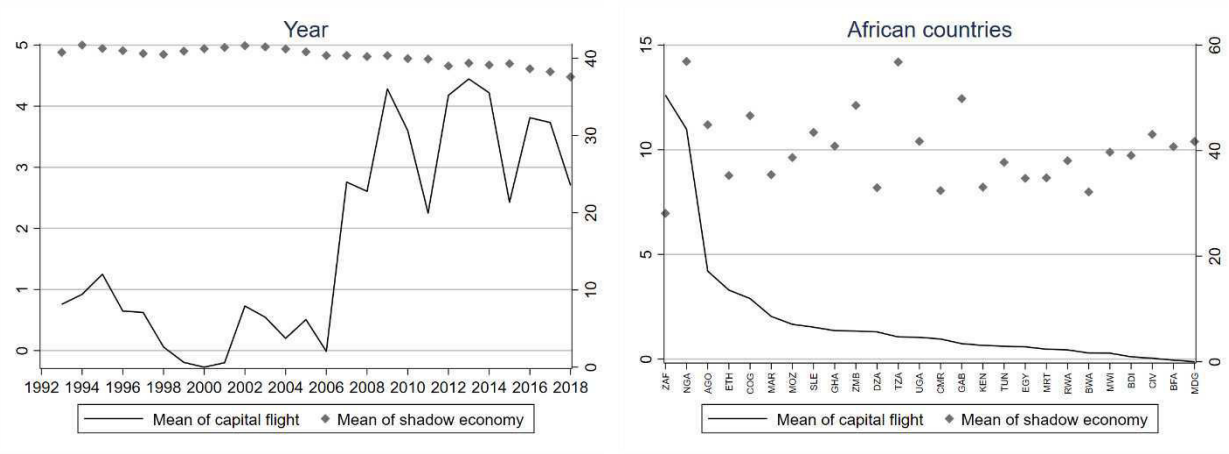

Figure 1: Distribution of average *Capital Flight* and *Shadow Economy* over countries and year
Note: The mean value of *Capital Flight* is on the left-right scale, and the mean value of *Shadow Economy* is on the right-hand scale.

Figure 1 illustrate the distribution of the average values of *Shadow Economy* and *Capital Flight* across years and countries. The values of *Shadow Economy* remain relatively stable throughout 1993-2018 period, with the value being around 40%. In contrast, the *Capital Flight* show a decreasing trend during 1993-2006, with values falling below 1 billion dollars, and even displays negative values between 1998 and 2001. Subsequently, there is a sharp increase in 2007, with values approaching nearly 3 billion dollars, followed by significant fluctuations during the 2007-2018 period.

3. Empirical results

Table 2 reports the regression results applied Panel-Corrected Standard Errors (PCSE) model (column 1) and Generalized Least Squares (GLS) (column 2), without controlling endogeneity problem. The findings reveal a significantly positive relationship between shadow economy and capital flight. The coefficients for variables including *Income, Polity, Capital Control, Trade Openess* align with theoretical expectation. In particular, *Income* show a positive and significant correlation. The variables *Polity, Capital Control, Trade Openess* demonstrate significant negative effects. In PCSE model, *Financial Development* variable is not significant, yet it shows positive and significant result when analysed through GLS. These findings are consistent with the conclusions of Schneider and Enste (2000), Javorcik and Wei (2009) and Farzanegan and Hassan (2012), suggesting that the shadow economy may exacerbate capital flight, particularly in regions with instable polity, insufficient capital management, and high income levels.

From now, we employ the Instrumental Variable (IV) method to address the issue of endogeneity. We use degree of economic complexity from the MIT Media Lab's Observatory of Economic Complexity as the IV for two reasons. First, economic complexity captures export diversification and the rise of digitalized activities, which can foster informal work arrangements and expand the shadow economy. For instance, export variety may stimulate informal domestic economic activities, while digital platforms enable the growth of gig-economy employment outside formal regulation (Canh and Thanh, 2020). Second, economic complexity is not expected to directly affect capital flight, but only indirectly through its impact on the shadow economy.

To mitigate concerns about instrument exogeneity, we control for several dimensions that may correlate with both economic complexity and capital flight, including trade openness, financial development, capital controls, polity, and political corruption. By conditioning on these

covariates, we reduce the likelihood that the instrument influences capital flight through channels other than the shadow economy.

We further validate the suitability of the instrument through a set of statistical tests. The Hausman test confirms that the shadow economy is endogenous at the 1% significance level, justifying the use of IV estimation. The Kleibergen-Paap LM statistic rejects under-identification, while the Kleibergen-Paap rk Wald F-statistic exceeds the conventional thresholds, indicating that the instrument is sufficiently strong. These results provide empirical support for the relevance of the instrument.

While the exclusion restriction cannot be tested directly, we argue that our modeling strategy, using extensive controls and robustness tests, reduces the risk of violation. Nonetheless, we acknowledge this limitation and encourage future studies to explore alternative instruments, such as historical trade structures or geographic proxies, to further validate the relationship.

Regression results with controlling endogeneity problem are presented in Table 3. Overall, the shadow economy appears to exert a significant impact on capital flight with whole sample. We also divided the entire sample into two period: 1993-2006 and 2007-2018, as the analysis conducted in section 2 reveals a paradigm shifts in capital flight patterns, occurring between the years 2006-2007. Notably, the findings suggest that the influence of the shadow economy on capital flight is pronounced only in the latter period, from 2007 to 2018. This could be attributed to the effects of the global financial crisis 2007-2008, which increased the fragility of African economies, prompting a shift of more assets into the shadow economy and thereby enabling capital flight as investors sought safer havens.

To ensure that our findings are not driven by extreme observations, we re-estimated the baseline IV model after excluding the top and bottom 5 percent of observations in terms of capital flight. The results remain positive and significant, although the coefficients decrease in magnitude, suggesting that outliers partly contribute to the large baseline estimates but do not overturn the overall relationship.

Furthermore, to improve the interpretability of the estimated effects, we we log-transformed capital flight (the zero and negative values are dropped) and re-estimated the models. Under this log specification, the coefficient on the shadow economy for the 2007–2018 period is 0.05–0.11, implying that a 1 percent increase in the shadow economy is associated with a 0.05–0.11 percent increase in capital flight. This elasticity-based interpretation is more meaningful from a policy perspective and aligns with prior evidence on the non-linear effects of informality.

Importantly, while the positive association between the shadow economy and capital flight remains robust, Figure 1 illustrates that capital flight increased even as the shadow economy declined after 2008. This divergence suggests that structural changes, such as post-crisis financial liberalization, regulatory tightening, or global capital market integration, may also influence capital flight independent of informality. We therefore caution against interpreting the linear IV coefficients as purely causal magnitudes. Instead, they should be viewed as indicative of a robust positive linkage that operates alongside other macroeconomic and institutional dynamics.

Table 2: Estimation results without controlling endogeneity problem

	(1)	(2)
	PCSE	GLS
VARIABLES	Capital Flight	Capital Flight
Shadow Economy	0.34**	0.34**

	(0.145)	(0.178)
Income	5.28***	5.28***
	(0.806)	(0.677)
Polity	-0.19**	-0.19**
	(0.092)	(0.096)
Political Curruption	1.21	1.21
	(1.481)	(2.305)
Capital Control	-4.47***	-4.47***
	(1.437)	(1.394)
Trade Openness	-3.87**	-3.87**
	(1.573)	(1.760)
Financial Development	21.87	21.87***
	(15.034)	(7.948)
Regime Durability	-0.03	-0.03
	(0.031)	(0.027)
Inflation	0.02	0.02
	(0.015)	(0.015)
Constant	-9.16*	-9.49
	(5.155)	(8.843)
Observations	606	606
R-squared	0.390	
Number of countries	26	26
Country FE	YES	YES
Year FE	YES	YES

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

Table 3: Estimation results with controlling endogeneity problem

	(1)	(2)	(3)
VARIABLES	Whole sample	1993-2006	2007-2018
Shadow Economy	0.46***	0.08	0.85***
	(0.13)	(0.10)	(0.27)
Income	1.59***	0.88**	0.20
	(0.41)	(0.42)	(0.73)
Polity	0.34***	0.09	0.33**
	(0.07)	(0.07)	(0.14)
Political Curruption	5.18***	-2.61	10.46***
	(1.95)	(1.82)	(2.95)
Capital Control	-2.90***	-2.88***	-1.31
	(0.94)	(0.80)	(1.55)
Trade Openness	-4.98***	-2.40*	-4.43*

	(1.59)	(1.37)	(2.62)
Financial Development	28.57***	0.88	52.61***
	(7.35)	(6.13)	(11.81)
Regime Durability	0.03	-0.04*	0.10**
	(0.03)	(0.02)	(0.05)
Inflation	0.00	0.00	-0.04
	(0.01)	(0.01)	(0.08)
Constant	-21.36***	2.02	-44.15***
	(7.41)	(5.61)	(13.82)
Observations	483	211	251
R-squared	0.21	0.17	0.20
Country FE	YES	YES	YES
Year FE	YES	YES	YES

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

4. Conclusions

This study aimed to elucidate the relationship between the shadow economy and capital flight in African countries. The empirical results highlight a significant positive correlation between these two economic phenomena, particularly pronounced in the period following the 2007-2008 global financial crisis. This finding suggests that the shadow economy not only exacerbates the conditions for capital flight but also serves as a refuge during times of economic instability.

The implications of these findings are manifold. For policymakers, it underscores the necessity of enhancing economic transparency and strengthening financial regulations to mitigate the risks associated with capital flight. Strategies to reduce the shadow economy should be prioritized, such as improving tax enforcement, promoting formal sector employment, and fostering trust in governmental institutions. Additionally, maintaining political stability and improving capital governance are crucial to reducing the incentives for illicit asset transfer.

In conclusion, addressing the shadow economy's impact on capital flight is essential for sustainable economic development in Africa. By implementing comprehensive policy measures that target the root causes of both phenomena, African countries can enhance their economic resilience and foster a more stable and transparent financial environment. This study contributes to the broader understanding of the intricate dynamics between the shadow economy and capital flight, offering valuable insights for effective policy interventions.

Reference

Ajayi, S. I., and Ndikumana, L. (Eds.). (2017) “Capital Flight from Africa: Causes, Effects, and Policy Issues” Oxford University Press

Aizenman, J., and Marion, N. (2004) “International financial flows and the global economy” Cambridge University Press

Canh, P. N., and Thanh, D. S. (2020) “Exports and the shadow economy: Non-linear effects” *The Journal of International Trade & Economic Development* **29**(7), 865-890.

Chinn, M. D., and Ito, H. (2006) “What matters for financial development? Capital controls, institutions, and interactions” *Journal of Development Economics* **81**(1), 163-192.

Elgin, C., Kose, M. A., Ohnsorge, F., and Yu, S. (2021) "Understanding informality, CERP Discussion Paper 16497" Centre for Economic Policy Research, London

Janský, P. (2018) "Capital flight and tax havens: Impact on investment and growth in Europe" *Review of Economic Perspectives* **18**(2), 109-124.

Jung, H., and Hwang, Y. (2024) "Property rights and shadow economies: A global perspective" *Economics Bulletin* **44**(4), 1481-1491.

Hermes, N., and Lensink, R. (2003) "Foreign direct investment, financial development and economic growth" *The Journal of Development Studies*, **40**(1), 142-163.

Le, Q. V. (2009) "Economics of capital flight" MIT Press

Medina, L., and Schneider, F. (2018) "Shadow Economies Around the World: What Did We Learn Over the Last 20 Years?" International Monetary Fund Working Papers, WP/18/17

Ndikumana, L., and Boyce, J. K. (2011) *Africa's odious debts: How foreign loans and capital flight bled a continent*, Zed Books.

Ndikumana, L., and Boyce, J. (2021) "Capital Flight from Africa, 1970-2018, New Estimates with Updated Trade Misinvoicing Methodology" Amherst, MA: Political Economy Research Institute, May.

Njangang, H., Kuikeu, O. J., and Kengne, N. T. (2018) "Capital Flight and Financial Development in Sub-Saharan Africa" *African Development Review* **30**(2), 137-149.

Schneider, F., and Enste, D. H. (2000) "Shadow economies: Size, causes, and consequences" *Journal of economic literature* **38**(1), 77-114.

Shaxson, N. (2011) "Treasure islands: Uncovering the damage of offshore banking and tax havens" Palgrave Macmillan

Slemrod, J., and Yitzhaki, S. (2002) *Tax avoidance, evasion, and administration,* Handbook of Public Economics, 3, 1423-1470

Williams, C. C. (2013) "Evaluating cross-national variations in the extent and nature of informal employment in the European Union" *Industrial Relations Journal* **44**(5-6), 479-494.

Williams, C. C., and Schneider, F. (2016) *Measuring the Global Shadow Economy: The Prevalence of Informal Work and Labour*, Edward Elgar Publishing, Cheltenham.