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Unofficial sovereign wealth funds and duration in power in Africa

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Abstract: This paper argues that in weak states, leaders whose hold on power is secured by the public fortune have turned to the use of sovereign wealth funds (SWFs), especially unofficial SWFs, to cement their hold on power. Unofficial SWFs are private funds created from resource rents with the appearance of public investment-holding firms that use governmental legitimacy to invest at home and abroad, managed indirectly by political leaders or their families in order to advance a political agenda, wealth accumulation, patronage, repression, and loyalty. Using a survival model covering 73 leaders in 32 countries between 2000–15, we investigate the effects of SWFs on duration in power. Regressions suggest that unofficial SWFs increase leaders' time in power to a greater degree than official SWFs. Results remain consistent after a battery of control test for robustness. However, leaders' behaviour through the use of unofficial SWFs is not inconsistent with economic growth, at least in the short run, and can foster relative political stability and peace.

Key words: Africa, autonomy maximization, natural resources, political survival, ruling elites, unofficial SWFs

JEL classification: D72, O55, P37, Q34

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1 Introduction

Sovereign wealth funds (SWFs) are becoming increasingly prominent instruments in global finance and for governments' geo-strategic, political, and economic policies. In extractive institutions as well as in inclusive institutions,¹ governments that do not already have an SWF are keen to set up their own (Bauer et al. 2014). However, their motives for doing so may differ. While the motivation behind the creation of an SWF may be beneficial for the country (as in Norway²), they can easily become discrete funds for corrupt governments, especially if they receive less scrutiny than the rest of the government's budget (Bauer 2015). Recent large-scale oil and gas discoveries in East and West Africa are likely to give rise in the medium term to new SWFs in Africa, since some governments want to foster better and more transparent management of their hydrocarbon rents.³

Africa is one of the poorest regions on Earth, where many households still live on less than US\$2 per day. Yet more and more ruling elites of resource-rich African countries choose to set up special governmental investment funds, which siphon off a significant portion of resource rents. These funds are directed to savings or investment purposes. In addition to these publicly known funds, there exist another kind of SWF. We call these here 'unofficial SWFs' due to the secrecy surrounding them and the difficulty of tracking their investment activities. Figure 1 shows the distribution of African publicly known SWFs.

Extra-budgetary resource funds (EBRFs) are an example of an unofficial SWF. The founders of EBRFs typically disclose little information to the general public regarding their investment activities and use of profits. In weak states, they are not usually clearly incorporated in official government accounts, so the accountability and oversight of such funds from citizens (for example, via Members of Parliament) can be extremely limited or completely non-existent, leaving citizens with no control over a significant part of their own national wealth. Therefore, the term 'extra-budgetary resource funds' refers primarily to public resources and government operations that are not included in the annual budget or that do not share the same overall level of reporting, regulation, or audit as other public finance items.

Aside from EBRFs, we also define unofficial SWFs as either private funds or those with the appearance of public investment holding firms that invest at home and overseas with the appearance of governmental legitimacy.

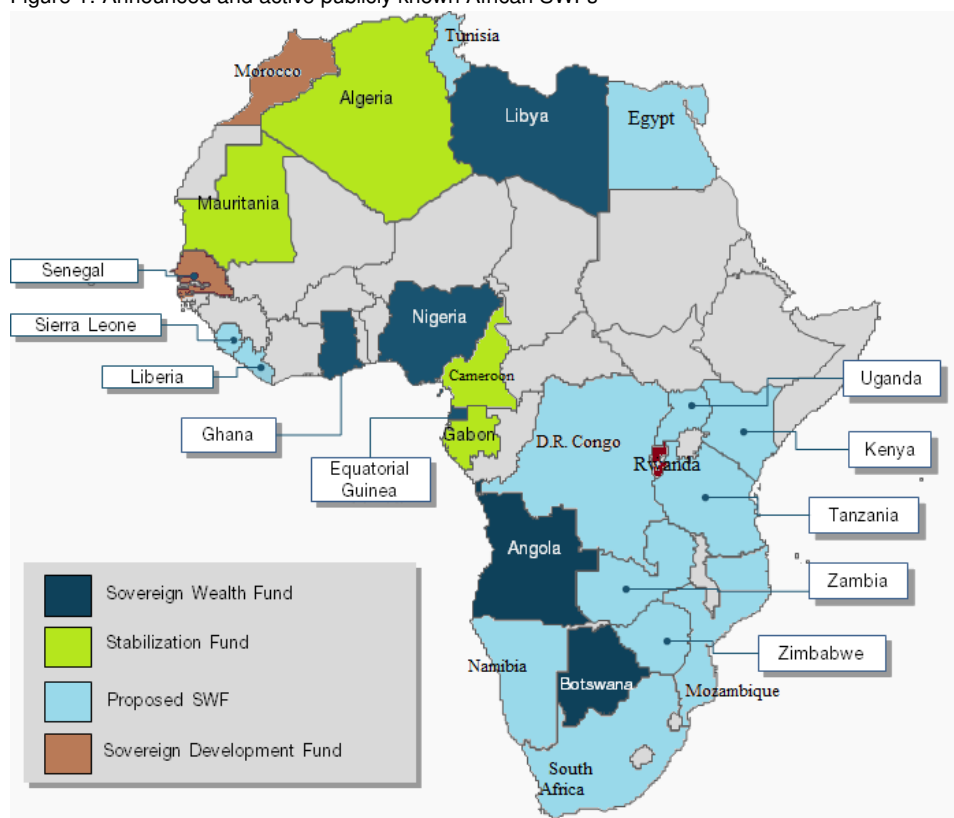
In fact, these funds are often owned and managed indirectly by rulers and their families for political gain, wealth accumulation, patronage, and autonomy maximization. Indeed, in weak states the ruling elite, through SWFs, often command a substantial share of the resource rents, which can be used for several political purposes besides the official macroeconomic goals declared.

¹ According to Acemoglu and Robinson (2013), the key determinant of economic institutions are political institutions. These can be divided into two types: 'extractive' institutions, where a 'small' group of people make every effort to exploit the rest of the population; and 'inclusive' institutions, where 'many' people are involved in the governance process, so that the process of exploitation weakens or does not exist.

² As of September 2017, Norway's SWF exceeds US\$1 trillion for the first time due to rising stock markets and exchange rate fluctuations. To put that into perspective, US\$1 trillion is close to the size of the Mexican economy, and represents over US\$190,000 for every 5.2 million Norwegians. The country is a major oil producer and officially transferred its first resource rents to the Norwegian government's pension fund in May 1996. Since then, their SWFs has grown to become one of the world's largest investors in stocks, owning US\$667 billion of assets in more than 9,000 companies around the world, including Apple, Nestle, and Microsoft.

³ In the last 20 years, 13 African countries (Angola, Nigeria, Botswana, Morocco, Senegal, Rwanda, Equatorial Guinea, Namibia, Gabon, Libya, Mauritania, Algeria, and Ghana) have created SWFs that controlled a total of US\$159 billion at the end of September 2014. Currently, other SWFs are sprouting across Africa. While some governments are at the stage of discussions (Namibia, Niger, Sierra Leone, South Sudan, Zambia, and Zimbabwe), others are now setting up their SWFs (Egypt, Kenya, Uganda, Tanzania, Mauritius, Liberia, Mozambique).

Figure 1: Announced and active publicly known African SWFs



Source: authors' illustration.

Official SWFs, on the other hand, are publicly known, state-owned investment funds (not operating companies) that make long-, medium-, or short-term domestic and international investments in real and financial assets in search of commercial returns, with the ultimate aim to preserve or increase national wealth and improve the well-being of citizens (Aizenman and Glick 2009; Kimmitt 2008). In general, both official SWFs and unofficial SWFs can co-exist in the same country. This duality can place both broad personal power and immediate economic benefits within easy reach of government officials and the ruling elite.

Nevertheless, achieving the declared promises—for example, in terms of macroeconomic stability—of official SWFs is not effortless. The forms and functions of these institutions are usually planned in Western terms, yet the infrastructure and human skills necessary for their efficient execution and performance might not exist in non-Western jurisdictions. Moreover, hydrocarbon revenues can be small, distant (or off-shore), and uncertain (due to oil price volatility and variable global demand) since African resource producers are often price-takers—particularly for future producers who have made small discoveries in terms of available hydrocarbon quantity or who have only tiny natural resource potential.

Still, over the last decade, SWFs have continued to expand into frontier markets such as Africa, which are far from the global financial centres. More importantly, we know little about the true reasons why poor African countries with international capital constraints, huge debt payments, and urgent development needs at home create SWFs in the first place.

The conventional wisdom focuses on the macroeconomic challenges associated with accumulating foreign reserves or dealing with resource-dependent countries (Ploeg 2008; Reisen 2008). Recent work also argues that issues surrounding management of resource rents (boom and bust cycles) are macroeconomy foundations of SWFs' emergence (Arezki et al. 2015; Raymond et al. 2017). Some scholars

study the politics surrounding the management of SWFs (Bazoobandi and Nugent 2017; Behrendt 2011; Clark et al. 2013; Rietveld 2016), but only a few inspect their creation and proliferation as a political process (Abdelal 2009; Chwioroth 2014; Grigoryan 2016; Hatton and Pistor 2011; Shih 2009). The aim of this research is to fill this knowledge gap, particularly in the context of African SWFs.

In general, SWFs of a given country may have multiple official objectives, which can change over time (Al-Hassan et al. 2013). According to the Santiago Principles,⁴ five types of SWF exist, depending on the broader macro-fiscal objectives that they aim to address: (1) stabilization funds to isolate the public budget and economy from fluctuations in commodity prices (for example, Nigeria, Ghana); (2) savings funds to share wealth between generations by converting natural resource income into diversified financial assets (for example, Norway, Gabon, Libya, Russia); (3) development funds in support of socioeconomic projects (for example, Botswana, Mauritius); (4) reserve resources for saving rents' inflows and payments of future pensions (for example, Australia, Ireland, New Zealand); and (5) reserve investment companies to control foreign exchange reserves,⁵ some of which may be invested in less liquid funds (for example, China, Hong Kong, Malaysia, South Korea, Singapore, Viet Nam). Venables and Wills (2015) suggest that the relevance of each type of SWFs depends on the country's level of development. Note that these objectives are not mutually exclusive; SWFs often pursue various combinations of funds at the same time. Moreover, the purposes of SWFs may alter in response to changes in the political and socioeconomic landscape.

As discussed, SWFs can also be used as vehicles for personal capital accumulation through investment strategies, marked by Weber's 'political capitalism' (Schwartz 2012). Indeed, many ruling elite opt to create SWFs to neutralize domestic competitors, insulate their economy against major downtrends (thus minimizing public hostility and avoiding potential *coup d'état*), as well as to enhance legitimacy in the international arena by developing governance structures familiar to advanced economies.

To the best of our knowledge, this study is the first to consider the political determinants of emergence and proliferation of African SWFs; previous work focuses mostly on macroeconomic determinants, impacts of SWFs investments, and investment behaviour, and are centred mainly on the Asian and Middle East regions. Using a survival model covering 73 tenures in 32 African countries between 2000 and 2015, our study constitutes an empirical verification of Hatton and Pistor's (2011) theory of autonomy maximization by the ruling elite through the use of SWFs. More precisely, our results suggest that unofficial SWFs enhance the ruling elite's duration in power to a greater extent than official SWFs.

The remainder of the paper is as follows: Section 2 presents a literature review covering stylized facts on SWF evolution and some case studies, and ends with an outline of our hypothesis. Section 3 discusses the method and data used to assess our hypothesis. Section 4 discusses the results, and Section 5 discusses their implications.

⁴ The Santiago Principles consist of 24 generally accepted principles and practices voluntarily endorsed by the International Working Group Forum of Sovereign Wealth Funds (IFSWF). The Santiago Principles promote transparency, good governance, accountability, and prudent investment practices while encouraging a more open dialogue and deeper understanding of SWF activities (IWG 2008). The IFSWF is a voluntary organization of global SWFs committed to working together and strengthening the community through dialogue, research, and self-assessment

⁵ Depending on the origin of funds, there are two main groups of SWFs: 'commodities' SWFs or natural resource funds, and 'no commodities' SWFs. The former are mainly financed by oil, gas, and mineral revenues; the latter can be financed by excess tax revenues (for example, trade surpluses), surplus external reserves of central banks, pension contributions, revenues from privatization, or official development assistance. In this work, we are particularly interested in commodities SWFs because of our geographical framework.

2 Literature review

2.1 Stylized facts: sovereign wealth funds creation and proliferation in Africa

Sovereign wealth funds: a global phenomena

British economist Adam Smith (1776) first proposed state-controlled investment funds in the eighteenth century; however, it was not until the turn of the twenty-first century that the number of SWFs boomed. Apart from Norway, the Netherlands, France, and the UK, almost all SWFs are in the emerging and developing world.

Almost every member of the Organization of the Petroleum Exporting Countries (OPEC) maintains an SWF to effectively manage oil revenues over the long term and to lessen the impact of any commodity price volatility. The majority of these funds are located in elite-dominated societies: 70 per cent of SWFs in terms of both number and size are headquartered in the Middle East and Asia-Pacific regions (Truman 2009). In Africa their emergence and proliferation is officially centred on the promotion of economic and social development (Amoako-Tuffour 2016).

Most of the governments currently considering establishing SWFs are from Africa. In fact, the search for hydrocarbons on the continent has become so widespread that oil and gas exploration is being planned or is underway in over 50 African countries. Countries like Angola, Namibia, Ghana, Morocco, Somalia, Mozambique, and Madagascar are just a few of the geological wealthy countries where large oil fields have been recently discovered or are suspected. Following up the discoveries of these new hydrocarbon fields, policy-makers in each of these countries have announced their intention to set up SWFs, or to increase the number of active SWFs in countries where they have already been created (Triki and Faye 2011).

Africa had proven oil reserves of 132.4 billion barrels at the end of 2011, an increase of 154 per cent over the 1980 figure of 53.4 billion barrels (Brown 2013). Because of issues of what constitutes 'proven reserves', this figure likely grossly underestimates Africa's oil and gas potential, and does not include likely future reserves. Moreover, 'unconventional oil and gas reserves'⁶ have not been added to these proven reserve estimates despite the continent having substantial 'unconventional oil reserves' in several countries, including the Congo (Brazzaville), Nigeria, and Madagascar, and potential shale gas, most notably in South Africa, Algeria, Libya, Tunisia, and Ethiopia.

Sovereign wealth funds in Africa

As elsewhere, most African SWFs are established by the ruling elite, with the rare exception of Chad's fund for future generations. This SWF emerged due to the World Bank's request to establish an offshore oil management fund for inter-generational equity purposes. This was a prerequisite for providing a loan to the government of Chad for financing the controversial Chad–Cameroon Petroleum Development and Pipeline Project (Triki and Faye 2011).⁷ Therefore, we should bear in mind that apart from an external

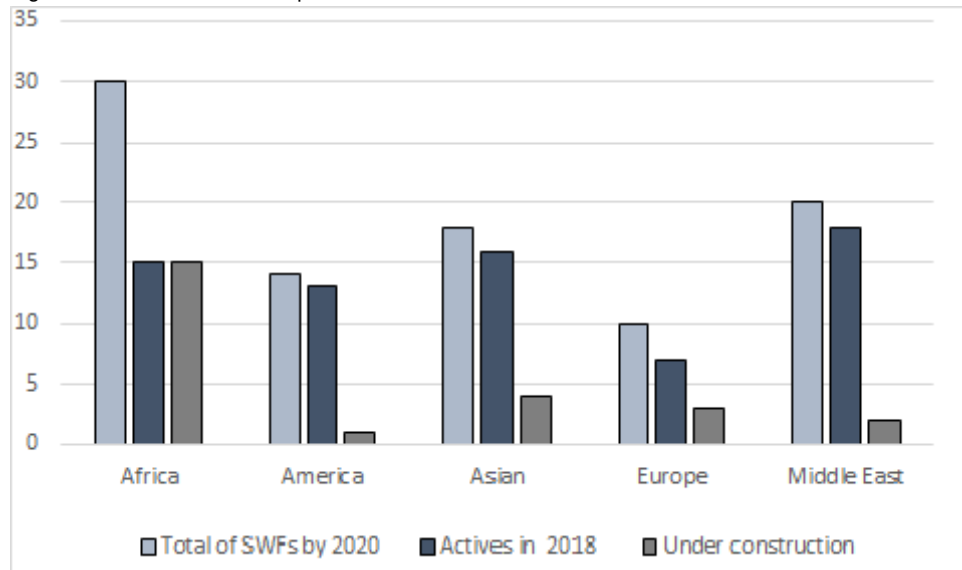
⁶ Unconventional oil and gas do not differ chemically from traditional or 'conventional' oil and gas. This differentiation results from their underground location or from the unusual nature of their reservoirs. These conditions require the utilization of new, often complex extraction techniques.

⁷ The Chadian SWF is constantly subject to concerns about bribery and embezzlement of revenues. The fund was originally established to reduce poverty, but apparently funds have been used for arms imports by Chad's president due to political

recommendation forced as part of an aid package, the ultimate decision to create an SWF is generally a conscious choice made by the ruling elite, who form the main veto players in these countries.

SWFs continue to increase their influence throughout global financial markets, despite significant challenges they face worldwide (such as falls in oil prices): 59 per cent of SWF funding comes from oil- and gas-related sources (Aizenman and Glick 2009). Nowadays, around 80 SWFs control more than US\$7.42 trillion in assets under management (AUM), which was only US\$3.4 trillion at the beginning of the year 2000 (Buteică et al. 2017). While only 2 per cent of AUM were managed by African SWFs in 2012,⁸ Africa is currently the most dynamic region in the world when it comes to creation of SWFs (Bank 2012) (Figure 2).

Figure 2: SWFs creation and proliferation in Africa



Source: authors, based on data from Wikipedia, Sovereign Wealth Fund, 2009.

In terms of active under management (AuM), African countries only control 3 per cent of active SWFs. Nevertheless, by the end of 2020 there will be at least 30 active SWFs in Africa, more than anywhere else around the globe. Some countries may have more than one SWF (like Nigeria, Ghana, and the United Arab Emirates (UAE)). In a scenario of a new boom of hydrocarbon prices in the next decade, this would place the greatest number of SWFs on the poorest continent in the world. This raises an important question: why are the ruling elite of such an impoverished region so enamoured with SWFs?

Pareto (1991) and Zuckerman (1977) were the first political economists to explain the notion of a dominant or ruling elite, corresponding to tiny and selected political groups with extraordinary personal attributes that manage the masses. They view the remainder of citizens as brainless, illogical, and, as a result, weakly coordinated. In such cases, it was perfectly easy for the ruling elite to handle SWFs to achieve their political agenda and increase personal wealth, especially in fragile and conflict-affected contexts (Pareto 1991). To understand how governmental finance institutions like SWFs emerge, we need to take into account how preferences are combined. At the top of the hierarchy there is the political force of the ruling elite, whose preferences count. The regime is established by these ruling elite, but citizens can begin a revolution. Accordingly, the ruling elite will choose policies to prevent or restrain a revolution or coup d'état.

instability created by terrorist attacks around the Lake Chad basin (by groups such as Boko Haram and Islamic State West Africa (ISWA)).

⁸ US\$121 billion in AUM, of which 86 per cent are managed by North African countries—Algeria, Libya, and Mauritania

Another crucial foundation of inefficient economic institutions rises from the political elite's desire to maintain their political power. Political power is the source of elite income, rents, and privileges. If their political power falls, their rents would fall. Therefore, the political elite will evaluate any potential economic changes not only in terms of economic consequences, such as their impact on growth and income distribution, but also on political consequences. Any economic changes that are likely to undermine the elite's political power will likely reduce their long-term economic benefits (Acemoglu 2013). So, even though macroeconomic challenges exist, SWF creation and proliferation also have political foundations.

2.2 Theoretical considerations

Political incentive theory and SWF emergence

Economic policy considerations are generally the explicit motivation and justification for legitimizing an SWF, especially in capital-scarce developing countries. But domestic political considerations can be equally important, and numerous external actors also influence the establishment of SWFs. Some scholars have argued that SWF creation is not entirely driven by macroeconomic objectives, for which they give different explanations.

In a study on UAE SWFs, Abdelal (2009) found that SWFs are essentially tools to preserve and increase wealth of the royal ruling family, to ensure loyalty of citizens to the ruling party, to get access to the high-finance arena, and to enhance strategic geopolitical alliances with great powers.

In the same vein, Monk (2011) argues that SWFs result from the ruling elite's desire to strengthen their hold on power and to increase their wealth and visibility in the global arena. Moreover, SWFs help them to send a signal of modernity to their citizenry to indicate an improvement in terms of resource rents and prudent management skills.

Hatton and Pistor (2011) and Grigoryan (2016) found that in weak democracies with dominant elites, SWFs are tools for the ruling elite's political survival. SWFs constitute a strategic financial tool that can help ruling elites to prevent a coup d'état, buy peace in order to avoid revolution, and make political gifts to the opposition (for example, appointing opposition leaders to the board of directors of an SWF).

Chwieroth (2014) used a Cox proportional model and found that SWFs' proliferation is an emulation effect. Schwartz (2012) argues that SWFs are a formal brand integrating three distinct frameworks that distribute ownership in various ways: (1) SWF are tools for government fiscal policy against macroeconomic deficits; (2) SWFs serve governments in the process of economic structural transformation; and (3) SWFs are tools for political survival of the ruling elite. We summarize early research on the political economy of SWFs in Table 1.

Using the public-choice theory developed by Buchanan and Tollison (1984), the benchmark assumption of political incentive theory is that survival is the primary objective of political leaders (De Mesquita and Smith 2010; de Mesquita et al. 2003). The leaders thus continually strive to satisfy domestic constituencies that help to keep them in power by improving economic growth, for instance through investment in domestic infrastructures (Pickering and Kisangani 2010).

Due to the fact that unequal redistribution of rents and divisions has been identified as among the root causes of domestic conflicts (Blattman and Miguel 2010; Collier and Rohner 2008), a sound understanding of the conditions that facilitate economic success (even in the short run) of fragmented states (in periods of stability) could be the key to getting out of a conflict cycle (Collier et al. 2003).

Table 1: Theoretical and empirical works on the political economy of SWFs' creation and proliferation

Authors	Theoretical or empirical results
Grigoryan (2016)	Theoretical: Building on game theory, the author models leaders' motivations to establish SWFs in autocratic Arab monarchies. The neo-patrimonial system sophisticated through SWFs helps monarchs to calm the elite class's political ambitions and to ensure their support for the regime (for instance by appointment of relatives or close friends to SWFs's executive boards, or buying the conscience of opposition leaders). SWFs may represent a suitable apparatus to achieve these ambitions, since they are long-term oriented.
Chwieroth (2014)	Empirical: The increase of SWFs is examined as a diffusion effect or trend among oil exporters. Results suggest that emulation of peer groups has played a leading role in decision making in different countries to create SWFs, especially in countries that export fuel, like OPEC members.
Schwartz (2012)	Theoretical: SWFs are a formal brand enveloping three different structural models, which share ownership in various ways. (1) Officially, SWFs are buffers for government fiscal policy against macroeconomic deficits related to large-scale exportation of hydrocarbons. (2) Concurrently, SWFs assist governments in developing industries and 'industrial bourgeoisie'. (3) Less officially, SWFs are instruments for bargaining for political stability, indispensable for their reign.
Hatton and Pistor (2011)	Theory: In weak democracies, SWFs serve leaders by condensing significant resource rents that can be used to: (1) bribe domestic opponents; (2) protect the economy during recessions, thereby reducing public dissatisfaction; (3) indicate collaboration to large foreign powers; and (4) SWFs also help the ruling elite to prove their governmental legitimacy in the global scene by showing institutions familiar to Western jurisdictions.
Monk (2011)	Theory: SWFs emerge to maintain and consolidate the ruling elite's autonomy and regime sovereignty by capitalizing on the power of the global market. In particular, SWFs from petro-monarchies have been set up to legitimize domestic economic investments, because SWFs symbolize modern institutions that promote financial channels to international markets.
Shih (2009)	Theory: Deeply integrated autocratic regimes are more inclined to use their SWFs to boost their long-term interests. In fragmented autocratic regimes, like in China, SWFs are mainly used as a ring for domestic political and bureaucratic battles. SWFs in divided societies are more inclined to medium-term and geo-strategic goals (such as consolidation of alliances with great powers); in such contexts, SWF management can be extremely erratic.
Abdelal (2009)	Theory: The Abu Dhabi Investment Authority (ADIA) and Mubadala SWFs form the 'institutional architecture' to manage the wealth of the Abu Dhabi rulers. These SWFs represent also for Abu Dhabi's rulers a tool to acquire the respect, dignity, and power that comes from participating in international markets.

Source: authors, based on the sources cited in the table.

According to Pinkovskiy and Sala-i Martin (2014), this is not a vain hope, as most African countries are going to be on target for the 2030 Sustainable Development Goals in terms of poverty reduction and human development. In order to stimulate this expansion, it is important to figure out whether promoting inclusiveness and power-sharing arrangements is beneficial by setting up SWFs (Cammett and Malesky 2012). However, those results may not be achieved due to the organization of African societies, which follows the logic of political clientelism and ethnic politics, where kinship bonds are prevalent in the formulation and implementation of public affairs (Bates 2014; Posner 2004). It is not clear that including more groups in the coalition will be helpful in all situations (Gaspard et al. 2015). Nevertheless, Kudamatsu (2008) and Easterly (2011) argue that autocracies can be economically prosperous.

In order to facilitate transnational generalization, the policy incentive strategy classifies these crucial national electors into two groups: the political body and the king makers (de Mesquita et al. 2005). The political body are those who constitutionally can be involved in the election of the head of state. They are essentially citizens of a given country. All of them are contingent, although frequently with a narrow probability to affect the vote of a new leader in practice. King makers are the veto-wielding players who can regulate the game and are engaged in all type of strategies to preserve the ruler or the monarch (de Mesquita et al. 2003, 2005). Hence, the political body represents the common understanding of the domestic population of a country, and the king makers are in alignment with the typical views of executive cartels or blocs and other aristocrats or elites.

Despotic regimes appear in many forms. While often they take the form of totalitarian regimes, they can also display a number of apparently democratic institutions (Gandhi and Przeworski 2006). All ruling elites need support from some groups to ensure their survival or perpetuation as the head of state. Moreover, many scholars have advanced that the redistribution of hydrocarbon revenues between the main political forces inside a country is a core element of political arrangements considered necessary to maintain peace and prevent coup d'état, military insurrection, and civil revolt (Azam 1995, 2006; Gandhi and Przeworski 2006). In this context, SWFs (official or unofficial) can serve as strategic tools that are useful for maximization of the ruling elite's autonomy.

In addition to surviving threats like external military intervention within the existing political systems, the ruling elite in autocratic states risk being overthrown by internal revolution de Mesquita et al. (2003). To ease threats of revolution, leaders can, for example, give new housing to young couples, set a very low domestic oil price so that citizens are less dissatisfied (as in Libya before the Arab Spring), or agree on the delivery of public goods, such socioeconomic infrastructure. The response of the ruling elite depends on existing institutions and the structure of public finances. These factors also affect the likelihood and direction of institutional changes, like the decision to set up a SWF.

Mechanisms through which the ruling elite use SWFs for their political agenda

According to Hatton and Pistor (2011), SWFs are 'autonomy-maximizing institutions' created and used by ruling elites. However, Hatton and Pistor (2011) do not explain mechanisms through which the ruling elite operate the SWFs. Based on the work of Acemoglu et al. (2004), we argue that the ruling elite generally operate through the 'divide-and-rule' strategy.⁹

This analysis starts from the classical assumption of almost all studies in economics and political science, which postulate that heads of state or monarchs (like in the UK) make decisions in highly institutionalized jurisdictions. In these jurisdictions, legal political institutions, like the Constitution, legislative structure, or electoral laws, impose restrictions on the conduct of political leaders. In democracies, this directly affects political and economic results.

In neo-patrimonial¹⁰ and kleptocratic¹¹ regimes, governments arise in fragile institutionalized political jurisdictions, where legitimate economic and political institutions do not impose meaningful constraints on political elites and do not make them responsible to citizens. In general, in countries where institutions are solid, tax-payers (who are mainly citizens) request rights and others facilities; everywhere that institutions are weak, such as in conflict-affected states, tax-payers beg for provision of public goods such as protection civil rights or better infrastructure networks (Acemoglu et al. 2004).

Despite the lack of efficient institutional apparatus to replace unproductive leaders, in weak democracies neo-patrimonial rulers face other kinds of threats, such as military intervention, civil revolutions, or military coup d'état. Thus, what explains why highly taxed producers or impoverished voters keep unpopular leaders? Why they do not develop sufficient protests to pressure the political elite? How could a presidency that manifestly does not profit anybody at all except the ruling elite's cronies exist?

⁹ Developed by Acemoglu et al. (2004), the divide-and-rule strategy is a system applied by neo-patrimonial rulers to conserve political power in weakly institutionalized states while following expensive policies for the non-elite classes.

¹⁰Neo-patrimonialism is a social pyramid system in which the ruling elite utilize state revenues, assets, or properties for their personal interests and to gain the allegiance of the general public.

¹¹Kleptocracy is a system of political and governmental bribery in which the executive branch exists to increase the personal wealth and political power of its high officials and the ruling class to the detriment of the general population, often with the pretence of the pursuit of a fair public service.

Our key explanation is that the absence of solid institutions enables neo-patrimonial leaders to pursue their own political agenda for their survival and to increase of their personal wealth. Mainly, they act through autonomy-maximizing institutions, like SWFs. As discussed, SWFs are effective in deactivating defiance as they can be used to buy loyalty and avoid political and economic uncertainty.

Despite not being exclusive to Africa, African neo-patrimonialism has turned into a universal model of an anti-development state. In many parts of the continent, access to political power still requires, in many cases, access to public funds as resource rents and self-security. This situation encourages a winner-takes-all mindset, which reduces engagement and favours vampire states. In order to ensure their political ascension or to preserve their business, elite groups tend to give their support to powerful leaders who share the benefits of power and escape being held responsible for endemic corruption.

In this context, to remove a neo-patrimonial leader from office requires a collaborative effort between separate social classes, which is slowed down by the collective action problem (Olson 1965).¹² By offering discriminatory inducements and sanctions, the divide-and-rule approach capitalizes on the vulnerability of social co-action.

As rightly pointed out by some scholars, SWFs are political by nature because of the way in which they were created and because they are substantially controlled by political elements (Truman 2010). Alternative saving tools to SWFs exist, such as payment of external and internal debts to reduce sovereign debts or domestic investment in infrastructures, human capital, etc. Moreover, 'to date, most of the resource-rich countries of Africa have not had investment rates commensurate with their rate of resource extraction' (Collier et al. 2010: 84). Meanwhile, citizens in Uganda, Tanzania, and India, as well as in a developed country like the UK, are expressing strong doubts about the real purpose of SWFs (Lansley 2016).

The link between the present study and the existing literature on natural resource windfalls and political duration

Even though there are several theories and countries for which there are empirical works on how resource rents can be linked to political survival, there are limited cross-country empirical studies on this topic. Yet some of them are noteworthy.

Questioning what shapes political regimes to rise, survive, and fall in a study of 135 countries between 1950 and 1990, Przeworski and Limongi (1997) suggest that authoritarian leaders are more likely to survive in resource-rich countries that obtained independence after 1960.

Based on rentier state theory, Wantchekon (2002) suggest that resource windfalls speed up the crystallization of an already settled dictatorship. Meanwhile, resource revenues likewise provoke the collapse of democratic regimes due to a combination of tenure privileges, political volatility, and political constraints. Their empirical results, which support their hypotheses, indicate a statistically significant connection between resource dependency and dictatorships.

Testing the effects of oil rents on regime collapse and internal conflicts by using time-series cross-sectional historical data of 107 developing countries from 1960 to 1999, Smith (2004) finds two key results. (1) Oil revenues strongly boost regime longevity, even when considering political constraints such as probability of civil war and internal conflicts. (2) Moreover, in most resource-dependent states,

¹²According to *Encyclopaedia Britannica*, the collective action problem is a 'problem, inherent to collective action, that is posed by disincentives that tend to discourage joint action by individuals in the pursuit of a common goal', such as preserving the environment (www.britannica.com/topic/collective-action-problem-1917157).

boom-and-bust oil-price cycles have insignificant effects on regime longevity, even if authorities of those countries face greater rebellions in periods of recession.

Smith (2004) and Ulfelder (2007) evaluate the correlation between natural resources and political survival. However, they focus primarily on the duration of autocratic regimes, and not on the duration of political leadership. Both studies use the Polity IV database by Gurr et al. (2010) to measure regime type, and both find that resource endowment, especially oil and energy reserves, prevent the transition to strong democracy. In other words, hydrocarbon revenues seem to allow non-democratic leaders to stay in office for a long time.

Ross (2008) examines the relationship between oil rents and rulers' duration in office. The results show that regardless of income types and region, the ruling elite of oil-exporting countries spend a longer time in power. In addition, Ross isolates effects of oil over time among authoritarian regimes and democratic regimes. The results show that while oil revenues reduce the chance of an autocratic leader leaving office, oil wealth does not affect the duration of democratic rulers.

In a sample of 101 ruling elites in 26 countries, Omgba (2009) analyses the duration of the rule of the head of state in the context of abundant resource rents. The results show a positive relationship between oil revenues and duration of African ruling elites in office; however, other minerals do not cause the same outcomes.

De Mesquita and Smith (2010) empirically test political survival of leaders and show that revolutionary threats increase the likelihood of overthrow for non-democratic leaders. Therefore, ruling elites with access to resource rents (oil, gas, and minerals) are best equipped to survive these threats and prevent their occurrence. In this context, unofficial SWFs are likely useful and one of the main tools for their political survival.

Cuaresma et al. (2011) examine the relationship between oil revenues and longevity in power for 106 dictators. Fundamentally, their results suggest that vast volumes oil considerably increase the duration of the dictatorship for both a relatively small sample and the most feared dictators.

In the same vein, more recently selecting a new measure of autocratic longevity, Wright et al. (2015) show that when a pattern permits unit effects, oil windfall favours despotic survival by reducing the risk of coup d'état by rival autocratic parties. Empirical results also show that oil rents increase military expenditures in dictatorships, which implies that rises in oil revenues could dissuade almost any threat of rebellion that could cause the regime to collapse.

While Cuaresma et al. (2011), Omgba (2009), and Ross (2008) rely on the duration of individual leaders, Andersen and Aslaksen (2013) focus their sample on longevity of the political party in power in a larger number of countries. Their duration variable is the number of years a chief executive's party has been in office. Their findings support the previous ones, indicating that oil is strongly associated with greater political sustainability in non-democratic regimes, but not in democracies. On the other hand, minerals are associated with shorter duration of office in undemocratic regimes.

The current study differs from the above-reviewed works in various ways. First, we interpret oil revenues differently. Although Cuaresma et al. (2011), Omgba (2009), and Ross (2008) all analyse resource rents, our focus is on whether the SWF is unofficial or official, and how this affects the duration of the ruler in power. We provide some mechanisms through which rulers maintain their power using unofficial SWFs.

Our main independent variable is whether rulers or government have any type of off-budget resource funds, called here unofficial SWFs, or official SWFs (for more transparency), funded from natural resource rents. Second, we include newly oil-producing countries, mostly from East Africa.

Despite the fact that the term extra-budgetary resource funds (EBRFs) appears comprehensible, in practice it represents a varied and complex set of entities. Presenting a relevant explanation and typology is useful for clarifying the concept of hidden SWFs and distinguishing their diversity.

According to Radev and Allen (2010: 1) ‘EBRFs refer to general government transactions, often with separate banking and institutional arrangements, that are not included in the annual state (federal) budget law and the budgets of sub-national levels of government.’ For the purpose of this article, we take EBRFs as a proxy for unofficial SWFs. Following the information outlines above, we formulate our hypothesis as follows:

H_1 : In resource-rich countries, unofficial SWFs increase African leaders’ duration in power more than do official SWFs.

3 Research design and model specification

3.1 Research design

Before discussing these factors in detail, we should note that the data allow us only limited view of decisions and the investments activities inside SWFs. We observe the establishment of an SWF, but in general information about the SWF’s characteristics—in particular its size—is notoriously unreliable due to the opacity surrounding their existence and their related activities. In order to have the widest range of data, we observe the most rudimentary aspect: the mere existence of an unofficial or official SWF, or the official announcement of an SWF’s creation. We must consider these data limitations in the formulation of verifiable assumptions.

Dependent variable

Here, the dependent variable is the logarithm of the number of years the chief executive has been in office. We collect our dependent variable from the World Bank’s Database on Political Institutions (DPI 2015) (Cruz et al. 2016). We denote it $\log(LDs)$ in our estimations. In the duration models, the observed process may have started on different dates for different individuals in the sample. By construction, the observations are brought back to 1 January of each year (Ongba 2009). The observed period for each country is the date on which the leader took office. The first observation period begins in 1967 and corresponds to the Gabonese presidency of Omar Bongo Ondimba, who eventually died in office in 2009. The year 2015 marks the end of all observation periods. For example, Bibi Ameenah Fridaus Gurib-Fakim, who was the president of Mauritius during 2015–18, only has one year in office in our sample. Because of data availability, our study is limited to 73 ruling elite occupiers of power in 32 African countries (Table 2).

Principal independent variable

In order to capture autonomy-maximizing behaviour of the ruling elites, we use two SWFs indicators in our model: unofficial SWF (*unoffswf*) and official SWF (*offswf*).

Table 2: Countries and ruling elites entrance dates

Algeria (2000) ^a	Morocco (2000) ^a
Angola (1976) ^a	Mozambique (1986)
Botswana (1999)	Mauritania (1985)
Cameroon (1982) ^a	Mauritius (1996)
Chad (1991) ^a	Nigeria (2000) ^a
Congo (1993) ^a	Rwanda (1995)
Congo (RDC) ^a	Sudan (1990) ^a
Egypt (1982) ^a	Senegal (1981) ^b
Eritrea (1994)	Sierra-Leone (1999) ^b
Ethiopia (1992)	Somalia (2001)
Gabon (1968) ^a	South Africa (2000) ^a
Ghana (1982) ^b	Tanzania (1996) ^b
Equatorial Guinea (1980) ^a	Tunisia (1988) ^a
Kenya (1979) ^b	Uganda (1986) ^b
Liberia (1998)	Zambia (1992)
Libya (1969) ^a	Zimbabwe (1988) ^a

^a Oil-producing countries; ^b In 2000, these countries were not oil-producing countries, but since 2010 they have been.

Source: authors.

How have we constructed the unofficial SWF variable?

We set up a dummy variable *unoffswf* as a proxy for any type of existing EBRF or any rainy-day funds during a presidency of a given ruling elite. We attribute the value 1 if during a president's occupancy the existence of an EBRF has been reported. In general, such sensitive information is displayed publicly. Moreover, based on information from the WikiLeaks diplomatic cables and the PANAMA papers financial scandal, we also control for unofficial SWFs by approximating them to illicit capital flows from Africa.

Existing research shows that African countries have experienced massive illicit financial flows, mainly to Western financial institutions. Here, we approximate those illicit capital outflows to unofficial SWFs.

Capital flight from Africa is not a recent phenomenon. It was identified as an issue as far back as the seventeenth century (Deppler and Williamson 1987). According to Ndikumana (2017: 2), capital flight comprises 'unrecorded outflows of capital from a country; foreign exchange resources that entered the country, for which there is no traceable use, in the form of payment for imports and other external liabilities; or the accumulation of foreign exchange reserves'. Capital flight is a subdivision of the broader phenomenon of illicit financial flows, which also cover money laundering, payments for smuggled goods, and other flows that either originated from illegal activities, were transferred overseas illegally, or are concealed once they reach foreign territories (Ndikumana 2017).

It is important to distinguish capital flight involving funds that were initially legally acquired from those involving illegally acquired funds. Our work is only interested in funds that were initially legally gained. It is estimated that Africa has lost over a trillion dollars through capital flight since the 1970s (Ndikumana and Boyce 2011). According to Ndikumana and Boyce (2003, 2008), Africa as a whole has turned into a net creditor to the world.

Some scholars observe that many African investors seem to favour overseas assets over national assets, as the continent currently has the largest share of foreign private assets of any developing region, which has a significant impact on sustainable economic growth, thereby eliminating these countries' dependence on aid (Kar and Cartwright-Smith 2010). One of the main channels of capital flight is the miscalculation of international trade, especially in raw materials (oil, gas, minerals, etc.), which is dominated by transnational corporations (TNCs). This is fostered by the weak enforcement of rules, non-transparent

trade statistics, and the ability of transnational companies to use their ‘complex structures’ to relocate profits by distorting trade data and ‘tax arbitrage’ (Ndikumana 2017).

According to Ndikumana and Boyce, African ruling elites built their ‘illicit wealth mainly from the appropriation of public assets, through opaque privatization processes, erection of private monopolies in key sectors of the economy, and outright embezzlement of government funds, including borrowed loans’ and foreign development help (Ndikumana and Boyce 2012: 1). The case of the Panama papers financial scandal is intriguing. It looks like a thriller and it won a Pulitzer Prize,¹³ but the Panama papers affair was not fiction.¹⁴

Our sources range across scientific research publications, governmental reports, technical reports of international organizations, relevant online sources (the Panama papers financial scandal and WikiLeaks), and published books on ruling elites.¹⁵

Our second core independent variable is the existence of a publicly known or official SWF named *swf*. Our data regarding the year of creation of the publicly known SWF is drawn from the SWF Institute (SWFI) 2015. SWFI is a global organization analysing public asset owners, such as SWFs and other long-term governmental investors. We define a country dummy variable that equals 1 if the country established an official SWF between 2000 and 2015, and 0 otherwise. Thus, those countries that are still planning to set up an SWF but have not already done so are assigned a 0 in this variable. A country can have both, since a ruling elite, whose political agenda is to stay in power, will try to have several official or hidden SWFs to which they have easy access.

Independent variables

We also include a number of political and social indicators as follows. The number of periods in office (*NumSof*): this variable controls for the leader’s previous experience as the incumbent. Indeed, there is evidence that a ‘comeback’ politician would be more likely to hold executive power longer than a new one (Chiozza and Goemans 2004). We draw (*NumSof*) using the variable (*yrsoffc*) of DPI 2015. This is 0 for a first presidency. It captures the survival behaviour of the rulers. In a context of increasing use of unofficial or official SWFs, the variable (*NumSof*) might be expected to increase the tenure of ruling elites.

We control for the type of governance using the World Governance Indicators (WGI). A democratic regime is generally accompanied by frequent changes in executive power (Ross 2001). However, the majority of African countries transitioned to democracy only recently, during the ‘Third Wave’ (Huntington 1991), beginning in the 1990s. For this reason, undemocratic states might be positively corre-

¹³The Pulitzer Prize is awarded for performances in newspapers, magazines, online journalism, literature, and music in the USA. The Panama papers biggest scandal so far has been regarding Prime Minister Nawaz Sharif of Pakistan, who was dismissed from his position as prime minister after information was disclosed that ‘led to a legal investigation which concluded that much of the Sharif family wealth had been hidden from tax authorities and may have been amassed illegitimately’ (Gosling 2018).

¹⁴The Panama papers scandal includes 11.5 million private documents from Panamanian law firm Mossack Fonseca, leaked by a German newspaper in 2016 (and forwarded to their media partners around the world). This caused political crises in China, Russia, Nigeria, Brazil, Argentina, and many other countries, where government leaders were mentioned as owners of secretive stockpiles of money in the tax haven state. The 2.6 terabytes of data from the Panama papers scandal, showing how wealthy individuals and transnational corporations hide their large assets in tax havens, is much larger than the 1.4 terabytes of WikiLeaks data (Gosling 2018).

¹⁵We acknowledge that the construction of the ‘unofficial SWFs’ variable can be disputed on some points and this has an impact on our final results and interpretations. However, as with measuring corruption, evaluating unofficial SWFs is challenging due to the opacity of their activities, which are not publicly available.

lated with the likelihood of unofficial SWFs as tools to prevent military insurrection, civil war, or a coup d'état.

In weak democratic regimes and authoritarian regimes, the leadership might indulge in some quasi-democratic processes. In its most developed form this allows opposition political parties and regular elections, through popular franchise, to an assembly with restricted legislative powers (approaching the category of a *de jure* or *de facto* one-party state). However, the defining feature is whether the leadership, that is the head of government, can organize transparent elections in which political opponents can lead to political change.

Control variables

The model also includes several control variables that have been found to be robustly associated with autonomy-maximizing behaviour of the ruling elite and the existence of hidden or official SWFs. There is ample evidence that hidden or official SWFs are linked to the existence of resource rents (Truman 2010). We therefore include measures of oil, gas, and mineral rents as a share of GDP (rents). Oil rents are expected to increase the survival of leaders to a greater degree than the other rents.

In addition, some observers suggest that in weak democracies economic risks may influence the ruling elite's survival. To control for this possibility, we include a number of relevant variables. Among them are the following.

The level of economic development: this is approximated by lagged GDP per capita in constant 2010 US dollars. The effect of this variable remains ambiguous, as one can expect that the more a country is developed, the less the citizens would tolerate unofficial SWFs and lengthy durations in power for the head of state (Ongba 2009). However, according to Londregan and Poole (1990), the poorest countries are more vulnerable to a coup d'état and therefore more susceptible to changes of the head of state. Thus, in such a context, there is a positive correlation between the length of the mandate and the degree of economic development. Following standard practice, we take the log of this measure to reduce the asymmetry of its distribution ($\ln gdp$).

Population: a large citizenry can reduce the resources available to each citizen, thus increasing the scale and level of threat to the system. The total population here is counted as an independent variable (Gurses 2011). A larger population also gives the possibility to mobilize a higher number of individuals, mainly from excluded ethnic groups (Fearon and Laitin 2003). In this context, it is more challenging for ruling elites to control a larger population (Ongba 2009). Hence, a negative correlation between the population variable and the leader's tenure is expected.

Commodity terms of trades (CToT): It is well known that substantial terms of trade shocks, which refer to a sudden, large, and enduring change to oil export prices, for instance, tend to affect the national income. Though at times it is difficult to determine whether a shock is transitory or permanent, any fluctuations in the world price of African countries' exports have an impact on economic growth and, as such, on political survival of rulers since their personal success is often correlated to their economic fortune. However, Deaton and Miller (1995) found that CToT is exogenous to domestic political events and helps to predict economic outcomes. The terms of trade here is constructed as the ratio of export prices to import prices and can be interpreted as the amount of import goods an economy can afford per unit of export goods. We expect that negative shocks on CToT will have a negative effect on economic growth and, consequently, on political survival. The above control variables are drawn from the World Development Indicators database, 2016. The summary of the statistics is displayed in Table 3.

Table 3: Summary statistics

	Mean	SD	Minimum	Maximum	Observations
<i>Leader duration (LD)</i>	120.16438	100.34448	1	42	511
<i>SWF</i>	0.6289063	0.48357	0	1	512
<i>Official swf</i>	0.2773438	0.4481254	0	1	512
<i>Unofficial swf</i>	0.46875	0.4995105	0	1	512
<i>No swf</i>	0.390625	0.4883676	0	1	512
<i>NumSO_f</i>	0.6171875	0.4865485	0	1	512
<i>PS</i>	-0.6402219	0.9350846	-30.314937	10.150208	480
<i>RL</i>	-0.7286944	0.69639	-20.606445	10.07713	480
<i>VA</i>	-0.7580366	0.7824831	-20.226054	0.9825176	480
<i>CC</i>	-0.6838216	0.6249901	-10.868714	10.216737	480
<i>GE</i>	-0.7035581	0.6718211	-20.445876	10.049441	480
<i>RQ</i>	-0.7175866	0.7378664	-20.64504	10.12727	480
<i>GS</i>	80.654135	10.661166	30.166667	110.58333	399
<i>DA</i>	30.055764	10.223468	0	50.5	399
<i>Corruption</i>	10.925021	0.7676193	0	4	399
<i>LO</i>	30.050961	10.180533	0.5	6	399
<i>BQ</i>	10.328008	0.6764762	0	20.5	399
<i>IP</i>	70.333542	20.103674	1	110.5	399
<i>Inpop</i>	160.30222	10.485668	110.8394	190.01501	508
<i>Ingdp</i>	60.706264	10.871297	0	100.27292	512
<i>InCToT</i>	40.795807	0.3729213	0	50.676423	508
<i>MilExp</i>	0.0818625	0.059531	0.0061013	0.4403411	415
<i>Ethnic tensions</i>	30.408693	10.2538	0	6	375
<i>Internal conflicts</i>	80.223867	10.772989	20.96	12	375
<i>External conflicts</i>	90.58208	10.674832	20.13	12	375
<i>Presidential</i>	0.5625	0.4965635	0	1	512
<i>Semi-presidential</i>	0.15625	0.3634473	0	1	512
<i>Parliamentarian</i>	0.28125	0.4500489	0	1	512
<i>Democratic</i>	0.2317073	0.4223525	0	1	492
<i>Anautocratic</i>	0.2378049	0.4261723	0	1	492
<i>Autocratic</i>	0.5304878	0.4995776	0	1	492
<i>Ethnic fractionalization</i>	0.6494906	0.2262669	0.0394	0.930175	496
<i>Religion tension</i>	0.4733291	0.2862423	0.0027548	0.8602599	512
<i>Real Capital flight/GDP</i>	4.20147	17.22934	-43.93	170.01	381
<i>Total rents</i>	11.35691	15.51744	0	63.45972	481

Note: SD: standard deviation.

Source: authors' calculations.

3.2 Model specification

We employ survival analysis to model the autonomy-maximizing behaviour of ruling elites through using unofficial SWFs. Duration models are extensively used to study subjects for which survival is the focus. The choice of a duration model is conditioned by whether a researcher has a theoretical reason to expect that the baseline hazard will follow a certain shape. Parametric models are appropriate when a researcher has an idea of what the baseline hazard looks like. However, if a researcher does not want to place any restrictions on the shape of the hazard, the semi-parametric Cox regression is more appropriate to analyse the survival data (Cleves 2008).

Theoretically, we can argue that the hazard rate for the survival of autocratic ruling elites linked to the existence of unofficial SWFs is more likely to follow a certain shape rather than being unknown. An incident of coup d'état, for example, might face a higher (or lower) probability of failure in the early periods than in the later periods, or the hazard might increase (or decrease) over time. As Gates et al. (2006: 899) put it, political entrepreneurs are not going to build a system of government that is supposed to collapse at once. The implication is that the hazard function would be expected to be non-monotonic,

such that the 'hazard of regime collapse initially increases and then, as consolidation mechanisms [as an unofficial SWF] come into play, the hazard declines'(Gates et al. 2006: 899). As such, a log-logistic model seems to be an appropriate estimation technique. But first, we let the data 'speak' through a non-parametric estimate.

Nonparametric approach: Kaplan–Meier estimator

There are several nonparametric approaches commonly used to estimate the survivor function and cumulative hazard function. The method of Aalen and Johansen (1978) estimates the cumulative hazard function. The Cox proportional hazards model allows additional covariates to be included, while the Kaplan and Meier (1958) method estimates the survivor function. Both of the latter two methods assume that the hazard ratio comparing two groups is constant over time. The Kaplan–Meier (or KM) estimator is the most popular approach and it allows us to approach empirical form taken by survival and hazard functions without assuming any specification (Andersen and Aslaksen 2013; Cuaresma et al. 2011; Lowi 2004; Omgba 2009).

In a first-stage analysis, we separate our rulers' tenures into three groups according to the type of resource at their disposal: oil, gas, and minerals. We construct a dichotomous variable for each. If oil (gas, or minerals) does not influence the leader's tenure, the survival function curve of the leaders of oil- (gas-, or mineral-) rich countries and that for non-oil- (gas-, or mineral-) rich countries should be the same.

Table 4: Test for equality of survivor functions

	Log-rank test			Wilcoxon test		
	Events observed	Events expected	Statistics	Events observed	Events expected	Statistics
Oil	0	19	12.87	19	12.87	chi2(1) = 1.62
	1	20	26.13	20	26.13	Pr>chi2 = 0.2032
Gas	0	12	8.91	12	8.91	chi2(1) = 1.9
	1	13	16.09	13	16.09	Pr>chi2 = 0.1677
Minerals	0	8	9.46	8	9.46	chi2(1) = 0.05
	1	26	24.54	26	24.54	Pr>chi2 = 0.8189
Unofficial SWF vs No SWF	0	31	22.70	31	22.70	chi2(1) = 2.35
	1	11	19.30	11	19.30	Pr>chi2 = 0.1250
SWF vs Unofficial SWF	0	30	33.08	30	33.08	chi2(1) = 2.82
	1	12	8.92	12	8.92	Pr>chi2 = 0.0928
No SWF vs Unofficial SWF	0	27	32.32	27	32.32	chi2(1) = 2.46
	1	15	9.68	15	9.68	Pr>chi2 = 0.1167

Source: authors.

We observe that the curve representing the survival function of leaders of either oil- or gas-rich countries are at each time above the one representing the survival function of leaders of no-oil and no-gas countries. Both of the above two Kaplan–Meier estimator results demonstrate that leaders of no-oil/no-gas African countries have a cumulatively higher risk of leaving power than the leaders of oil- and gas-rich African countries. The results show that while 65 per cent and 49 per cent of the leaders of the no-oil/no-gas African countries leave power within the first 10 years, 55 per cent and 74 per cent do so in the oil-/gas-rich African countries, respectively.

In addition, log-rank and Wilcoxon tests (Table 3) reject the null hypothesis of the equality of the two survival functions between oil and no oil, (5 per cent level) and unofficial SWF and no SWF (1 per cent level) and unofficial SWF and no SWF (1 per cent level).

Figure 3: Kaplan–Meier survival estimate, by oil

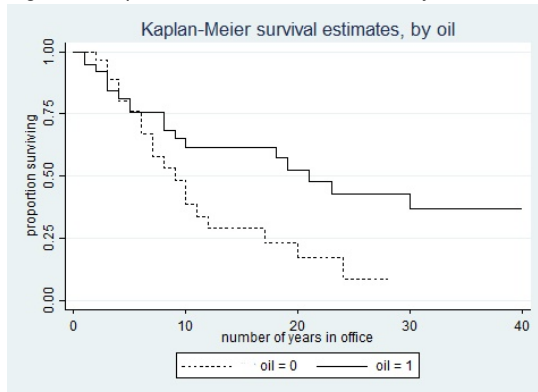


Figure 4: Kaplan–Meier survival estimate, by gas

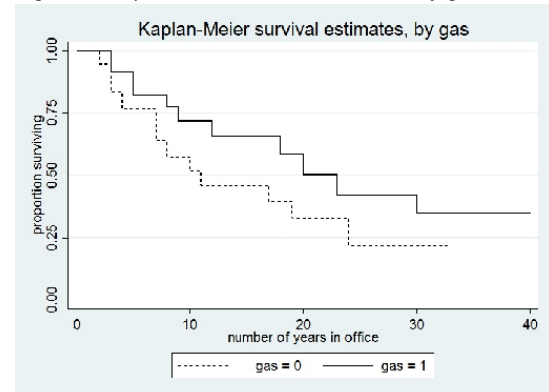


Figure 5: Kaplan–Meier survival estimate, by minerals

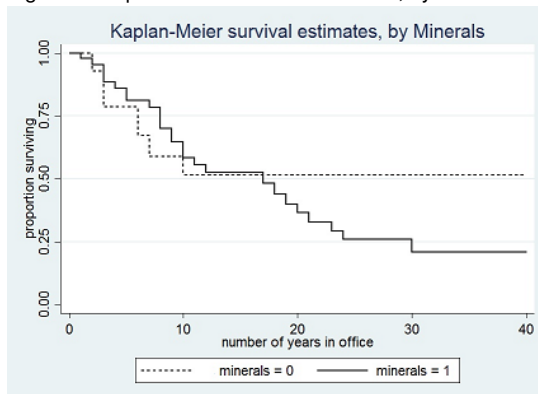


Figure 6: Kaplan–Meier survival estimate, by unofficial SWFs

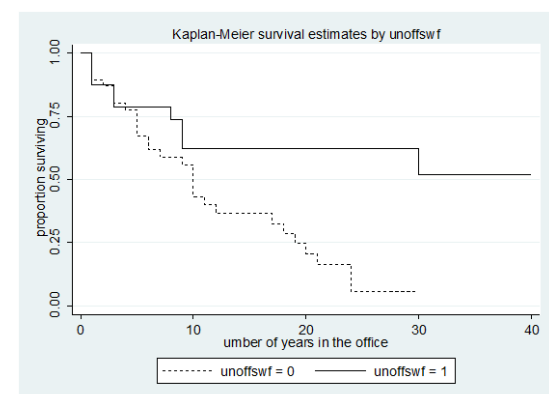


Figure 7: Kaplan–Meier survival estimate, by *offswf* vs *unofficialswf*

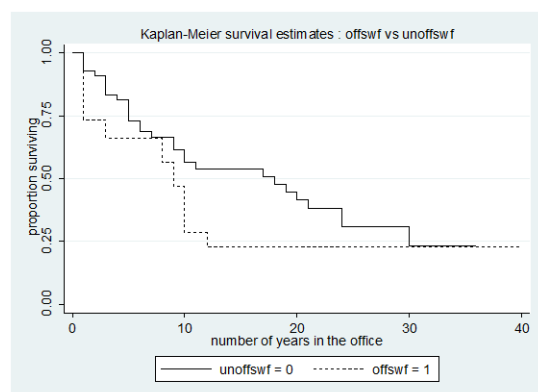
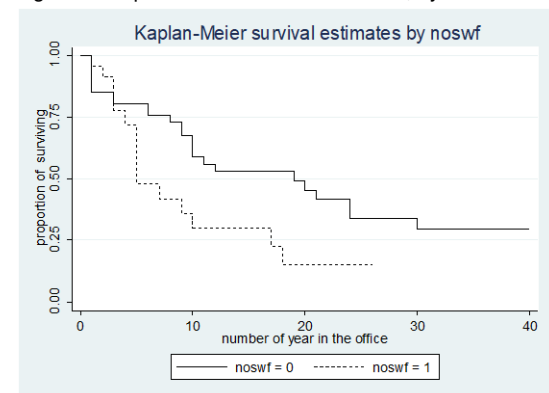


Figure 8: Kaplan–Meier survival estimate, by *noswf*



In contrast to Figures 3 and 4, the survival function curves in Figure 5, of the leaders of mining African countries and that for the leaders of non–mining African countries, overlap several times. The KM estimator seems to show that mineral rents do not influence the leaders' tenures.

Since in Africa SWFs are set up mostly from resource rents, in a second analysis we separate the countries in the sample into two groups according to the criterion of the existence of SWFs (either unofficial or official SWFs). The first group includes countries that hold unofficial SWFs. The second set of countries are those that have recently (since 2000) set up an official or publicly known SWF. These countries are generally members of the International Forum of Sovereign Wealth Funds and are taken into account in many specialized reports or studies by SWFI or the Truman SWF transparency index, or the resource governance index.

Figure 6 reveals the exact same results as Figures 3 and 4. We observe that the curve representing the survival function of leaders in countries with unofficial SWFs funded from oil and gas is at each time above the one representing the survival function of leaders without an unofficial SWF. Fifty-one per cent of the leaders of the no-unofficial SWF African countries leave power within the first 10 years, whereas 75 per cent do so in the unofficial SWF African countries.

The KM estimator seems to demonstrate that other mining revenues do not influence the leader's tenure. This result is not contradicted by log-rank and Wilcoxon tests, shown in Table 3; these tests do not make it possible to reject the null of equality of the two survival functions. These results suggest that in African states, neither mining resources nor official SWFs significantly influence the duration of power of ruling elites.

These nonparametric analyses suggest that in Africa, both the presence of oil and also the existence of an unofficial SWF increase the tenure of the head of state, whereas other mining resources do not have any influence on leaders' tenures. There seems to be no significant influence on ruling elites' tenure from official SWFs, perhaps due to the increased pressure from international organizations for more transparency in resource governance. We now turn to a parametric approach in order to further explore these findings.

Parametric approach: model selection and the appropriate form of distribution

In parametric and semi-parametric methods, we introduce explanatory variables. However, it requires specification of how the covariates and the form of the hazard function intervene. Several classes of survival models, such as the semi-parametric Cox model, are consistent with the hazard functions. Given that the proper distributional assumptions are made, parametric analysis is more efficient than non-parametric or semi-parametric models because prospective periods without leadership failures are also informative (Cleves 2008). Hence, if a parametric survival model can be robustly fitted to the data, such a model is preferred.

We base our choice of the appropriate distributional form of the parametric model on the Akaike Information Criterion (*AIC*) and the Bayesian Information Criteria (*BIC*), where lower test values indicate a better fit to the data.¹⁶ According to the AIC and BIC criterion, log-normal is the appropriate form of distribution for our sample.¹⁷

We draw on the earlier specification from Omgba (2009), revisited by Andersen and Aslaksen (2013). However, we add to the model first an SWF dummy variable that captures all variants of these governmental institutions without any distinctions. Second, we make a decoupling of this dummy variable into three dimensions of dummy variables, coded: *official swf*, *unoffswf*, and *noswf*. In our regressions when we included *official swf*, we excluded *noswf* and vice versa.

In our case, the survival criterion is defined by leader duration i being in power in year t . More formally, the model is specified as follows:

$$\ln(LD_{it}) = \alpha + X\beta + \gamma\varepsilon \quad (1)$$

¹⁶The AIC is defined as $AIC = 2\ln(L) + 2k$, while the BIC is $BIC = 2\ln(L) + \ln(N)k$. In both formulas, L is the likelihood estimate, k is the model's degrees of freedom, and N is the number of observations. AIC is best for prediction as it is asymptotically equivalent to cross-validation. BIC is best for explanation as it allows consistent estimation of the underlying data-generating process.

¹⁷Results not shown here, but are available upon request from the authors.

where $\ln(LD_{it})$, the dependent variable, is the logarithm of the leader's total number of years in office, X denotes a matrix of covariates, and γ is a scale parameter equal to $1/P$. Finally, ε is a random variable whose law determines that followed by $\ln(LD_{it})$, given X . The presence of censored data leads us to estimate via maximum likelihood, as estimation via ordinary least squares (OLS) would provide biased results (Box-Steffensmeier and Jones 2004).

We consider the accelerated failure time model, and in this case the explanatory variables are multiplied over the time duration. In other words, they have an additive effect on the logarithm of duration. Our model has the following form:

$$\ln(LD_{it}) = \alpha + swf\beta_1 + WGI\beta_2 + \ln GDPg\beta_3 + \ln CTOT\beta_4 + \ln pop\beta_5 + \gamma\varepsilon \quad (2)$$

$$\ln(LD) = \alpha + ofswf\beta_1 + unofswf\beta_2 + WGI\beta_3 + \ln GDPg\beta_4 + \ln CTOT\beta_5 + \ln pop\beta_6 + \gamma\varepsilon \quad (3)$$

where WGI represents the World Governance Indicators.

4 Results

4.1 Baseline regressions

Our baseline results are reported in Table 5. These results are in accelerated survival time of log-normal distribution. A positive coefficient indicates that the variable increases the survival time, and vice versa. Our dependent variable is the log of the duration of the head of state in office, coded here $\text{Log}(LD)$: leader duration. Column 13 represents our main baseline model.

Table 5: Baseline results

Dependent variable: Log (LD)															
Variables			Pol Gov		Inst Gov		Eco Gov		General GoV		Full Sample				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
<i>swf</i>	2.935*** (0.447)		1.346*** (0.306)		1.147*** (0.294)		1.100*** (0.305)		1.306*** (0.289)			0.313* (0.186)			
<i>offswf</i>		1.081* (0.582)		0.714* (0.402)		0.506 (0.434)		0.400 (0.442)		0.581 (0.424)	-0.0495 (0.284)		0.166 (0.243)		0.206 (0.324)
<i>unoffswf</i>		3.280*** (0.559)		1.309*** (0.391)		1.207*** (0.350)		1.218*** (0.357)		1.355*** (0.334)	0.767*** (0.253)		0.527** (0.206)	0.611** (0.292)	0.607** (0.296)
<i>noswf</i>														0.0849 (0.244)	
<i>NumSOI</i>			2.149*** (0.301)	2.139*** (0.302)	2.404*** (0.287)	2.376*** (0.278)	2.414*** (0.275)	2.384*** (0.270)	2.066*** (0.344)	2.093*** (0.332)	1.229*** (0.248)	0.935*** (0.240)	0.944*** (0.228)	0.943*** (0.227)	
<i>PS</i>			0.601** (0.244)	0.568** (0.263)					0.953*** (0.269)	0.960*** (0.282)		0.814*** (0.182)	0.778*** (0.189)	0.744*** (0.188)	1.015*** (0.274)
<i>VA</i>			-1.298*** (0.347)	-1.251*** (0.374)					-0.698 (0.451)	-0.451 (0.478)		-0.933*** (0.257)	-0.853*** (0.243)	-0.823*** (0.252)	-1.307*** (0.299)
<i>CC</i>					0.396 (0.580)	0.394 (0.619)			-0.0914 (0.599)	-0.0446 (0.644)		-0.187 (0.291)	-0.139 (0.279)	-0.144 (0.273)	-0.307 (0.395)
<i>RL</i>					-0.916** (0.459)	-0.928* (0.494)			-1.766** (0.734)	-1.687** (0.708)		-1.427*** (0.435)	-1.431*** (0.434)	-1.427*** (0.451)	-1.733*** (0.610)
<i>GE</i>							-0.482 (0.662)	-0.271 (0.656)	0.566 (0.678)	0.637 (0.689)		1.056** (0.488)	1.117** (0.480)	1.107** (0.497)	1.438** (0.655)
<i>RQ</i>							-0.0868 (0.635)	-0.317 (0.596)	0.221 (0.682)	-0.202 (0.671)		0.450 (0.355)	0.332 (0.345)	0.353 (0.331)	0.674 (0.450)
<i>lnCtoT</i>											-1.249*** (0.445)	-0.968*** (0.296)	-0.960*** (0.338)	-0.806*** (0.312)	-1.227** (0.501)
<i>lnGDPg</i>											2.150*** (0.530)	1.519*** (0.390)	1.634*** (0.382)	1.564*** (0.394)	2.128*** (0.579)
<i>lnpop</i>											-0.0932 (0.0685)	-0.00236 (0.0759)	-0.0382 (0.0841)	-0.0675 (0.0827)	-0.0552 (0.124)
Obs.	486	486	455	455	455	455	455	455	455	455	478	447	447	447	447
LL	-120.1	-119.6	-94.71	-95.96	-96.38	-96.99	-97.39	-97.67	-91.74	-92.53	-71.92	-57.18	-55.31	-55.49	-61.75
Wald chi2	43.16	44.53	229.9	194.2	241.9	244.9	227.2	235.4	284.1	254.5	498.3	686.3	741.7	742.4	394.9
NRE	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
Failures	42	42	41	41	41	41	41	41	41	41	42	41	41	41	41

Notes: the table presents time ratio estimates using the log-normal survival model. Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. LD: leader duration or the chief executive duration in office. All columns include a set of sovereign wealth fund dummies variables (SWF, offswf, unoffswf, noswf). NumSOI: number of spells in office. Political governance (Pol Gov): encompassing political stability (PS) and voice accountability (VA). Institutional governance (Inst Gov): entailing control of corruption (CC) and rule of law (RL). Economic governance (Eco Gov): consisting of government effectiveness (GE) and regulation quality (RQ). Global governance (G.Gov) including the six indicators of WGI. NRE: number of rulings elites

Source: authors' calculations.

Table 5 displays the results from employing the log-normal model on our preferred baseline sample of up to 32 countries and 73 LDs that start in 1967 or later. Additionally, the table also presents estimates based on the full sample with all our sample countries and LDs (32 countries, 73 LDs). Moreover, column 14 excluded new oil producers from the baseline sample, because it is only since 2012 that some leaders have discovered hydrocarbons in their countries, after two decades of exploration activity.

As discussed in Section 3.1, the baseline vector of explanatory variables contains four classes of variables: SWFs variables (*official swf*, *unofficial swf*, *noswf*), WGI (*PS*, *VA*, *CC*, *RL*, *GE*, *RQ*), economic variables (*GDPg*, *CTot*), and demographics (total population). We introduce the explanatory variables successively, beginning with our primary variables of interest as above.

Without any distinctions of the type of SWFs, column 1 in Table 5 reports the time ratio estimate of the value of LD and SWF when all other covariates are excluded. The time ratio estimate of SWF shows 2.935 at the 1 per cent level, meaning that a 1 percentage point increase in the value of an exciting SWF is associated with an average increase in the duration of the current political leadership of 1.1 per cent. This coefficient of SWF is positive and significant, suggesting that the existence of an SWF increases the duration of the ruling elite remaining in power.

Then we disaggregate the sample into three groups: those that have official SWFs (*swf*), those that have unofficial SWFs (*unofficialswf*), and the reference category, which do not have an SWF (*noswf*). So in column 2, we exclude *noswf* and all control variables; we only take into account SWFs and unofficial SWFs. The results here suggest that both unofficial and official SWFs are associated with a significant increase of leaders' duration in power, but that the former has a greater effect.

In columns 3 and 4 of Table 5, we control for variables related to political governance, and the results on SWFs and its covariates hold. We observe that while an increase in the Voice and Accountability (*VA*) score is associated with a shorter duration in power of the ruling elite, the rise of Political Stability (*PS*) has a stabilizing effect, which enhances the leader's duration in power. When controlling for indicators capturing Institutional Governance and Economic Governance in columns 5–8, we see that the significance of official SWFs diminishes, but that the effect of unofficial SWFs remains. Finally, when controlling for each of these factors combined in columns 9 and 10, we see that the results remain significant. In columns 11–13, we add variables related to economic and demographic risks—namely log terms of trade, log GDP growth, and log population. The results again hold. Across the specifications, it is clear that the significance of SWFs on duration of power is driven by those cases in which a country has an unofficial SWF. Our preferred results are those in column 13, as they include the full set of covariates. Column 13 displays our full sample.

In column 14 we excluded official SWFs and include no SWF and unofficial SWF; our results still hold. A comeback ruling elite would be more likely to hold executive power longer than a new one (Omgba 2009). In column 15 we exclude *numsof* (meaning number of mandates a leader has held after the first one ended or they were comeback leaders). Our results, as in baseline column 13, remain significant. Omgba (2009) find similar results.

4.2 Robustness and extensions

Changing distribution form and adding more control variables

In Table 6 we carry out a number of robustness checks; namely changing the distribution, excluding new oil producers and adding additional control variables. In column 16, we change the distribution form to log-logistic; our results still hold as in our baseline model in column 13. In column 17, we

exclude all ruling elites where hydrocarbons and minerals have only been recently discovered (during or after 2012), such as Mozambique, Uganda, and Tanzania; our previous results remain significant. From column 18 to 28 we add more control variables. We find in column 18 that higher military expenditures are positively associated with duration in power. Ethnic Tensions (*ET*) and External Conflict (*EC*) are negatively associated with leader duration (see columns 19 and 20), suggesting that *EC* and *ET* do not have a stabilizing effect on African leaders. Moreover *EC* × *IC* and *EC* × *ET* also have a significant negative effect on LD; these results are coherent with the literature and hold the expected sign. In a context of ethnic conflict and external intervention, rulers tend to not stay longer in office. The most recent case in Africa was when Muammar Gaddafi's government was overthrown in Libya during the Arab Spring in 2011.

Table 6: Changing distribution form and adding more socioeconomic control variables

Variables	Dependent variable: Log (LD)												
	Log Logistic	Old Prod.	Log normal form with more socio-economic and politics control variables										
	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
<i>offswf</i>	0.134 (0.290)	0.342 (0.270)	0.502* (0.293)	-0.247 (0.226)	0.112 (0.337)	-0.248 (0.232)	-0.000616 (0.344)	0.0536 (0.343)	0.0817 (0.211)	0.268 (0.262)	0.267 (0.262)	0.195 (0.216)	0.194 (0.216)
<i>unoffswf</i>	0.546** (0.244)	0.658** (0.264)	0.501** (0.208)	0.488** (0.172)	0.560** (0.228)	0.543** (0.167)	0.460** (0.216)	0.452* (0.237)	0.585*** (0.195)	0.455** (0.194)	0.456** (0.194)	0.572*** (0.201)	0.573*** (0.201)
<i>NumSof</i>	0.936*** (0.235)	0.840*** (0.239)	0.916*** (0.236)	0.596*** (0.206)	0.623** (0.274)	0.523*** (0.197)	0.583* (0.310)	0.491* (0.290)	0.880*** (0.230)	0.987*** (0.243)	0.988*** (0.243)	0.910*** (0.226)	0.910*** (0.226)
<i>PS</i>	0.784*** (0.242)	1.221*** (0.207)	0.922*** (0.201)	0.721*** (0.193)	0.759*** (0.234)	0.930*** (0.185)	0.580** (0.287)	0.886*** (0.269)	0.470** (0.198)	0.775*** (0.186)	0.775*** (0.186)	0.637*** (0.197)	0.638*** (0.196)
<i>VA</i>	-0.886*** (0.262)	-0.691** (0.324)	-0.716** (0.314)	-0.972*** (0.255)	-0.725** (0.362)	-0.874*** (0.286)	-0.966*** (0.340)	-0.740** (0.356)	-0.882*** (0.272)	-0.773** (0.374)	-0.784** (0.379)	-0.754*** (0.245)	-0.753*** (0.245)
<i>CC</i>	-0.0495 (0.299)	-0.243 (0.328)	-1.061** (0.514)	-1.342*** (0.406)	-1.467*** (0.532)	-1.116** (0.470)	-1.199** (0.527)	-1.127** (0.556)	-0.139 (0.267)	-0.173 (0.271)	-0.177 (0.271)	-0.0522 (0.280)	-0.0519 (0.279)
<i>RL</i>	-1.465*** (0.553)	-1.981*** (0.461)	-0.589 (0.560)	-0.164 (0.469)	-0.999 (0.618)	-0.558 (0.544)	-1.137* (0.611)	-1.704** (0.678)	-0.964** (0.397)	-1.368*** (0.503)	-1.363*** (0.503)	-1.281*** (0.397)	-1.282*** (0.396)
<i>GE</i>	1.095* (0.596)	1.208** (0.514)	1.337** (0.545)	1.845*** (0.443)	2.396*** (0.665)	1.901*** (0.446)	2.363*** (0.697)	2.612*** (0.672)	1.116** (0.452)	1.050** (0.498)	1.053** (0.498)	1.494*** (0.572)	1.499*** (0.571)
<i>RQ</i>	0.363 (0.382)	0.142 (0.444)	0.242 (0.389)	0.000150 (0.341)	0.158 (0.367)	-0.0429 (0.314)	0.188 (0.374)	0.258 (0.407)	0.222 (0.333)	0.272 (0.358)	0.274 (0.358)	-0.0699 (0.386)	-0.0770 (0.386)
<i>InCToT</i>	-0.879** (0.422)	-1.521*** (0.455)	-1.032*** (0.385)	-0.448 (0.309)	-1.043** (0.407)	-0.422 (0.302)	-1.137*** (0.413)	-1.085*** (0.413)	-0.773** (0.320)	-1.068*** (0.346)	-1.069*** (0.346)	-0.849** (0.366)	-0.840** (0.368)
<i>InGDPg</i>	1.481*** (0.457)	1.858*** (0.411)	0.781* (0.471)	2.718*** (0.454)	2.875*** (0.555)	2.225*** (0.515)	2.758*** (0.588)	2.439*** (0.552)	1.746*** (0.380)	1.579*** (0.406)	1.543*** (0.389)	1.680*** (0.403)	1.811*** (0.423)
<i>Inpop</i>	-0.0214 (0.0940)	0.0632 (0.115)	0.157 (0.121)	-0.332*** (0.129)	-0.193 (0.131)	-0.319*** (0.118)	-0.243* (0.146)	-0.259* (0.138)	-0.150 (0.0988)	0.0122 (0.0882)	0.0125 (0.0882)	-0.0990 (0.100)	-0.0989 (0.100)
<i>MilExp</i>			11.88*** (3.860)										
<i>ET</i>				-0.421*** (0.106)		0.593 (0.509)							
<i>EC</i>					-0.186** (0.0889)	0.226 (0.188)		0.228 (0.187)					
<i>EC</i> × <i>ET</i>						-0.113** (0.0568)							
<i>IC</i>							-0.00938 (0.105)	0.532** (0.235)					
<i>EC</i> × <i>IC</i>								-0.0626** (0.0256)					
<i>Religion</i>									-1.243** (0.513)				
<i>Language</i>									1.872*** (0.523)				
<i>Democ</i>										-0.157 (0.452)			
<i>Anautc</i>											-0.225 (0.370)	-0.0749 (0.358)	
<i>Autoc</i>												0.142 (0.461)	
<i>Presid</i>													0.587* (0.318)
<i>Semi-Pred</i>												0.365 (0.370)	-0.219 (0.286)
<i>Parlem</i>													-0.591* (0.316)
Obs.	447	342	369	333	333	333	333	333	432	432	432	447	447
LL	-57.34	-33.31	-44.52	-28.17	-35.58	-25.20	-37.27	-33.97	-47.94	-52.60	-52.62	-53.43	-53.39
chi2	843.5	610.6	639.2	860.6	606.3	911.5	636.3	637.6	782.2	702.3	700.0	849.1	855.3
NRE	71	54	62	53	53	53	53	53	69	68	68	71	71
Failures	41	29	33	31	31	31	31	31	40	39	39	41	41

Notes: robust standard errors in parentheses. Significance level of: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. LD: leader duration or the chief executive duration in office. All columns include a set of sovereign wealth fund dummy variables (SWF, *offswf*, *unoffswf*, *noswf*). Military Exp: military expenditures; ET: ethnic tensions; EC: external conflicts; IC: internal conflicts. Democ: democratic regime; Autoc: Autocratic regime; Presid: Presidential regime; Parlem: Parliamentary political regime.

Source: authors' calculations.

Weak democratic regimes can be characterized by their use of repression and loyalty (Wintrobe 1990). For this purpose, we then control for the political regime type by using data from the Polity IV database. Columns 24–25 control for regime type; they suggest that LD is not linked with either the democratic or autocratic regime and hybrid regime types, named anaucratic regimes. We then distinguish between presidential and parliamentary political regimes versus semi-presidential regimes (the reference category). Results (see columns 24–25 control) show that in presidential systems leaders tend to last longer than in parliamentary systems, where LD tends to shorten (see column 28). This suggests that the presidential political system has a stabilizing effect when compared to the parliamentary political system. We see that the significance of the coefficient on *unoffswf* drops to the 10 per cent level. In addition to the robustness discussed above, we have investigated whether the main results remain robust to a change of the political risks database used. We replace the WGI variables with corresponding variables from the International Countries Risks Guide (ICRG).¹⁸ The corresponding results, which remain robust, can be provided upon request.

We acknowledge that ruling elite-specific effects and unobserved variables can both also explain a long duration of a ruler remaining in power. In order to take all of these parameters into account, we estimate a survival random effects model. There are no fixed effect specifications available in the survival model.¹⁹ The corresponding results remain robust and can be provided upon request.

Party versus chief executive

Some scholars suggest that duration in power of the party of the chief executive is a better variable to control for survival of a given political power than the duration in office of the chief executive (Andersen and Aslaksen 2013). However, making this differentiation is not always easy, and in certain circumstances following the chief executive's duration in power may be the preferred choice.

To inquire into the robustness of our results with regard to the choice of duration variable, we reran our main regressions from the baseline results, first columns 1–10 and adding other institutional- and regime-type variables, but now employing the duration in office of the chief executive as the regressand. We choose the variable *PRTYIN*, capturing how long the party of the chief executive has been in office, from the database of Political Institutions (Beck et al. 2001). The *PRTYIN* variable has the same rules as *YRSOFFC* (how many years the chief executive has been in office): this is *NA* if there are no parties, if the chief executive is an independent, or if the 'party' is the army. In general, the counting restarts from 1 for a party if its name, party leadership or membership, and platform change.

Regressions reported in Table 7 show that the main results concerning the strong effect of unofficial SWFs and governance indicators remain significant. In Table 7, columns 13 to 16 we also control for country-specific institutions and regime types (semi-presidential, presidential, and parliamentary regimes; democratic, autocratic, and anaucratic regime). One difference when using the chief executive variable as the regressand in contrast to Table 5 results: the coefficients of unofficial SWFs appear to be more highly significant than when considering the party of the chief executive. Thus, the existence of unofficial SWFs seems to increase more the duration of leadership by the political party of the chief executive than that of the head of state specifically. Using oil rents as a percentage of GDP rather than SWF variables in a study of political survival, Andersen and Aslaksen (2013) found similar results. One

¹⁸Thus (Pol Gov): encompassing Government Stability (*GS*) and Democratic Accountability (*DA*). Institutional Governance (*Inst Gov*): entailing Corruption (*CC*) and Law and Order (*LO*). Economic Governance (*Eco Gov*): consisting of Bureaucracy Quality (*BQ*) and Investment Profile (*IP*).

¹⁹We acknowledge that this is, perhaps, a concern regarding the interpretation of our results.

possible intuition for this result is that the chief executive's party better captures the longevity of political power than the chief executive's term in office.

Addressing endogeneity concerns of the 'unofficial SWF' variable

In this section, we subject our baseline findings (in Table 5) to additional tests, in order to address concerns that the estimations are potentially biased due to endogeneity of the key explanatory variable, unofficial SWF. In particular, there is concern over reverse causality. We suppose that the fact that a ruler has been in power longer increases the likelihood that they set up an SWF or, particularly, an unofficial SWF, in order to further extend their grasp on power. We attempt to address this by use of an instrumental variables (IV) approach following Ahmed (2012). In order to make effective conclusions from such an approach, the instrumental variable should be a strong predictor of the potentially endogenous regressor (Ahmed 2012; Tchetgen et al. 2015).

We assume that unofficial SWFs, particularly those focused on overseas investment, can be classified on the widespread phenomena of capital flight (CF). There are a number of existing studies that track the determinants of capital flight. According to Ndikumana and Boyce (2012), the main drivers of capital flight are: corruption, dysfunctional regulation, weak enforcement of rules, money laundering, tax evasion, tax avoidance, lack of transparency, high and persistent budget deficits, excessive external borrowing, and political instability. Those factors, mostly common to weak democracies, are also a suitable environment for the emergence and proliferation of unofficial SWFs, especially in developing, resource-exporting weak states. So to control for endogeneity, we take CF as an instrument for unofficial SWFs. The CF data is expressed as a percentage of GDP and is taken from the updated database of Ndikumana and Boyce (2018). We also use the total value of the sum of oil, gas, and mineral rents, as a percentage of GDP.

Results are reported in Table 8. These are estimated using two-stage least squares (2SLS) using the `ivreg2` command in Stata. The results are supportive of existing findings; the variable unofficial SWF remains positive and is significantly related to duration in power in all specifications. One note of caution: the model estimated here is not a survival model as those above; the 2SLS regression, however, retains the same dependent variable as used before. Moreover, when we ran the regressions of Section 4.1 using an OLS model, the results were very similar (in terms of sign and significance of coefficients) to those from the survival model.

An important question when following an IV strategy is to test the validity of the instruments included, or how strongly correlated with the endogenous regressor they are. According to Baum et al. (2007), a useful first rule of thumb when doing this is to check that the Kleibergen–Paap rk F-Statistic is >10 . We see that in all but one of the regressions tested the instruments pass this under-identification test. Another useful test of instrument validity is the Hansen J-statistic or, more precisely, the associated p -value. We see that in most specifications we can fail to reject the null, though this is borderline in columns 1–3. Thus, we can reasonably confidently conclude that our instruments are valid.

Table 7: Effect of *unoffswf* on duration in power of the party of chief executive

Dependent variable : Log (PLD)																
Variables	Pol Gov		Inst Gov		Eco Gov		General GoV		Adding more control variables							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(59)	(60)	(61)	(62)	(63)	(64)
<i>swf</i>	3.654*** (0.487)		2.502*** (0.440)		2.340*** (0.450)		2.221*** (0.457)		2.388*** (0.464)							
<i>offswf</i>		2.412*** (0.762)		1.995*** (0.664)		1.873*** (0.714)		1.745** (0.698)		1.870** (0.727)	0.784 (0.623)		0.517 (0.635)	0.622 (0.741)	1.278** (0.607)	0.840 (0.737)
<i>unoffswf</i>		3.660*** (0.678)		1.979*** (0.634)		1.844*** (0.558)		1.761*** (0.580)		1.872*** (0.679)	1.783*** (0.600)	1.984*** (0.625)	1.475** (0.578)	1.333** (0.611)	1.484** (0.640)	1.780*** (0.662)
<i>noswf</i>												0.951 (0.737)				
<i>NumSof</i>			1.887*** (0.469)	1.921*** (0.478)	2.189*** (0.481)	2.231*** (0.499)	2.185*** (0.433)	2.238*** (0.453)	1.827*** (0.524)	1.907*** (0.534)	-0.0271 (0.665)	-0.627 (0.682)	-0.0481 (0.610)	-0.219 (0.601)	-0.181 (0.600)	-0.0224 (0.665)
<i>PS</i>			0.756* (0.433)	0.724 (0.542)					0.844* (0.499)	0.842 (0.630)	0.681 (0.483)	0.638 (0.490)	0.745* (0.409)	0.748 (0.476)	0.873 (0.541)	0.710 (0.556)
<i>VA</i>			-1.528*** (0.585)	-1.573** (0.684)					-1.433* (0.819)	-1.355 (0.905)	-1.260 (0.817)	-0.920 (0.711)	-2.195** (1.052)	0.719 (1.219)	-1.291* (0.767)	-1.225 (0.875)
<i>CC</i>					0.152 (1.133)	0.151 (1.230)			-0.176 (1.222)	-0.139 (1.378)	-2.477** (1.123)	-2.490* (1.358)	-2.083** (1.051)	-1.741 (1.245)	-1.923* (1.113)	-2.534** (1.183)
<i>RL</i>					-0.631 (0.893)	-0.715 (0.973)			-0.296 (1.345)	-0.280 (1.401)	2.926*** (1.068)	2.688** (1.306)	2.475*** (0.957)	1.449 (1.255)	2.577** (1.121)	2.898** (1.337)
<i>GE</i>							-1.273 (1.139)	-1.102 (1.241)	-0.937 (1.203)	-0.797 (1.352)	-0.177 (1.227)	-0.463 (1.300)	-0.00110 (1.165)	-0.495 (1.245)	1.573 (1.357)	0.00618 (1.464)
<i>RQ</i>							0.690 (1.046)	0.438 (1.120)	1.059 (1.089)	0.721 (1.239)	1.083 (1.055)	1.224 (0.947)	1.174 (1.045)	0.860 (1.236)	-0.738 (1.027)	0.955 (1.220)
<i>MilExp</i>											35.03*** (9.852)	33.62*** (9.696)	25.38** (11.96)	26.84*** (10.14)	22.33*** (8.650)	35.31*** (12.54)
<i>Democ</i>													1.164 (0.806)			
<i>Anautc</i>													0.599 (0.857)	1.315 (0.992)		
<i>Autoc</i>														2.382* (1.221)		
<i>Presid</i>															2.007*** (0.677)	
<i>Semipred</i>															1.559** (0.734)	0.0995 (0.812)
<i>Parlem</i>																-0.0924 (0.887)
Obs.	359	359	337	337	337	337	337	337	337	337	282	282	281	281	282	282
LL	-105.6	-107.3	-84.98	-87.88	-87.24	-89.77	-86.96	-89.63	-84.33	-87.50	-56.90	-56.53	-55.77	-53.79	-51.95	-56.88
chi2	56.40	35.40	95.05	69.43	105.2	82.60	104.5	80.87	99.33	77.56	156.1	167.4	196.7	194.4	243.8	170.3
NRE	60	60	60	60	60	60	60	60	60	60	53	53	53	53	53	53
Failures	36	36	35	35	35	35	35	35	35	35	30	30	30	30	30	30

Notes: robust standard errors in parentheses. Significance level of: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. PLD: party of leader or chief executive duration in power. All columns include a set of sovereign wealth fund dummy variables (*SWF*, *offswf*, *unoffswf*, *noswf*). *MilExp*: military expenditures. *Anautc*: anautocratic regime or intermediate or hybrid regime; *Autoc*: Autocratic regime; *Democ*: democratic regime; *Presid*: presidential regime; *Semipred*: semi-presidential regime; *Parlem*: Parliamentary regime.

Source: authors' calculations.

Table 8: Replacing 'Unofficial SWFs' with capital flight

Variables	Dependent variable : Log (LD)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>unoffswf</i>	24.67*** (2.372)	13.71*** (1.872)	21.46*** (3.647)	21.00*** (3.127)	9.112*** (1.847)	21.21*** (2.505)	14.07*** (2.355)	38.45** (17.22)	13.19*** (2.824)
<i>offswf</i>	-1.517 (1.454)	-1.220 (0.924)	-0.795 (1.459)	-0.210 (1.356)	-0.570 (0.840)	-3.934*** (1.294)	-3.160*** (1.108)		-3.355*** (1.259)
<i>No SWF</i>								25.69* (13.41)	
<i>NumSof</i>		10.88*** (1.029)	12.42*** (1.393)	12.33*** (1.423)	10.52*** (0.810)	11.33*** (1.232)	9.706*** (0.904)	8.913*** (1.503)	
<i>PS</i>		5.802*** (0.544)			5.936*** (0.483)		3.615*** (0.639)	1.346 (1.551)	4.231*** (0.711)
<i>VA</i>		-4.514*** (0.801)			-4.757*** (0.842)		-3.880*** (0.923)	0.427 (3.075)	-8.220*** (0.976)
<i>CC</i>			-5.324** (2.358)		-9.891*** (1.441)		-12.71*** (1.515)	-11.47*** (2.551)	-14.66*** (1.859)
<i>RL</i>			9.329*** (2.105)		6.305*** (1.844)		9.487*** (2.145)	14.71*** (4.640)	6.586*** (2.450)
<i>GE</i>				-0.509 (2.022)	-0.131 (1.412)		-0.0755 (1.612)	-2.693 (3.506)	4.066** (1.931)
<i>RQ</i>				3.050* (1.736)	0.891 (1.099)		2.231* (1.190)	-0.0541 (1.520)	3.855*** (1.346)
<i>InCToT</i>						-3.264** (1.636)	-3.610*** (1.285)	-4.311* (2.381)	-3.348* (1.709)
<i>InGDPgrowth</i>						-2.863** (1.188)	-4.205*** (0.480)	-2.533* (1.373)	-4.626*** (0.529)
<i>Inpop</i>						-3.613*** (0.460)	-2.550*** (0.428)	-5.196** (2.100)	-2.810*** (0.480)
<i>Constant</i>	0.886 (1.662)	-0.511 (0.833)	-3.086** (1.491)	-4.231*** (1.468)	0.120 (0.758)	82.92*** (11.48)	76.29*** (9.551)	97.32*** (29.07)	85.80*** (11.36)
<i>Observations</i>	354	331	331	331	331	350	327	327	327
<i>R-squared</i>	-0.396	0.579	0.139	0.108	0.725	0.304	0.704	0.447	0.603
<i>Cragg-Donald Wald F Statistic</i>	48,06	29,22	16,46	23,11	28,48	32,3	15,81	2,371	15,725
<i>Hansen J Statistic P-value</i>	0,005	0,06	0,037	0,033	0,109	0,454	0,893	0,2028	0,9655

Notes: robust standard errors are in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Unofficial SWF is instrumented by the (1) total value of oil, gas, and mineral rents; and (2) the value of capital flight as a percentage of GDP. The number of observations drops compared to the baseline specification due to the lesser coverage of the capital flight data.

Source: authors' calculations.

Why, despite the existence of SWFs, do some ruling elites survive while others fall?

To date, in sub-Saharan and North African countries as well in Middle Eastern petro-monarchies, only elected presidents or military leaders have fallen from power; no king has fallen from their throne due to the Arab Spring (Barany 2012; Wagner and Cafiero 2010). Yet our story of the role of SWFs in elongating the duration of power only goes so far: it is also necessary to investigate other reasons why some ruling elites survive while others fail. Authoritarian monarchies are, of course, not immune to forces that brought down some of their counterparts, so why have they all survived? Some scholars found that the Arab World's authoritarian monarchies are seen to be more legitimate than authoritarian republics because of their claim to be direct descendants of the Prophet Mohammed (Totten 2013; Wagner and Cafiero 2010). Some Muslim followers are therefore more tolerant of authoritarian monarchs than authoritarian presidents, and many Arabs are emotionally connected to their rulers and admire them profoundly, even though basic freedoms are restricted (Wagner and Cafiero 2010). For example, the ability of Qatar and the UAE to effectively distribute petro-wealth among their citizens has likely successfully purchased political acquiescence over the last decade. The same may certainly be said of Saudi Arabia (Grigoryan 2016).

Some scholars contend that authoritarian monarchies are intrinsically more resilient than authoritarian (civil or military) republics due to their religious, cultural bedrocks and institutional organizations (Bank et al. 2015; Lucas 2004). However, today outside elements in the shape of geopolitical backing and petroleum wealth have played a more effective role in insulating authoritarian monarchies from violent or peaceful citizen protests.

Based on a comparative analysis, Yom and Gause III (2012) present more clarifications that better explain the resiliency of authoritarian monarchies in the Middle East, focusing on calculated royal arrangements initiated in conditions of geographic fortuity: (1) engagements in cross-cutting alliances; (2) oil wealth; and (3) overseas patronage. In the absence of these three components, authoritarian monarchies are just as vulnerable to overthrow as any other authoritarian republic, something that historical events make clear, just by observing the lengthy register of dethroned kings in the region over the past half-century.²⁰ These authoritarian monarchies persevere not due to any religious and cultural traits or particular institutions, but because they are ingenious survivors in a permissive external environment favouring their regimes (Anderson 1991; Yom and Gause III 2012).

Apart from Libya, no Arab ruling elites with substantial hydrocarbon wealth have fallen during the last decade. In the case of Libya, it was the North Atlantic Treaty Organization's (NATO) intervention that tipped the balance against Gaddafi (Ross 2011). Despite not being a descendant of the Prophet Muhammad and mainly without NATO intervention, Gaddafi might have survived under national pressures. As for Jordan and Morocco, we attribute their resilience to the introduction of political reforms early on in the process Wagner and Cafiero (2010).

5 Concluding remarks and policy implications

The purpose of this study is to examine the link between SWF proliferation and duration of power in Africa. The intuition that starts from the theoretical work of Hatton and Pistor (2011) is that SWFs constitute a financial tool controlled by the ruling elite for their political survival and an increase in their personal wealth. In fact, following growing political and economic uncertainties around the world, such as the recent global financial crisis, the fall in oil prices since 2014, and political disruptions such as Arab revolutions in Tunisia, Libya, and Egypt, African ruling elites have adopted an increasingly diverse array of innovative tools to protect their autonomy within the global system and to hedge against unexpected turmoil under the shadow of the great powers.

This practice of using unofficial SWFs as a policy tool for political survival is not limited to Africa, as Shih (2009) showed; the same autonomy-maximizing behaviour of the ruling elite via SWFs is also common in Asian and Middle Eastern SWFs. However, our major contribution in comparison to previous works cited is that many African ruling elite, who have been in power for too long despite their unpopularity, generally maintain unofficial SWFs or other hidden SWFs. Through divide-and-rule strategies (Acemoglu et al. 2004), unofficial SWFs help the ruling elite to accumulate sizeable resource rents that can be employed to pay domestic opponents, to protect the economy from major downturns thus avoiding mass popular dissatisfaction, to signal collaboration to major dominant foreign states, and to increase the legitimacy of their regime on the international level by reproducing institutionalized structures familiar to mature democracies.

²⁰Many authoritarian monarchies have been overthrown and the countries have become republics (Egypt 1952, Iraq 1958, North Yemen 1962, Libya 1969, Iran 1979) (Anderson 1991; Bank et al. 2015; Kurzman 2009).

We use a duration model over 73 presidencies to test this autonomy-maximization theory of ruling elites. Our results suggest that, in Africa, autonomy-maximization theory has been crucial in shaping the decisions of most ruling elites to set up SWFs, particularly unofficial SWFs in oil-rich countries. Our results indicate that unofficial SWFs have a significant stabilization effect on African rulers' duration in power. This work empirically shows that most ruling elites who have been in power for a long time generally hold unofficial SWFs.

Most African nations are resource-rich countries, so most of the ruling elites have the potential to set up either an official SWF or an unofficial SWF. Our empirical results provide robust support for the theoretical work of Hatton and Pistor (2011).

Regressions suggest that SWFs are tools for autonomy maximization of rulers to secure their political survival and personal wealth in petro-monarchies of the Middle East. However, we find that official SWFs do not have the same stabilization effect on duration in power as unofficial SWFs.

To the best of our knowledge, this paper is the first to empirically generate new results on African SWF creation and proliferation. These are tools for autonomy-maximization of African kleptocrat rulers and the ruling class. This study contributes to the research on the political economy of SWFs, particularly in the African context. African SWFs have received very little scrutiny and there are few empirical works on African SWFs. It is probably due to their investment behaviour—mainly home based—and their small size of total AuMs. African SWFs' AuMs represent 3 per cent of AuMs (publicly known) compared to 40 per cent of AuMs for Asian SWFs (China, Singapore, Hong Kong, etc.) and 35 per cent of AuMs of SWFs for petro-monarchies (Qatar, Kuwait, etc.).

To conclude, our results have many policy implications: in terms of economic growth, term limits, increased accountability of rulers when it comes to resource-revenue management, and finally with regard to Western hegemony and weak states with huge resource endowments (oil, gas, minerals).

First, Africa is often viewed as a region where ruling elites can do what they desire, free of constitutional or democratic constraints on their behaviour. Moreover, a considerable literature has maintained the idea that rule of law can be mocked at will, driving to a context in which what truly counts is the personality of the ruling elite, not the democratic rules of the game. The new trend is that in some countries the ruling elite can no longer behave this way without consequences—for example, Muammar Gaddafi in Libya (42 years) and Blaise Compaore in Burkina-Faso (27 years); in spite of having active unofficial SWFs, due to a public backlash the ruling elites of these both countries have been ousted.

Second, in Africa, term limits, as other constitutional constraints, are not secure from abrogation. In countries where those limits are respected, such as Nigeria (where an official SWF and several unofficial SWFs co-exist), it is probably because ruling elites do not possess sufficient power to dissolve term limits and not because they would not want to extend their duration in power. When the ruling elite respect term limits and stand down, it goes mostly unremarked. This has established the fallacious belief that the African ruling elite can change the rules as they wish.

Third, in countries with no SWFs due to a lack of natural resources, the ruling elite stay in power for shorter periods (due to either natural death, voluntary resignation, or losing elections) than in resource-rich countries that hold unofficial SWFs. This result is similar to those of Posner and Young (2007), who found that term limits have twice as much chance of being honoured in less resource-endowed countries than in oil- and gas-exporting countries.

Fourth, despite the fact that some ruling elites use unofficial SWFs to maintain their hold on power, this behaviour is consistent with economic growth, at least in the short run. Since political stability is fundamental to their survival in power and in order to avoid civil threats, the ruling elite will make

sure to provide a minimum of facilities such as investment in infrastructure that generates considerable numbers of jobs. Can this strategy be sustainable in the long term?

Fifth, the current challenges to Africa's development (such as poor governance and poverty) cannot be attributed solely to unofficial SWFs that the ruling elite use to maximize their personal wealth. Rather, it is also crucial to wholly recognize and question the interventions of Western governments through their transnational corporations (TNCs), who lock many pauper countries 'into neo-colonialism patterns of trade and production' (Langan 2017: 117).

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