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ABSTRACT

In this paper we empirically analyze the socio-economic determinants of the existence of military dictatorships in Africa. A recent literature in political economy analyses the relationship between the civil undemocratic government and the military as an agency problem: the civilian government needs the army to avoid internal violence, but a larger army reduces the opportunity-cost for the military to run a coup d'état and seize power. These papers derive three main causes of military rule: income inequality, ethnic fractionalization, and external threat. We empirically analyze these issues by estimating the probability that a country experiences a military rule. We consider 48 African countries over the period 1970-2007.

Keywords: dictatorship, Africa.

JEL codes: D74, P48, Q34.

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1. Introduction

Since the start of the so-called third wave in 1974, and the acceleration after the fall of the Berlin Wall in 1989, democratization has been impressive. According to the Economist Intelligence Unit (2011), one-half of the world's population now lives in a democracy of some sort. More specifically, 12.3% lives in full democracies, 37.2% in flawed democracies, 14.0% in hybrid regimes, and still 36.5% in authoritarian regimes. Authoritarian regimes, in which the military plays a direct (when a *junta* rules the country) and indirect role (when the army guarantees the monopoly of violence for a civilian despotic government), are the second largest regime group. A similar ancillary role can be found in hybrid regimes. A recent literature in political economy (Acemoglu et al. (2010) and Besley and Robinson (2010)) analyses the relationship between the civil undemocratic government and the military as an agency problem: the civilian government needs the army to avoid internal violence, but a larger army reduces the opportunity-cost for the military to run a coup d'état and seize power. These papers derive three main causes of military coups: income inequality, ethnic fractionalization, and external threat.

The current work is intended to empirically analyze a step forward. In fact, we investigate the existence of a military rule on a panel of 48 African countries for the 1970-2007 period controlling for a number of economic variables. That is, we do not analyze the outbreak of military dictatorships, but the economic conditions that make a military rule possible. In fact, actual conflicts do not take shape in a *vacuum*. An actual conflict would not take shape in the absence of a continuing and latent conflict. Put differently, the outbreak of an actual conflict (as a civil war or a coup d'état) can be considered as a revelatory event of a permanent continuing conflict. Then, we are interested in the existence of a continuing conflict and the institutions which take shape consequently. In a game-theoretic perspective, institutions as the rules of the game are the equilibrium of a game between parties in a society. This idea, in a game-theoretic perspective, has been labeled 'the institution as-an-equilibrium approach' (Aoki, 2001: 15). This approach underpins our empirical study. In sum, the current work is intended to empirical analyze some determinants that make a 'military equilibrium' possible at a given point in time.

In other words, when studying the factors associated with the existence of a military rule, we are highlighting the 'pillars' of that societal equilibrium. needless to say, it must be also remarked that results have to be interpreted *cum grano salis*. A military rule can effectively affect at least some of the economic and political variables that we henceforth use as explanatory. In order to draw some additional insights in this respect, we also use one- and five-lag of the economic variables on the presumption that, for example, the GDP per-capita of five years ago is not determined by the presence of a military dictatorship today, whereas bad economic conditions at that time can influence the existence of such a dictatorship later on.

The paper is organized as follows: Section 2 reviews the literature on military dictatorships drawing both from economics and political science. Section

3 describes the empirical model and the data, whereas results are discussed in Section 4. Section 5 concludes.

2. Literature review

There are several strands of literature that are related to the topic of this work. The complex relationship between the civil power and the military is becoming important in the recent political economy literature. Seminal works on political economy of dictatorships are Wintrobe (1988), Wintrobe (1990) and Mcguire and Olson (1996). Recently, Besley and Robinson (2009) analyze the opposition between civil government (democratic or non-democratic) and military dictatorship, and Acemoglu *et al.*(2010)[1] analyze the three categories of non-democratic civil government, military dictatorship and democratic civil government. Both studies identify the army as agent of the powerful elite, an instrument to guarantee its survival through the repression, necessary because of the predatory policies they impose. The relationship between the uneven income distribution and the relevance of the army becomes stronger, overall in a contest where the political competition takes shape between polarized groups, which fight to obtain power and rents. These groups originate along different cleavages, as ethnic or regional origins, religion, ownership of the production factors and so on. The clash between these polarized and fragmented groups determines winners and losers, which violently fight to gain the control of the State (Hammond and Axelrod, 2006; Montalvo and Reynal Querol, 2007; Alesina et al., 2003 and Fearon, 2004). Therefore, a social situation with different groups fighting for power raises the opportunity for civil war and coup d'état.

Sub-Saharan Africa, in particular, is characterized by the turnover between unconsolidated democracy, hybrid democracy, civil autocracy and military dictatorship. For example, authoritarian systems are based on a non-existent political pluralism and the power is shared between some organizations that guarantee support and security to the regime.[2] In military dictatorship the army has the most important role on stage, its power is less checked and could show worrying examples, like kleptocratic regimes (Acemoglu e al., 2003), where the dictator can grab a lot of resources and guarantee his survival through the *divide-et-impera*. In this context, it is possible to see a challenge between the elite of different groups to gain the control of the State. In human history, moving from the land and agricultural production to the industry and manufacturing production, the social relations between the groups have produced cleavages and violence that characterize the different societies. The emergence of new groups gives rise to new elites that want to handle the rents and revenues (Acemoglu

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[1] They follow the way opened by Acemoglu and Robinson (2006).

[2] According to Ghandi and Przeworski (2007), the autocratic ruler could solve the problem constituted by the opposition in two ways: if the threat comes from inside the ruling groups, "consultative councils, juntas, and political bureaus" will be created to permit the confrontation between the different ideas; if there is an outside threat coming from powerful groups, institutions that nominally could be grouped under the democratic procedures are established.

and Robinson, 2006). In the context of the developing countries - where productive sectors like manufacturing, productive agriculture, utilities, services and others are very weak - this process has the goal to obtain central power, with the wealth given by oil, diamond or others.[3] We can see the groups compete for the control of the three basic aspects regarding the production factors: appropriation, division and production. In our framework, this drives differences in the opportunity to enjoy the public goods between losers and winners, through different enforcement of the property rights and contracts (Tangerås and Lagerlöf, 2008; Gonzales, 2005, 2010; Dal Bò and Powell, 2007).

As notedin Bolhken (2009), the risk of a coup d'état could be a strong deterrent to uncontrollable episodes of rent-seeking, corruption and extra-budget funds than the electoral process in democracies. The combination between the democratic checks and military risk reduces the appropriation of the state wealth. This is the same dynamics that Acemoglu and Robinson (2006) use to explain the transformation of the political system: 1) a situation without violence, because there is redistribution (fairness) between the groups, driving to cooperation. They claim that here income inequality would be very low, so that the elite does not fell threat from the extending of the redistribution; 2) to respond to the violence caused from no fairness in the redistribution, the ruling elite could co-opt the most productive and dangerous groups, sharing with tem the wealth and the rents of the country. Here income inequality is higher than before, and this threats the conservative elite; 3) the elite does not want to share the rents with other groups, therefore causing competition and violence. Once again, income inequality is very high. Hence, it is possible to say that higher income inequality could raise the probability of a civil war and, consequently, request a larger army for the repression. But, at least, this could increase the opportunity for coup d'état. In this contest, both Besley and Robinson (2009) and Acemoglu et al. (2010) see the army like guardian of the elite, as an agent that acts to defend it from the risk of civil war. The central government will choose the size of the army, but it faces an agency problem: the army may not only be the instrument to defend the elite, but may seize the power. If the government increases the size of the army to respond to a higher risk from the loser groups, this rises the opportunity for a coup d'état, because diminishes its opportunity-cost.

Besley and Robinson (2009) follow the way paved by Besley and Persson (2008, 2009) in which the state capacity, the quality of institution and the problem of violence are analyzed. In particular, state capacity is the quality of the legal and fiscal capability of the central power. The low level of these two aspects raises income inequality, uneven distribution of public goods and bad use of wealth, creating tensions and grievances in the society. When property rights and contracts are not properly enforced (low legal capacity) and the level of taxation is collected from a source that is not under the complete control of the government - like natural resources - (low fiscal capacity) the distribution of the public goods between the different groups is highly uneven, thus raising the risk

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[3] Caruso (2010) and Ricciuti and Costa (2010).

of civil unrest. To maintain their economic, social and cultural insulation, the elite has to establish an efficient monopoly of violence. The loser groups that are not protected by right and contract, and that could not check the use of taxation and state rents, presenting unequal and low income, have the opportunity to use the civil war to gain the central power. So, the government has to create an army in order to counter this threat. However, the establishment of a bigger army may turn to be dangerous, because the military can actually exploit the use of force. In such a case, a classical principal-agent problem would take shape. As pointed out by both Persson and Robinson (2009) and Acemoglu et al. (2010), the military could act no more like agent of the government, but in their own interest. In particular, if the military believes that they are not paid a 'fair wage', they could behave as more like self-interested agent than agent of the central government. In sum, this increases the probability of a coup d'état.[4]

Acemoglu et al. (2010) identify three different patterns to underline this: 1) the civil government could decide not to use the repression and hence establishes a little army, favoring the cooperation and a smooth transition to democracy. The new democratic government faces a big problem: in order to consolidate democracy it is necessary to reform the army, but they do not want to be reformed. Here it is possible to find a commitment problem, because the government has to promise to the military that it will not reform it – otherwise they will block the transitional process - but to permit the consolidation of the democracy this reform is necessary; 2) the civil government may want to use repression against social opposition. They create a big army but they have to pay a right price (wage and public goods) that avoid the recourse to coup d'état. The non-democratic government remains in office and the coup d'état does not happen; 3) The government uses the army to avoid the opposition take the power, so they create a big army but they are unable, or do not want, to pay the right price for their services. Eventually, the army takes the power establishing a military dictatorship. The same dynamics could be extrapolated from Besley and Robinson (2009): the civil government needs the help of the army, through the repression, to block the social opposition and the risk of civil war, but has to pay the right price for this action and protection. If this does not happen, the military seize the power putting down the previous government. This vicious cycle characterizes both models, helping to explain the relationship between the redistribution of public goods, civil war and coup d'état.

There is a growing evidence that a low level of institutional quality is a fundamental source of waste of the wealth (La Porta et al., 1999). In addition, it also determines an uneven distribution of public goods between different groups. So, a low institutional quality stimulates the grievances of the loser groups, boosting their willingness to use the violence and increasing the probability that a civil war takes shapes. This makes more likely that central elite/government resort to the repression by the army, creating a larger one, rising the likelihood of

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[4]Kimenyi and Mbaku (1996) argued that in autocratic regimes the military elite is in a position to extract rents, because without the support of the military the government is in general not able to sustain itself. They empirically confirmed the negative relation between transfers to the military and the degree of democracy for developing countries.

a military dictatorship. In general, provision of public goods differ dramatically between democracies and dictatorships. Democracies exceed dictatorial provision (Deacon, 2009).

Needless to say, there is predictable linkage between the availability of natural resources and such kind of argument. A large mining sector, for example, increases the size of a contestable "pie" between competing groups. Put differently, the rents emerging from controlling the mining sector increase the likelihood of an actual conflict between the ruling group and the military or another competing group. That is, the existence of natural resources contribute to the insulation of the elite in charge, by reducing the capacity of enforcing property rights and contracts, thus raising the risk that the loser groups use violence and civil war to depose the government. Consequently, natural resources increase the probability in the use of repression through the army, and, eventually the likelihood of a military dictatorship.[5]

External factors can also affect the probability of a coup d'état: if a country has some neighbors experiencing ethnic wars and violence, and inside its borders it reproduces the same cleavages, it could be influenced by this circumstance, reproducing these problems. That is, a contagion effect may exist. However, Besley and Robinson (2009) and Acemoglu and al. (2010) emphasize that if a country perceives a serious threat of a war between two states, this would reduce the risk of a coup d'état because the army is now necessary for the survival of both the government and the state. Therefore, the politicians (democratic or non-democratic) have to pay the right wage to soldiers, solving the commitment problem that we have analyzed before. A credible threat on the borders can reduce the coup's risk. De Groot (2012) emphasizes the role of external influences in determining political freedom in Africa. He finds that the probability of an improvement in political freedoms increases with an history of political freedom, openness, improvements in ethnolinguistically similar neighboring countries.

Coups d'état in Africa have received some attention in the literature by sociologists and political scientists. Jackman (1978) is the seminal work in this field. He estimates a model of the structural determinants of coups d'état for the new states of Sub-Saharan Africa in the years from 1960 through 1975. Results indicate that social mobilization and the presence of a dominant ethnic group are destabilizing; a multiparty system is destabilizing (especially when a dominant ethnic group exists) while electoral turnout in the last election before independence is stabilizing. Johnson et al. (1984) replicate the previous work concentrating on military coups, finding serious weaknesses in the original Jackman model. Their dataset includes 35 Sub-Saharan African states from 1960 through 1982. They find that states with relatively dynamic economies[6] whose societies were not very socially mobilized before independence and which have maintained or restored some degree of political participation and political

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[5]Aslaksen and Torvik (2006), Collier and Hoffler (2005a), Collier et al. (2009), Caselli (2006), Brunnschweiler and Bulte (2009) and Bornhorst et al. (2008).
[6] Defined as those experiencing growth in industrial jobs, GDP and urbanization.

pluralism have experienced fewer military coups, attempted coups, and coup plots than have states with the opposite set of characteristics.

Jenkins and Kposowa (1990), using data on military coups in 33 Sub-Saharan African states between 1957 and 1984, find strong support for modernization and competition theories of ethnic antagonisms, military centrality theory and aspects of dependency theory. Political development theory is not supported. Ethnic diversity and competition, military centrality,[7] debt dependence, and political factionalism are major predictors of coup activity. Ethnic dominance is a stabilizing force creating social integration and weakening opposition. Intractable conflicts rooted in ethnic competition and economic dependence appear to create a structural context for military coups and related instabilities.

O'Kane (1993) argues that the underlying causes of coups are specialization in and dependency on primary goods for export, exacerbated by poverty. A testable hypothesis is deduced from this theory which is examined through the application of discriminant analysis to data for three sets of African countries. The models support the theory. Moreover, the chance of a successful coup is negatively related with the absence of a previous coup and the continuing or historic presence of foreign troops since independence. Tusalem (2010) finds that over the 1970-1990 period the likelihood of a military coups is reduced by the protection of property rights.

Lunde (1991) studies African coups d'état during the period from 1955 to 1985. The starting point is a replication of Jackman (1978) when continuous-time hazard models of event history data are used instead of the panel regression approach. The event history approach focuses on the rate of coup d'etat over time rather than some index of coup d'etat. The results lend some support to modernization theory. The social contagion hypothesis and the history of political instability are also supported. Finally, the results indicate that the likelihood of a coup strongly depends on time

Collier and Hoeffler (2005b) in a panel of African countries from 1960 to 2001 highlight strong similarity in the causes of coups and civil wars, finding that low income and lack of growth are among the main determinants. Both are also subject to 'traps' – once a coup or civil war has occurred, further events are much more likely. Finally, policies that favor the military (high military spending) may increase the risk of a coup.

3. Model and data
We estimated the following panel data probit model:

$$Military_{it} = \alpha_1 + \alpha_2 \mathbf{X}_{it} + \alpha_3 \mathbf{Z}_{it} + \alpha_4 \mathbf{W}_{it} + \alpha_5 \mathbf{P}_{it} + \alpha_6 \mathbf{S}_{it} + \alpha_7 \mathbf{C}_{it} + \varepsilon_{it}$$

The dependent variable is a dummy equal to one if the current ruler is a military junta and zero otherwise. Data are taken from the "Database of Political

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[7] Military centrality is an index including the number of troops and internal security forces and the defense budget as a percent of GNP.

Institutions 2010" (Beck, 2001).[8] The vector $\mathbf{X}_{it}$ includes GDP per capita, derived from Penn World Tables 6.3[9] (Heston et al., 2009), and the added value of the agricultural, manufacturing and mining sector[10] as percentage of GDP, using the UNCTAD database.[11] The vector $\mathbf{Z}_{it}$ includes variables concerned with ethnic fragmentation, distinguishing between polarization and fractionalization, we use the data from Reynal-Querol.[12] $\mathbf{W}_{it}$ is a vector including variables concerned with the external sector: openness (the sum of imports plus exports over GDP, from the Penn World Tables 6.3) and the intensity of external treat,[13] defined as level of hostilities on a 0-to-5 scale, taken from the database Militarized Interstate Disputes 3.10 (Ghosn et al., 2004).[14] The vector $\mathbf{P}_{it}$ includes the Agricultural Raw Price, taken from Free Market Price Index, and the Crude Oil Price, derived from Free Market Price Index (calculated as the average of Dubai/Brent/Texas equally weighted ($/barrel)) from UNCTAD. In this way we want to check whether higher levels of the commodity market prices can lead to riots, which in turn could influence the army to take action. Because changes in oil price can have different effects in countries that are exporters or importers of oil, we include a dummy variable that is equal to 1 if the share of oil export exceeds 10%, and 0 otherwise.[15]$\mathbf{C}_{it}$ is a vector of dummy variables describing the colonial rule of a country. Finally, ε_{it} is a random error.

All estimates are obtained by using random-effect probit panel data. The random effects panel probit model is the best viable option since it is not possible to estimate a fixed effects probit model consistently with a fixed number of periods (see Verbeek, 2000: 337). All variables are in logs. Table 1 reports the summary statistics.[16] Military dictatorships are widely spread in our dataset, since they account for about 41% of our observed regimes.

We should note that manufacturing is, in general, a small percentage of output (the mean is 10.20 percent, the median is 8.83 percent). The only country with a sizable manufacturing sector is South Africa (the mean is 21.250 percent). South Africa also stands out for a much higher average GDP per capita ($ 8,055.456 vs. $ 2,798.751). For these reasons South Africa is a natural candidate as an outlier, therefore we replicate the estimations with and without it as a robustness check.

[Table 1 about here]

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[8] The dataset is available at http://go.worldbank.org/2EAGGLRZ40.

[9] The database is available at http://pwt.econ.upenn.edu/.

[10] Original data include "Mining, manufacturing and utilities" from which we subtract the item "Manufacturing". Utilities create some noise in the measurement of the mining sector, however its size is small.

[11]The database is available athttp://unctadstat.unctad.org.

[12] The dataset is available at http://www.econ.upf.edu/~reynal/data_web.htm.

[13] We have also used a variable for internal conflict, since one can expect that a military dictatorship arises as a response to social turmoil. However, this variable never turned out to be significant. Details are available upon request.

[14] The dataset is available at http://www.correlatesofwar.org/.

[15] CIA Factbook.

[16] A correlation matrix is available upon request from the authors.

The results cannot be interpreted as causal, since military rule can affect at least some of the economic and political variables that we use as independent ones. Therefore, we also use one- and five-lag of the economic variables on the presumption that, for example, the GDP per-capita of five years ago is not determined by the presence of a military dictatorship today, whereas bad economic conditions at that time can influence the existence of such a dictatorship later on.

4. Results

Table 2 reports our baseline results. The coefficient of Income per-capita is significantly negative. Higher income per capita reduces the likelihood of experiencing a military rule. Its marginal effect on average is equal to -0.14. This is probably related with the 'modernization hypothesis', which claims that higher income is related with higher interest for the bourgeoisie to play a role in the political arena, therefore leading to the establishment of democratic institutions. Clearly, it is not possible to establish a clear-cut causal relationship since even the inverse relationship can hold (i.e., the military affects negatively the economic growth). Manufacturing and primary sector are significantly positive, raising the probability of having the army in office. While this seems understandable in agrarian economies in which large owners tend to support conservative political parties (and possibly the military) against the possibility of land reforms, we expected an opposite result for manufacturing since this is usually related with an emerging bourgeoisie, which pushes for democratic institutions. Instead, the results suggest that entrepreneurs are likely to seek protection from military. In particular, this might be true with regard to foreign direct investments. In fact, in Sub-Saharan African countries, a large share of manufacturing sector descends from foreign direct investments.[17] In quantitative terms, the average marginal effect on the probability of a military junta of manufacturing is 0.11, whereas for the mining sector it is -0.02 and eventually for primary sector is 0.10.

Polarization and fractionalization have opposite effects, the former increases the probability of a military rule, while the latter decreases it. Marginal effects are 0.12 and -0.14, respectively. Larger openness to international trade negatively affects military rule. A country that is more connected with the world, in which democratic countries play an important role, probably perceives negative effects (both culturally and in economic terms) in the relationship with its partners of relinquishing democracy in favor of military rulers. This confirms the liberal idea of closed and authoritarian regimes which precipitate into

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[17] The role of FDI in gross capital formation in Africa can be drawn analyzing figures available every year in the World Investment Report by UNCTAD. For example, in the period 1990-2010 the annual contribution of FDI inflows to gross capital formation in West Africa rose from 13.8% to 26.8%, in central Africa from 0 to 40.8%, in east Africa from 1.7% to 12.9% and in southern Africa from 0 to 14.5%. On average in 1990 in sub-Saharan Africa the contribution of FDI to gross capital formation was 3.9 in 1990 and 23.75% in 2012 (UNCTAD, 2010).

underdevelopment. However, albeit statistically significant, the marginal effect turns to be small (i.e., -0.05). The Oil price is usually insignificant, and negative when significant, while the intensity of external threat and agriculture raw price are always insignificant. However, being an oil producer increases significantly the probability of a military rule. Eventually, being landlocked increases the probability of a military rule, so indirectly confirming that landlockedness affects negatively societal development fuelling civil unrest and military coups. The British colonial legacy also decreases the probability of a military junta.

[Table 2 about here]

In Table 3 we analyze a number of possible nonlinearities. First, we include income per capita squared. Its coefficient is significantly negative, maintaining that a the probability of experiencing a military dictatorship raises up to a certain threshold income level and then is reduced. This seems consistent with the notion of *developmental dictatorship*, a situation which is, for example, the case of Chile and South Korea. In both countries the autocratic shock led to economic policies that sustained growth. Second, we interact a number of variables. In some cases we interact variables that taken individually show opposite effects. Interestingly, the effect of openness on the probability of military junta turns to be positive in when interactions between the degree of openness and sectors' sizes are taken into account. In particular, if considering the interaction between the size of manufacturing sector and the degree of openness, we find that (i) the association between the degree of openness itself and the probability of a military junta is positive ; (ii) the coefficient of the interaction term of the degree of openness and the size of manufacturing is negative. On one hand this confirms what has been highlighted above. Intuitively, foreign entrepreneurs in manufacturing sector seeks protection from military order thus pushing the effect of openness on the positive side. On the other hand, since the interaction term is able to capture the external relations of local economic agents, presumably, the negative association descends from the more general impoverishing impact of closeness.

In contrast, Openness tends to outweigh the Primary sector when estimated together. This is also the case of Polarization with respect to the Primary sector . The interaction between Intensity of external threat and Fractionalization is significantly positive. This can be explained when considering that a military junta can motivate its existence by facing an external threat which would be difficulty countered by a fractionalized country.[18]

[Table 3 about here]

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[18] This might also be the case in which two neighbor countries are ethnic fractionalized and a group that has the majority in one of them is the minority in the other one. Given the exploitation exerted by the larger group on the smaller one, this can lead to threat by one country on the other one in an attempt to stand for the fellow ethnic group.

Table 4 addresses the issue of dynamic effects in the relationship between military rule and our covariates. We include as regressors one- and five-lag of all variables but fractionalization and polarization, which have very limited variability. Typically, five-year lagged variables are more significant than one-year lagged variables. The main results are confirmed in terms of the variables that were significant when treated simoultaneously. This is also true in terms of marginal effects. Probably, the two most important variables that turn out to be significant are: 1) intensity of external threat, in particular when 5-years lagged, although with a small marginal effect (0.027), and the Mining share of GDP with both lags, showing marginal effects equal to 0.09. When a serious external threat occurs, the military is likely to become more powerful (in terms of resources and political role) and afterwards this can lead to a coup. This is in contrast with the predictions of the benchmark theoretical models by Agemoglu et al. (2010).

[Table 4 about here]

5. Concluding remarks

In this paper we have analyzed the probability of a country of experiencing a military dictatorship, using a panel of 48 African countries over the period 1970-2007. We found a number of results. Income per capita negatively affects the probability of a military rule, with some nonlinearities, in particular lower levels of income per capita increases the probability of having the military in office, whereas as long as it increases the probability gets smaller. Manufacturing and primary sectors are positively related with military rule, whereas the share of GDP deriving from natural resources is insignificant. Larger openness to trade negatively affects military rule. Polarization and fractionalization have opposite effects, the former increases the probability of a military rule, while the latter decreases it. External threat becomes significantly positive only when lagged. Finally, crude oil may price negatively affect military rule, whereas agricultural price is usually non-significant.

Future research may address the issue of duration of military regimes and the distinction between civilian and military dictatorships both in terms of the socio-economic circumstances that may lead to such governments and as far as differences in the policies implemented by these regimes are concerned.

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Table 1 – Summary statistics

	Mean	Std. dev.	Min	Max
Military	.409	.492	0	1
GDP per capita (logged)	7.547	.836	5.031	10.062
Manufacturing share of GDP (logged)	2.097	.762	-3.432	3.703
Mining share of GDP (logged)	1.351	1.379	-3.971	4.526
Primary share of GDP (logged)	3.199	.757	.616	4.591
Polarization	.537	.190	.020	.840
Fractionalization	.633	.262	.050	.960
Openness (logged)	4.068	.655	.685	5.773
Intensity of external threat	.823	1.623	0	5
Crude Oil Price (logged)	4.133	.794	2.015	5.530
Agricultural raw price (logged)	4.621	.319	3.683	5.101
Landlocked (dummy)	.313	.464	0	1
Oil producer (dummy)	.163	.370	0	1
UK colonial origin (dummy)	.416	.493	0	1

Table 2 - Existence of Military Rule, baseline results (Panel RE Probit)

	1	2	3	4	5	6	7	8	9	10†	11†
GDP per capita	-.702***	-.467***	-.148	-.457***	-.343***	-.599***	-.240	-.860***	-.113	-.348**	.060
	(.105)	(.129)	(.143)	(.129)	(.127)	(.157)	(.149)	(.182)	(.162)	(.190)	(.167)
Manufacturing share of GDP		.318***	.709***	.311***	.337***	.392***	.490***	.512***	.342***	.469***	.371***
		(.098)	(.113)	(.101)	(.101)	(.110)	(.117)	(.115)	(.112)	(.114)	(.116)
Mining share of GDP		-.042		-.041		-.125**		-.087		-.068	
		(.054)		(.055)		(.061)		(.062)		(.062)	
Primary sector share of GDP			.920***		.550***		1.205***		.844***		.891***
			(.197)		(.159)		(.207)		(.216)		(.215)
Polarization	.373***	.431***	.083	.386***	.502***	.151	.087	.846***	.327***	-.369***	.572***
	(.107)	(.116)	(.116)	(.115)	(.116)	(.135)	(.135)	(.161)	(.130)	(.150)	(.145)
Fractionalization	-.556***	-484***	-.064	-.487***	-.605***	-.190	-.264**	-1.081***	-.417***	.049	-.667***
	(.111)	(.115)	(.114)	(.116)	(.116)	(.136)	(.130)	(.191)	(.128)	(.153)	(.140)
Openness		-.275***	-.002	-.204***	-.117***	.057	.194*	-.238***	.133	-.310***	.143
		(.083)	(.101)	(.084)	(.094)	(.107)	(.119)	(.104)	(.130)	(.101)	(.128)
Intensity of External Threat						-.031	-.032	-.024	-.011	-.0144	-.039
						(.037)	(.036)	(.036)	(.037)	(.039)	(.037)
Crude Oil Price				-.285***	-.296***	-.224	-.188	-.159	-.161	-.164	-.146
				(.106)	(.102)	(.155)	(.157)	(.158)	(.162)	(.161)	(.162)
Agricultural raw price								-.431	-.430	-.414	-.377
								(.352)	(.355)	(.355)	(.356)
Oil producer		.826***	1.556***	.856***	2.093***	.891***	1.242***	1.142***	1.916***	.741***	1.229***
		(.183)	(.240)	(.187)	(.193)	(.215)	(.207)	(.233)	(.259)	(.237)	(.245)
Landlocked		.156	.081	.064	.163	.013	.064	.849***	-.169	-.152	-.496***
		(.126)	(.123)	(.121)	(.135)	(.138)	(.134)	(.171)	(.149)	(.134)	(.171)
UK								-.597***	-.738***	-.629***	-.884***

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								(.132)	(.160)	(.141)	(.173)
Constant	4.391***	3.376***	-4.369***	4.20***	1.070	3.915***	-4.349***	7.99***	-1.12	4.911**	-2.445
	(.748)	(.891)	(1.524)	(1.014)	(1.507)	(1.292)	(1.919)	(2.13)	(2.584)	(2.219)	(2.578)
Obs.	1353	1352	1353	1352	1353	1105	1106	1105	1106	1078	1079
Log Likelihood	-534.83	-521.702	-512.163	-517.713	-512.907	-415.747	-405.622	-417.684	-407.757	-409.682	-406.062
Wald χ^2	56.75	72.44	97.30	75.75	165.96	50.02	77.99	127.57	106.98	100.90	110.38

Notes: *** significant at 1%, ** significant al 5%, * significant at 10%. In columns with †, South Africa is excluded from the sample.

Table 3 - Existence of Military Rule, nonlinear effects (Panel RE Probit)

	1	2	3	4	5	6†	7†
GDP per capita	2.763**	5.443***	7.215***	7.148***	11.678***	7.107***	5.919***
	(1.360)	(1.55)	(1.713)	(1.751)	(1.959)	(1.878)	(2.186)
GDP per capita squared	-.201**	-.426***	-.531***	-.526***	-.882***	-.522***	-.426***
	(.095)	(.110)	(.123)	(.124)	(.141)	(.133)	(.157)
Manufacturing share of GDP	1.853***	2.403***	2.083***	-.030	-.1749	.670	1.074
	(.471)	(.478)	(.601)	(1.141)	(.700)	(.689)	(.709)
Mining share of GDP		.253		1.127**		1.13***	
		(.290)		(.592)		(.362)	
primary sector share of GDP			1.516		-3.822***		-1.758
			(1.175)		(1.383)		(1.462)
Polarization	.492***	1.513***	7.095***	.527***	6.033***	1.418***	5.812***
	(.130)	(.150)	(1.278)	(.155)	(1.514)	(.185)	(1.624)
Fractionalization	-.241	.156	-.635***	1.578***	.732***	1.257***	.751***
	(.240)	(.239)	(.284)	(.347)	(.320)	(.321)	(.322)
Openness	.338	.634***	1.947**	.110	-3.375***	.359	-1.12
	(.209)	(.198)	(1.062)	(.330)	(1.300)	(.297)	(1.361)
Intensity of external threat				.062	.045	.084	.111**
				(.051)	(.050)	(.051)	(.052)
Openness * manufacturing sector share	-.459***	-.601***	-.404***	.043	.130	-.137	-.185
	(.118)	(.120)	(.151)	(.279)	(.174)	(.175)	(.178)
Openness * mining sector share		-.027		-.305**		-.295***	
		(.069)		(.152)		(.088)	
Openness * primary sector share			-.407*		.858***		.424

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			(.245)		(.301)		(.319)
Fractionalization* manufacturing	-.090	-.500***	-.208	-.667***	-.617***	-1.095***	-.588***
	(.121)	(.119)	(.136)	(.161)	(.161)	(.168)	(.161)
Polarization* Primary			-1.647***		-1.535***		-1.600***
			(.359)		(.422)		(.457)
External threat * fractionalization				.251***	.235***	.260***	.280***
				(.082)	(.083)	(.084)	(.085)
Oil producer				-.456*	1.486***	.053	2.229***
				(.270)	(.212)	(.225)	(.239)
Landlocked				-.177	.080	-.969***	1.042***
				(.205)	(.146)	(.176)	(.186)
UK				-1.648***	-.489***	-.897***	-.800***
				(.304)	(.152)	(.168)	(.185)
Constant	-10.904***	-20.0125***	-32.855	-23.513***	-23.268***	-25.120***	-16.72
	(4.742)	(.5.391)	(7.338)	(6.196)	(8.55)	(6.626)	(10.11)
Obs.	1353	1352	1353	1105	1106	1078	1079
Log Likelihood	-518.287	-515.606	-505.170	-402.303	-393.223	-399.492	-389.04163
Wald χ^2	64.42	170.72	175.52	163.14	199.28	125.43	201.55

Notes: *** significant at 1%, ** significant al 5%, * significant at 10%. In columns with †, South Africa is excluded from the sample.

Table 4 – Existence of Military Rule (Panel RE Probit)

	1	2	3	4	5	6†	7†
GDP per capita 1 year lagged	-.510*	-.581**	.065	-.479*	-.262	-.888***	-.277
	(.304)	(.302)	(.311)	(.294)	(.303)	(.317)	(.379)
GDP per capita 5 years lagged	.292	-.015	.141	.375	.198	.133	-.016
	(.292)	(.323)	(.322)	(.334)	(.326)	(.342)	(.326)
Manufacturing share of GDP 1 year lagged		.456***	.607***	.287	.440***	.376**	.646***
		(.181)	(.1800)	(.186)	(.188)	(.187)	(.223)
Manufacturing share of GDP 5 years lagged		-.293*	-.171	-.054	-.161	-.198	-.063
		(.178)	(.181)	(.180)	(.189)	(.186)	(.196)
Mining share of GDP 1 year lagged		.244***		.202*		.376***	
		(.108)		(.114)		(.119)	
Mining share of GDP 5 years lagged		-.206**		-.352***		-.331***	
		(.105)		(.112)		(.113)	
Primary sector share of GDP 1 year lagged			.777**		.887**		1.016***
			(.378)		(.397)		(.417)
Primary sector share of GDP 5 years lagged			.359		.194		.185
			(.383)		(.397)		(.409)
Polarization	.788***	1.247***	.323***	.114	.490***	.675***	.766***
	(.169)	(.186)	(.130)	(.142)	(.138)	(.168)	(.184)
Fractionalization	-.631***	-1.226***	-.627***	-.151	-.338***	-.562***	-.402***
	(.158)	(.194)	(.133)	(.139)	(.134)	(.164)	(.160)

Openness 1 year lagged	-.018***	-.019***	-.013***	-.015***	-.014***	-.017***	-.012***
	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)
Openness 5 years lagged	.006	.011***	.013***	.013***	.019***	.011***	.015***
	(.004)	(.004)	(.004)	(.004)	(.005)	(.004)	(.005)
Intensity of External threat 1 year lagged	.004	.018	-.015	.013	.003	.060	.009
	(.037)	(.039)	(.038)	(.040)	(.039)	(.040)	(.045)
Intensity of External threat 5 years lagged	.094***	.091**	.074*	.069	.067	.132***	.070
	(.041)	(.042)	(.042)	(.043)	(.044)	(.044)	(.049)
Crude Oil Price 1 year lagged				-.270	-.308*	-.257	-.297
				(.184)	(.185)	(.180)	(.185)
Crude Oil Price 5 years lagged				.462***	.465***	.490***	.446***
				(.152)	(.150)	(.150)	(.151)
Agricultural raw price 1 year lagged				-.184	-.046	-.131	-.168
				(.430)	(.431)	(.428)	(.430)
Agricultural raw price 5 years lagged				-1.400***	-1.319***	-1.589***	-1.29***
				(.343)	(.337)	(.337)	(.345)
Oil producer	.974***	-.245	1.528***	1.167***	1.232***	.918***	1.249***
	(.200)	(.250)	(.225)	(.236)	(.235)	(.248)	(.393)
Landlocked	.583***	-.559***	.451***	-.154	.131	-.381***	-.617***
	(.182)	(.149)	(.148)	(.162)	(.160)	(.169)	(.232)
UK				-.888***	-.330***	-1.07***	-.855***
				(.146)	(.141)	(.171)	(.201)
Constant	1.49	4.993***	-7.728***	6.628***	.903	12.52***	2.88
	(1.157)	(1.207)	(2.31)	(2.462)	(3.371)	(2.48)	(3.72)

Obs.	1093	1091	1093	1091	1093	1063	1065
Log Likelihood	-394.700	-390.426	-380.027	-364.184	-371.375	-.368.482	-372.980
Wald χ^2	100.80	91.27	113.85	111.03	111.36	151.54	98.17

Notes: *** significant at 1%, ** significant al 5%, * significant at 10%. In columns with †, South Africa is excluded from the sample.