"Can Economic Incentives Tame Jihad? Lessons from Sudan and Chad"

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Abstract: This paper uses a provocation model to explain why the initial Muslim coalitions against southern Christians broke up in Sudan and Chad. The need to cooperate was made obvious in Sudan when oil flew in a Chinese-built pipeline running through the Christian rebels' homeland. Jihad was called off and political Islam was discarded when the rebels showed their ability to disrupt the oil flow by blowing up the pipeline. The government of Sudan had switched from African socialism to Political Islam a couple of decades before. It then imposed the Sharia Law even on the Christians as a provocation to trigger a rebellion after years of peace and to launch an ethnic cleansing campaign in the oil-rich areas. In Chad also, the initial Muslim coalition against the Christians broke up for sharing the oil money with the latter, but with a different timing.

> "Thus, oil, which led to intensified violence in the Sudanese civil war, and invited the intervention of multinational oil companies, may now produce a positive externality for peace if it is equitably shared." (Ali et al. 2005, p.214).

1. Introduction

The comparative study of oil and war in Chad and Sudan provides an illuminating counter-example to Huntington's "Clash of Civilizations" thesis (Huntington, 1996). A clear fault line seems to run through these countries, traditionally viewed together as "Central Sudan". There, an Islamic North is in direct contact with an African South where traditional Animism gave way to some conversion to Christianity in colonial times. However, a closer look at the details of the various forms of conflict that torn this land apart for centuries suggests that an economic dimension has always been a key determinant of the antagonism between these social groups. Moreover, it shows that ethno-regional oppositions can be used as convenient instruments for justifying violence and mobilizing people for violently extracting economic resources from the other group(s). "Black Gold" has been most of the time at stake in the organized violence between the northern and southern groups in these two countries, although this did not mean the same thing over the centuries.

Slave raiding by Arab traders and their local allies recruited among nomadic tribes has been a perennial activity in Central Sudan even during the first millennium (Segal, 2001). Azevedo (1998) and Burr and Collins (2008) describe it in the more recent period with a focus on the 19th century. Segal (2001) and Skinner (2008) show that this has not completely disappeared currently, while Jok (2007) describes how slave-raiding, prudishly labeled "abduction", was included in the Sudanese war tactics at the turn of the century. Table 1 reports the numbers of slaves taken away from Chad and Sudan over the 1400-1900 half-millennium according to Nunn's path-breaking calculations (Nunn, 2008). This highly influential work suggests that slave raiding during these centuries is the root cause of many evils plaguing modern-day Africa. There is first the demographic impact, as slaves have taken

their potential descendants away with them, keeping Africa's population much lower than it would have been otherwise. Then, Nunn blames the memories of the slave trade for the divisive influence of ethnicity in modern-day Africa, as some groups collaborated with the slave traders for capturing people from other groups. He suggests that the memories of these divisions explain the lack of trust that seems to characterize many African societies to day.

**Table 1: 'Black Gold', 1400 – 1900: Number of Slaves Exported**

	Trans-Atlantic	Indian Ocean	Trans-Saharan	Red Sea	Total
Sudan (Nb. 5)	615	174	408,261	454,913	862,962
Chad (Nb. 10)	828	0	409,368	118,873	528,862
Total	1,443	174	817,629	573,786	1,391,824

Source: Nunn (2008): "The Long-Term Effect of Africa's Slave Trades", *Quarterly Journal of Economics*, 123 (1), 139-176.

Religion played a part in sustaining the slave trade in Central Sudan. The Kuran offers some ideological comfort as it allows Muslims to enslave *Kufirs* (infidels). This also provided some African groups with an incentive to convert to Islam, as the Kuran protects them against enslavement by other Muslims. This probably played a part in inciting the African farming and semi-nomadic groups of Darfur and Waddai to convert. Map 1 schematically represents the five main ethno-religious groups of Central Sudan. A similar pattern emerges in both Sudan and Chad, with African Christian groups in the South, the Dinka and the Nuer in Sudan and the Sara in Chad, while the other groups are Muslim. In Sudan, the Arab Muslims of the North and the Nile river valley have been politically dominant since independence, even if they are in fact a relatively small demographic minority (Cockett, 2010). In Chad, the northern nomadic herdsmen called Tubu had a chaotic political fate and played a leading role during the civil war before being marginalized in the 1990s. The African Muslim groups that

straddle the border between the two countries in Darfur and Waddai present a nuanced socio-economic background. This area is dominated by Jabal Marra, a mountainous area culminating at 3067 meters that collects enough rainfall to sustain some agriculture. Between Lake Chad and the Nile River, it is the only large source of water, from which the Bahr-al-Arab and several tributaries of the Chari River are flowing, eastwards and westwards, respectively. Hence, the African Muslims from this region have a distinctly more sedentary tradition than the nomadic Arabs and Tubus. Moreover, the late 19th century slave trader Rabah ibn Fadlallah lifted the ban on enslaving them, arguing that the recently Islamized Fur, Massalit, and Zaghawa were not "true Muslims" and thus were legitimate preys for slave raiders (Azevedo, 1998). Hence, according to Nunn (2008), this kind of relationships should have created long-lasting antagonism between these groups.

Map 1: Ethno-Religious Geography of Central Sudan
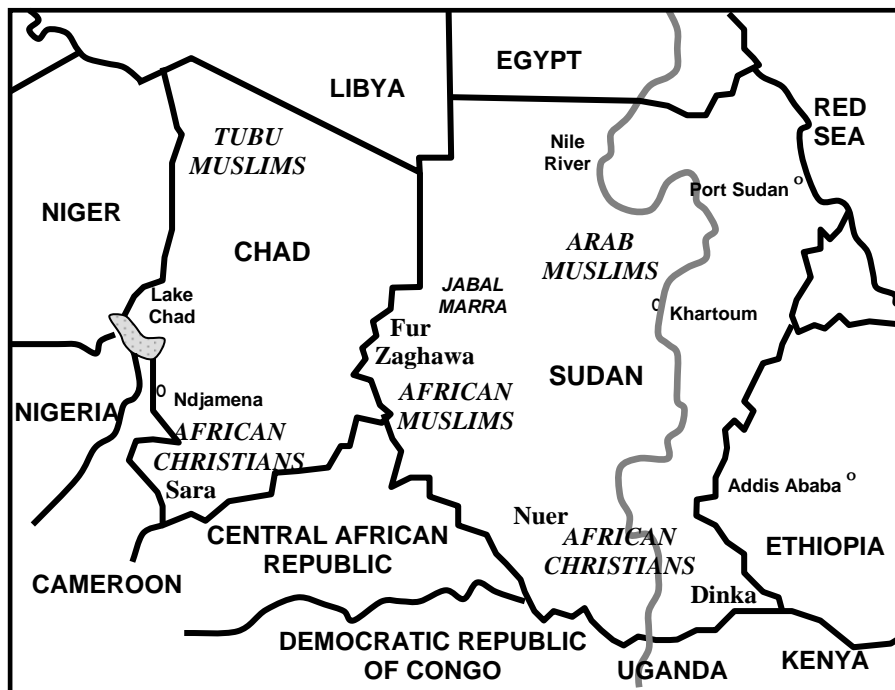
The history of Sudan and Chad since independence shows that the so-called "ancient hatred" gives way to a pragmatic approach when simple economic calculations dictate a

cooperative strategy. Colonization reduced drastically the economic value of slave raiding, as both the British and the French repressed it quite successfully. The colonial period saw the expansion of "white gold", as cotton became the main export crop in both Chad and Sudan. Azam and Djimtoïngar (2008) describe the history of the cotton sector in Chad over 1960-2000 while Ali and Elbadawi (2008) present a historical narrative of cotton developments in Sudan since 1925. Cockett (2010) describes how cotton developed in the Gezira irrigation scheme south of Khartoum. However, ever since it became obvious that Sudan and Chad had highly probable oil reserves in the late 1970s and early 1980s, this new type of black gold became a key determinant of politics and violence in these countries. The next section discusses the chronology of events that link in Sudan the rise and fall of Political Islam and Jihad, on the one hand, to the phases of the oil industry's development, on the other hand. It shows that protecting the pipelines is at least as important as "controlling" the oil for explaining the shifting pattern of ethno-religious alliances and conflict. It suggests that Jihad against the Christian south was basically a cover for an ethnic cleansing campaign in the future oil-producing area, while helping to mobilize the African Muslims from Darfur along with the Riverine Arabs in this fight. In contrast, it became a hindrance and was rejected when the Riverine Arabs and the Southerners had to cooperate to keep the oil flowing northwards to the Red Sea and the world market. Section 3 takes stock of this insight, which it develops as a formal provocation model under asymmetric information. Taken together, these two sections suggest that the Chinese strategy of cooperating with Khartoum and building the pipeline was a more sensible strategy to save lives than the cleaner-looking hands-off strategy followed by Chevron under the pressure of the US civil society. The latter gave time to President al-Bashir's government to pursue a brutal scorched-earth policy under the banner of Jihad. Section 4 examines the lessons that can be drawn from the break up of the initial Muslim coalition in Sudan that came with the actual transportation of oil by the newly Chinese-built

pipelines. It focuses on the shift of the ethnic cleansing campaign from the Christian South to the Muslim Darfur after the pipeline had created the conditions for peace in the south. Section 5 brings out that various economic and political parameters can explain the different timing of events in Chad, where peace came before the pipeline. Less "pedagogy" seems to have been needed there than in Sudan, and Idriss Déby's more autocratic regime probably provides some relevant clues to understand this point. Section 6 offers some brief conclusions.

2. The Rise and Fall of Jihad in Sudan

Political Islam seemed extremely remote when Jafar Numeiri staged a coup in 1969 with the support of Egypt and the communist party. This was putting an end to five years of civilian government run by coalitions involving the traditional and dynastic Umma party and Democratic Unionist Party that were unable to solve the ongoing civil war in the south (Cockett, 2010). The former's leader was Sadiq al-Mahdi, the great grand son of the historical Mahdi who stood against the British and Egyptians to create the first independent Sudan in the 1880s (Pakenham, 1991). The Unionist Party was founded by the Khatmiyyah sect. Both were moderate Muslim parties, reflecting the traditional Sufi orientation of Sudanese Islam. Numeiri quickly broke with the communists, after a failed coup attempt by the latter with Soviet support, and sided with the US. His secular orientation, reinforced by his reputation of drinking alcohol, enabled him to strike a peace deal with the southern rebels in 1972 in Addis Ababa. George H.W. Bush, then US Ambassador to the UN, visited Sudan in February 1972 and became a strong advocate of deepening US relations with Khartoum (Patey, 2014). The State Department responded positively and created a fairly supportive environment for US firms to invest in Sudan. At the same time, NASA launched its Landsat program that the US oil industry used for exploration purposes. Chevron was fast to respond and it signed its exploration license in Sudan in 1974 (Patey, 2014). It soon became clear that oil reserves were

most probably important in the south of the country and Chevron's data collection played a key part in the subsequent successful development of Sudan's oil sector.

Numeiri's Ambiguous Leanings

Numeiri's honeymoon with the US triggered some hostile reactions and an attempted coup was launched in 1976 by the Muslim Brotherhood and sectarian parties with some support by Libya and the Soviet Union. Muammar Qaddafi was pursuing an expansionary strategy in Central Sudan aimed at conquering territory in Chad and northern Sudan, which lasted until he was defeated in 1987 by the Chadian army with some discreet support by the French (Burr and Collins, 2008, Lemoine, 1997). Although the coup failed, it was a close call (Cockett, 2010). This convinced Numeiri to change course with a view to placate the Islamist leaders by giving them positions in the "National Reconciliation" government created in 1977. In particular, the leader of the Muslim Brotherhood in Sudan, Hassan al-Turabi, started his rise to power on this occasion and he became attorney-general in 1979 and then presidential adviser on international affairs between 1983 and 1985 (Cockett, 2010). Elzobier (2014) describes how this western-trained intellectual had brought back from his years as a PhD student in Law at the Sorbonne in Paris a strategy to conquer power inspired by the Marxist-Leninist Italian thinker Antonio Gramsci. Al-Turabi's ambitions could not be satisfied with prestigious governmental positions while his long-term objective was to impose a nationalist brand of political Islam in Sudan. He even launched some brutal repression against Sufi leaders who were defending a more "modernist" line. Numeiri tried to find a narrow line between the West and the Islamist influence that failed eventually. His secular pro-US orientation became even more evident when he voiced an open support for the Camp David process that resulted in the peace agreement between Egypt and Israel in 1978-79. He tried to mitigate its impact by adopting an Islamic lifestyle, discarding his safari suits in favor of traditional Arab clothes (Cockett, 2010).

Numeiri's drift towards the Islamists culminated with the imposition of Sharia Law over the whole country adopted in 1983 as part of the infamous "September Laws" that also curtailed most of the provisions of the Addis Ababa accord with the Southerners. The semi-autonomous government was abrogated and Khartoum's government started to intervene in the south in a heavy-handed fashion. Cockett (2010) mentions a widespread view that Numeiri had been "bewitched" by the Islamists, as if Hassan al-Turabi's elegant maneuvering had won the day. However, another interpretation is possible based not on textual evidence, but on the consistency of Numeiri's policy, in the spirit of "revealed preference" theory. This is a fundamental approach in economics, which assumes that people's behavior is driven by well-defined preferences that can never be directly observed and must be inferred from the careful analysis of their behavior's consistency. After eleven years of religious toleration and semi-autonomous rule, the southerners could not accept to give in to Sharia Law. Public amputations and executions started in 1984 as a clear signal of the new regime, despite popular criticism by Sufi Muslims. As Patey (2014, p.6) puts it: "Sudanese President Jaafar Nimeiri fanned the flames of political animosity in southern Sudan again, which led to the outbreak of a second civil war in 1983". The model presented in the next section offers a rational-choice analysis based on the provocation hypothesis introduced by Rocco and Ballo (2008) and developed by Azam and Bhatia (2012). After a first attack against oil interests in November 1983, the southern rebels launched a more effective attack against Chevron's base camp in Rubkona in February 1984. Patey (2014) describes in detail this attack that left three casualties. John Garang's Sudan People's Liberation Army (SPLA) then came out as the main organized resistance against Khartoum's strategy.

The provocation nearly worked as the Reagan administration worked for a while on the possibility of a discreet positioning of US special forces to protect "proposed oil facilities" (Patey, 2014, pp. 45-46). This would certainly have reduced the Southerners' hopes of getting

eventually a share of the oil money. Numeiri did not waste any time and he started in 1984 to build alliances with various ethnic groups against the southerners in the wake of these September Laws (Patey, 2014). He played both on Islamic feelings in some groups and on the personal rivalry of some Christian groups' leaders with the SPLA's leadership. Several militias were formed to fight the southern rebellion and they were openly armed by the government. However, an exogenous shock put an end to Numeiri's rule. Faced with a very tight fiscal situation, Numeiri did not respond to the 1984 famine that killed thousands, especially in Darfur (Prunier, 2005). His insensitive posture turned even Khartoum's urbanites against him, and he was deposed while he was visiting Washington D.C. for a meeting with Ronald Reagan in April 1985 (Cockett, 2010).

From Jihad to Oil Money

A civilian regime followed including traditional leaders like Sadiq Al-Mahdi who did not give up Numeiri's line toward the south despite claims to appeasement made during the election campaign. The transition government of 1985-86 armed the Baqqara tribe, an Arab nomadic tribe roaming traditionally south of Jabal Marra, and their sub-tribes the Misseriyya and the Rizeigat "to fight alongside the Sudanese regular army against the "African" rebels in the South" (Cockett, 2010, p.85). Al-Mahdi pushed the strategy of the September Laws one step further in the build-up to mass violence, instead of repelling them. He intensified the policy of arming the Arab tribes and he tried a "divide and rule" policy to turn one tribe against the other in the south (Natsios, 2012). Fighting against the SPLA and violence against civilians in the south went on at a higher pace. He just managed to get "no hands chopped, no flogging" on the more appeasing side (Cockett, 2010, p.85).

A meticulously planned bloodless coup by young military officers led by colonel Omar al-Bashir, on behalf of al-Turabi's National Islamic Front (NIF), took place on June 30, 1989. Although Jihad against the southern rebellion was only declared officially in 1992, the

new government was calling *Mujahidin* the members of the new Islamic militia created in November 1989. Sudan was placed on the list of states sponsoring terrorism by Bill Clinton in 1993. Jihad was not only a convenient rallying cry to attract the Muslim militias' loyalty to the government's fight against the southern Christians, as this issue was also important within the Sudan Armed Forces. In fact, Sudan's Military involved a large number of African Muslims from Darfur, for whom enrolling was a means to enhance their incomes relative to Darfuri agriculture and to fund much-needed remittances to their village-folks back home. Although the African people from Darfur had always suffered from being despised by the Riverine Arabs, they were now feeling a sense of belonging by fighting the Jihad alongside the latter. In fact, Burr and Collins (2008) report that extremist political Islam, especially its nationalist version advocated by al-Turabi, was particularly popular among them.

In the meantime, Chevron had confirmed the oil reserves in the south since 1984 but was very reluctant to start building the pipeline, both because of the insecurity created by the war and because of the mounting civil society campaign in the USA and Canada. The activists were in fact pushing the idea of a withdrawal from Sudan. Their basic argument was that the (in fact modest) incomes that the US and other Western firms were generating in Sudan were providing some economic support to a government that was perpetrating systematic human rights violations against part of its population. This naïve diagnosis was disproved later when Chevron eventually pulled out, leaving the government's ethnic cleansing campaign in full speed. After years of dragging their feet under Khartoum's increasing pressure to start extraction, Chevron eventually sold their oil concessions in June 1992. General Omar al-Bashir, the Chairman of the Revolutionary Command Council, hailed this event as a "national achievement" on state television.

Sudan's oil sector moved on a different gear when the Asian companies got involved. At first, Khartoum's government was undecided between the forceful drive of China National

Petroleum Corporation (CNPC) and the access to cutting edge technology that Western firms seemed to provide. However, they could only engage with second-rate Western firms that could not secure the needed financial support to start operating in Sudan. Eventually, the Greater Nile Petroleum Operating Company (GNPOC), involving CNPC (40%), the Malaysian Petronas (30%) and a couple of minor partners (Arakis and Sudapet (Sudan National Petroleum Company)), signed an agreement with the Sudanese government in April 1997. The Canadian Talisman took over Arakis in 1998 and became the third partner of GNPOC, which was de facto dominated by China. This new arrangement turned out to lead quickly to the end of the war, disproving strikingly the view put forward by Amnesty International, Human Rights Watch, Christian Aid, etc. that oil was fuelling civil war, at a time when oil was kept underground. Both Cockett (2010) and Patey (2014) give a nuanced blow-by-blow account of the civil society's pressures against Talisman and other North American potential investors. Talisman gave in eventually to the pressure and sold its 25% share to the Indian company ONGC Videsh in 2002 (Jok, 2007, Patey, 2014). The deferred extraction probably did a lot more harm in the south than the actual inflow of oil money.

The Chinese were untouched by the activists' pressure and quickly started to build the pipeline to the great satisfaction of al-Bashir and the Revolutionary Council. The latter intensified their attacks against civilians in the first half of 1999, although oil money had not yet been seen by the government. Oil started to flow in August 1999 and reached the Bashair terminal on the Red Sea after a safe travel along 1,500 km of pipeline across a large part of Sudan. The event was duly celebrated by President al-Bashir and other dignitaries. As explained by the model presented in the next section, this move was in fact opening the path of peace for Sudan after years of unnecessary war. John Garang's political line in the SPLA was resolutely not in favor of secession, but of a more balanced political equilibrium within a united Sudan. This position was far from unanimously accepted and Johnson (1998) describes

how the SPLA was divided between Garang's supporters and another faction that favored secession of the south. As a trained economist (PhD AgEcon Iowa State), Garang had understood that controlling the oil fields is useless if you don't also control the pipeline. As the Chinese built the pipeline and the crude flew from 1999 on, Garang sent the right signal by having the SPLA perpetrating a series of attacks on petroleum strategic assets between July 1998 and August 2001 after years of restraint since the Rubkona attack. In particular, the pipeline was blown up and a few oil wells were burnt. Table 2 gives some details on the nine attacks reported in the Energy Infrastructure Attack Database for 1998-2001. The August 2001 bombing campaign was especially spectacular as it hit the key producing zone of Heglig and Bentiu (see map on p.xiii in Patey, 2014). Hence, despite years of ethnic cleansing and harsh counter-insurgency violence, the SPLA simply showed that the Khartoum government could not hope to get the oil money without reaching first an agreement with the rebels.

Table 2: SPLA Bombing Attacks on Petroleum Assets, 1998-2001.

Date	Location	Infrastructure	Casualties
02-07-1998	Soba	Electrical Power Station	None
06-07-1998	Khartoum	Oil Storage Facility	None
19-09-1999	Atbarah	Natural Gas Pipeline	None
06-10-1999	Kassala	Shell Oil Service Station	None
16-01-2000	Sinkat	Talisman Oil Pipeline	None
01-05-2000	Sinkat	Sudapet Oil Pipeline	None
05-08-2001	Heglig	Talisman Other	None
22-08-2001	Braniu	Oil Pipeline	None
23-08-2001	Red Sea State	Oil Pipeline	None

Source: Energy Infrastructure Attack Database (EIAD).
I wish to thank Oleg Polivin for sharing these data with me.

Calling Off Jihad

In Khartoum, al-Bashir and the Revolutionary Council got the message clearly, and started to substitute Arab supremacy to Jihad in their propaganda, while Hassan al-Turabi was sidelined (Jok, 2007, Cockett, 2010). The latter sought refuge in Darfur where his brand of nationalist Islamist extremism had many supporters. Al-Bashir understood that he was unable to protect the pipeline from the SPLA's attacks, and sought for peace. It is clearly impossible for any army to position enough soldiers along a 1,500 km pipeline running at times in parched landscapes and ample space is unavoidably left open for a guerilla to bomb the pipeline and interrupt the flow of oil to the market. Then, a political agreement between the people who can actually control the violence is required for oil to reach the world market and bring in the hard currency needed for economic development and their own enrichment.

One may wonder why the Chinese built the pipeline and started pumping while the civil war was raging in Sudan, instead of waiting for peace to prevail like Chevron hopelessly did in the 1980s. Three conjectures come to mind: (i) they underestimated the SPLA's capacity to blow up the pipeline and/or overestimated al-Bashir's ability to protect it, or (ii) they wanted to ratchet their presence in Sudan and accelerate the peace process by letting al-Bashir have a sip at oil money and get addicted to it; (iii) may be, this was the only way to help al-Bashir understand the strategic problem involved. Conjecture (i) seems highly unlikely given the usual sophistication of the Chinese in war, politics and trade. Similarly, on the basis of al-Bashir's track record at political maneuvering and survival, conjecture (iii) seems unlikely. However, it might be the case that important and potentially dangerous members of his Revolutionary Council needed some spectacular events like the pedagogical bombing of the pipelines to understand clearly the stakes of the needed peace process. In a coup-prone polity like Khartoum's, al-Bashir certainly felt the need to rally enough members of the Revolutionary Council, even if they were unable to independently see through the

intricacies of the strategic problems raised by the need for a safe pipeline. Then, a tacit collusion between the Chinese and al-Bashir to start production is likely, as their incentives were clearly aligned.

In any case, the peace process went quite quickly as the two protagonists had a clear understanding of the huge bargaining set that peace would open to them and the Comprehensive Peace Agreement (CPA) was signed in 2005. The CPA contained a 50-50 sharing clause for the oil money, as one would predict by applying the classic Nash Bargaining Solution. In fact some important matters were left open, like the control of the Abyei oil fields or other issues regarding South Kordofan. This led some observers to conclude that the negotiators were in a rush to reach an agreement in order to benefit from the secured cash flow, at a time when the price of oil was steadily rising on the world market. Moreover, John Garang died in a plane crash during the peace talks and the secessionist line became dominant in the SPLA, may be strengthened by al-Bashir's Arab supremacist rhetoric. A provision for organizing a referendum on secession in 2011 was introduced in the CPA. Section 4 below shows that the CPA did not end all wars in Sudan, but led instead to a shift of political alliance against the Darfuri African Muslims.

3. What if they Blow up the Pipeline?

This section presents a simple model to understand how the incentives for Jihad changed in Sudan when the oil started to flow through the pipeline on to the world market, launching a new era of peace between the Muslim North and the Christian South. This model extends the provocation hypothesis developed by Rocco and Ballo (2008) and Azam and Bhatia (2012) by adding asymmetric information about the payoff of the potential rebels as in Azam and Mesnard (2003). Here, the government is uncertain about the political and economic gain that the rebels can obtain by bombing the pipeline, or perpetrating more generally any other kind of attack on the government's assets. By contrast, the potential rebels

observe before launching their rebellion the value that they will get if they decide to attack the government's assets.

The Rebels' Decision Rule

More precisely, let $B \geq 0$ be the level of bombing chosen by the rebels and let β be a random variable that determines the benefit that they get from it. This might capture both political benefits in terms of popular mobilization and support or via its impact on international attention and external support, as well as some more down to earth economic benefits like the theft of crude oil or of some weapons or trucking equipment, etc. After observing β, the rebels choose whether to launch the rebellion or not. If they go for it, they choose B to maximize the following bombing-profit function, assuming a quadratic cost function for simplicity:

$$R^* = \max_{B} \beta B - \frac{B^2}{2}. \tag{1}$$

The first-order condition yields the optimum level of bombing performed if rebellion is chosen as $B^* = \beta$ and $R^* = \beta^2/2$.

Beside β, the key determinant of the potential rebels' decision to attack or to stay put is the level of the tax t that the government imposes on their income y. This tax is defined in a broad sense that includes all the extortions that the government inflicts on the rebels' group like theft of land by ethnic cleansing, slave raiding, pollution of arable land, etc. If they choose to rebel, they incur on the one hand a direct economic cost as their income reduces to $(1-\pi)y, 0 < \pi < 1$; on the other hand, they recover a fraction $(1-\rho)t$ of the taxes levied by the government. Then, they choose to rebel if $(1-\pi)y - \rho t + R^* > y - t$, i.e., if:

$$R^* + (1-\rho)t > \pi y. \tag{2}$$

At the beginning of the game, the government chooses irreversibly both the level of t described above and its level of defense expenditures D. The latter are naturally assumed to affect negatively the benefit that the rebels may get from bombing. More precisely, given t and D, nature is supposed to draw $\beta \in \{0, \delta/D\}$ with probabilities $\{1-\psi, \psi\}$ and the government is assumed to know this distribution. This entails that the potential rebels are more likely to launch an attack, the higher is ψ and, given D, the benefit that they derive from such an attack is higher, the higher is δ. Hence, the government determines the level of defense expenditures to reduce or discourage the level of bombing activity by the rebels, while they will turn out to be useless with probability $1-\psi$. Still, the government's choice of $\{t, D\}$ will determine partly whether rebellion occurs in the final stage of the game and how much damage it will incur if it does. The potential rebels' decision rule is described in proposition 1.

Proposition 1: The potential rebels perpetrate an attack $B^* = \beta = \delta/D$ with probability ψ if:

$$R^* = \frac{\delta^2}{2D^2} > \pi\,y + (\rho - 1)t\,.$$

(3)

Otherwise, the probability of an attack is zero.

Figure 1 describes the possible outcomes entailed by the government's choice of $\{t, D\}$. The cut-off line between the two zones of the $\{t, D\}$ space is:

$$\tilde{t} = \frac{\pi\,y}{1-\rho} - \frac{\delta^2}{2(1-\rho)D^2}\,.$$

(4)

In addition, the upper bound on this line is defined as:

$$t_{\text{Max}} = \min\left\{\frac{\pi\,y}{1-\rho}, y\right\}.$$
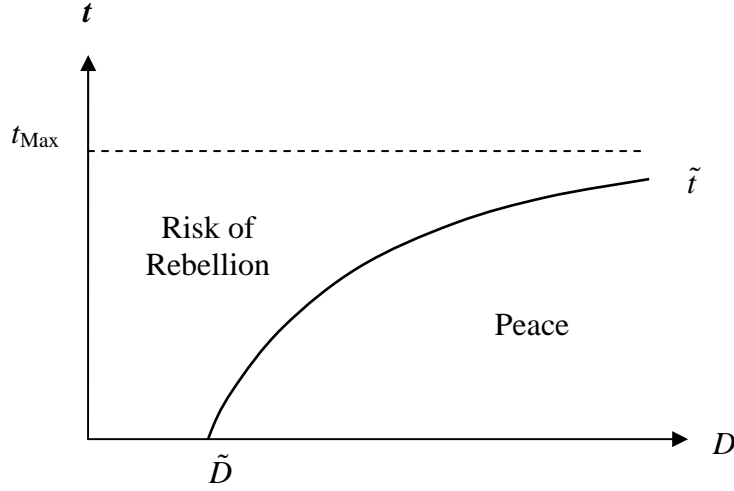
(5)

Figure 1: The Choice of Peace or Conflict in the { t, D } Space

This diagram shows that the risk of rebellion arises when the government chooses a "too high" level of taxes and extortions or "too low" a level of defense expenditures. Moreover, there exists a minimum level of defense expenditures $\tilde{D} = \delta\left(2\pi y\right)^{1/2}$ below which the risk of rebellion exists irrespective of the level of tax and extortion.

The Government's Equilibrium Strategy

If the government chooses to play safe, it will choose a $\{t, D\}$ pair within the "peace" area in figure 1. Denote by S its other fiscal resources beside t. Then it will choose $\{t, D\}$ with a view to get an income:

$$G_S = \max_{t,D} S + t - D \text{ s.t. } t \leq \tilde{t} \text{ and } t \leq y. \tag{6}$$

Let us focus on the case where $\tilde{t} < y$. Then, a glance at (6) first shows that the constraint will be binding for any D so that $t = \tilde{t}$. Then, (6) reduces to:

$$\min_{D} D + \frac{\delta^2}{2\left(1-\rho\right)D^2}. \tag{7}$$

Hence, standard calculations show that, when it chooses to play safe, the government selects the policy mix described at lemma 1.

Lemma 1: When it chooses to play safe, the government chooses:

$$D_S = \left(\frac{\delta^2}{1-\rho}\right)^{1/3} \text{ and } t_S = \frac{\pi y}{1-\rho} - \frac{1}{2}\left(\frac{\delta^2}{1-\rho}\right)^{1/3}, \tag{8}$$

thus getting an income level:

$$G_S = S + \frac{\pi y}{1-\rho} - \frac{3}{2}\left(\frac{\delta^2}{1-\rho}\right)^{1/3}. \tag{9}$$

However, the government might be tempted instead to take the risk of rebellion by challenging the potential rebels by either raising taxes and extortions too high or cutting defense expenditures too low. In this case, it will select the $\{t, D\}$ policy mix that maximizes its expected income:

$$EG_c = \max_{t,D}(1-\psi)(S+t-D) + \psi(S+\rho t - D - \gamma\delta/D) \text{ s.t. } t \le y. \tag{10}$$

In this expression, $\gamma\delta/D$ represents the cost inflicted to the government by the rebel's attack. Notice that (10) may be simplified as:

$$EG_c = \max_{t,D} S - D + (1-\psi(1-\rho))t - \psi\gamma\delta/D \text{ s.t. } t \le y. \tag{11}$$

Simple calculations show that the policy mix chosen in this case and the resulting expected income of the government are as described in lemma 2.

Lemma 2: When it chooses to challenge the potential rebels, the government's policy mix is:

$$t_C = y \text{ and } D_C = (\psi\gamma\delta)^{1/2}, \tag{12}$$

which yields an expected income level equal to:

$$EG_C = S + (1-\psi(1-\rho))y - 2(\psi\gamma\delta)^{1/2}. \tag{13}$$

Notice that (12) implies maximal extortion and that the level of defense expenditures is an increasing function of the three parameters that capture the different costs that the rebels

can inflict to the government, either directly by bombing the pipeline or indirectly by recovering part of the tax revenues.

Then, quite obviously, the government will choose to play safe rather than to challenge the potential rebels if $G_S \geq EG_C$. A glance at (9) and (13) suggests that this decision depends on the value of six parameters but not on S. Given the focus of this paper on the impact of the construction of the pipeline between the South and the North in Sudan, let us focus on the impacts of two key parameters, namely γ and ψ. The former measures the cost that a an attack performed by the rebels can inflict to the government, which is undoubtedly massively increased when the oil starts flowing from the landlocked South to the world market through the pipeline. The latter measures the probability that the rebels get a positive benefit from such an attack, which is also massively increased by the pipeline not only because of the publicity for their cause that an attack against the pipeline would bring about, but also because of various side benefits that the rebels can get by raiding the pipeline and its pumping stations and other plants built here and there along its route for stealing weapons, trucks and provisions, etc. Then, proposition 2 confirms the intuitive prediction that an increase in either γ or ψ will reduce the incentive that the government has to take a chance at challenging the potential rebels.

Proposition 2: The government will choose to play safe if the $\{\gamma, \psi\}$ pair is such that:

$$\gamma \geq \gamma_L \equiv \frac{1}{4\delta\psi} \left(\frac{3}{2} \left(\frac{\delta^2}{1-\rho} \right)^{1/3} + \left(1 - \psi(1-\rho) - \frac{\pi}{1-\rho} \right) y \right)^2. \qquad (13)$$

The proof only involves tedious calculations and is available from the author upon request.
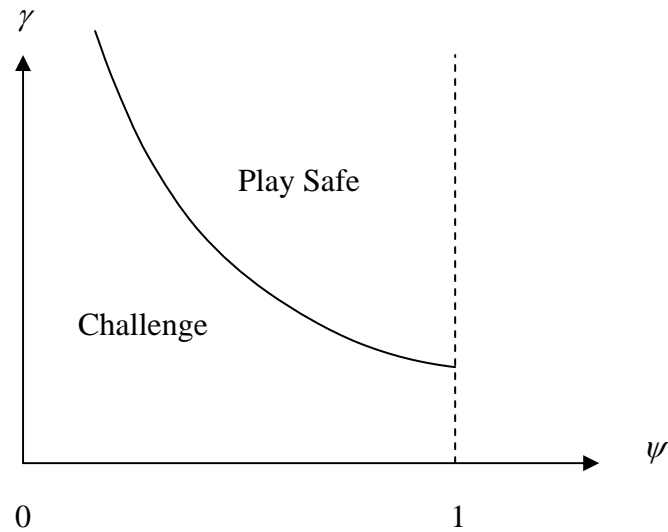
Figure 2: Equilibrium Strategies in the {γ, ψ} Space

Figure 2 depicts how an increase in either γ or ψ (for ρ "small enough") can change the political equilibrium from a conflict situation where the government is challenging the potential rebels into a peaceful one where it takes no chance. The next two sections show how the switch from the "challenge" equilibrium strategy to the "play safe" one involved the break up of the traditional Muslim coalitions while new coalitions formed across the fault line between Muslims and Christians.

4. The Break Up of the Muslim Coalition in Sudan

The "pedagogical" bombing of the pipeline that took place during the 1998-2001 campaign led Khartoum's government to revise its strategy regarding the Christian south. Now, it was clear to all that the SPLA had to be included in the ruling coalition, if only because they were able to prevent further bombing of the pipeline in the south. This clearly entailed that Jihad had to be called off. The second message conveyed by the bombing campaign was more tactical, as the Revolutionary Council understood that the distance of the different ethnic groups' homelands to the pipeline was an important datum that determined the credibility of the implicit threat to the pipeline that they actually represented. Clearly, the

SPLA's claim to political representation was rooted in the fact that the pipeline was running in the midst of their traditional territory. Similarly, the Southerners knew that they had to accommodate Khartoum's ruling coalition's interests because of their territory's proximity to the pipeline. The switch of the ethnic cleansing campaign from the south to the Darfur area described below was clearly a rational response to these two messages.

Quite naturally, the Darfuris were expecting to get a cut of the peace dividend in recognition of their decade-long loyal involvement in the Jihad against the southerners. However, it was now clear to the Riverine Arabs that the distance between Darfur and the pipeline was drastically reducing the African Muslims' bargaining power as their $\{\psi, \delta\}$ pair was small. Moreover, a clumsy intervention by the Bush administration offered a windfall opportunity for al-Bashir to perpetrate the ethnic cleansing campaign in Darfur behind a smoke screen. As described by Cockett (2010) and Patey (2014), Sudan's almost-certain peace process was offering a welcome opportunity for George W. Bush to acquire a reputation of a "peace maker" to be used in the coming 2004 election campaign, to mitigate the negative impact of the "body counts" entailed by the US interventions in Afghanistan and Iraq. Moreover, he hoped to dispel the view that he was relentlessly attacking Muslim countries world wide by getting involved in supporting Sudan's peace process. The Bush administration also expected to get from Khartoum some intelligence about Ossama bin Laden who lived in Sudan from December 1991, invited by Hassan al-Turabi, until 1996. This was a very imprudent move, as al-Bashir immediately seized the opportunity to blackmail the Bush administration, using a tacit threat to derail the peace process or to disclose that the US Embassy and the CIA were filtering information to suppress any leakage to the media, with obvious implications for Bush's reelection chances (Cockett, 2010, Patey, 2014).

So protected from external influence for a couple of years, al-Bashir used a perfectly cold-blooded logical approach to extinguish his debt to the Darfuris whose ψ had thus been

cut further down, while creating a broader "cordon sanitaire" between them and the pipeline. He mobilized the Baqqara tribes, already armed for decades to fight against the south by offering a simple contract granting them all the land that they would clear from their African owners in Darfur and the Jabal Marra as a reward for their loyalty. On the ideological side, al-Bashir replaced Jihad by a racist Arab supremacist propaganda (Jok, 2007). On the ground, he avoided direct involvement of the Sudanese armed forces by setting loose the Janjaweed, i.e., the "Devils on horseback", onto the coveted villages. These were recruits from the Baqqara and their sub-tribes mounted on horses provided by the army and armed by them to kill efficiently. The Sudanese army was staying most of the time at some distance, only providing weapons and logistical support. This tactics has been described in many sources, including Burr and Collins (2008), Cockett (2010), Flint and de Waal (2008), Jok (2007), Prunier (2007), etc.. The Janjaweed relentlessly massacred civilians and their livestock, burnt entire villages to ashes, and they even poisoned their wells to make sure that the survivors would never come back. The international community launched a massive relief program as the news spread after a while, establishing many refugee camps on both sides of the border with Chad, where many Darfuris, and in particular the Zaghawa, had relatives. It was too late when the media stars like Mia Farrow and George Clooney launched the "Save Darfur" campaign, as al-Bashir had achieved his geo-political campaign of pushing further west the Fur, the Massalit and Zaghawa, as well as the Baqqara and their sub-tribes, who then became more or less sedentary on the more fertile lands of Darfur and Jabal Marra. This strategy was a direct consequence of the messages that al-Bashir and the Revolutionary Council deciphered from SPLA's 1998-2001 bombing campaign. Nobody believes to day that its effects could be reversed.

However, one might wonder why al-Bashir and the Revolutionary Council actually needed to see the bombing happen, while they could have guessed this possibility ahead of

time, thus saving time and lives, had they worked out the strategic problem more carefully. May be it was just a bad draw, given the probability ψ of attack in case of challenge, or they also underestimated ψ, after 14 years since the Rubkona attack. A comparison with Chad provides some additional clues to explain this puzzle.

5. The Different Timing of Events in Chad

The different timing of events that eventually led to the actual export of oil from Chad in 2003 shows that Idriss Déby, Chad's more autocratic ruler after the 1990 coup, was able to get the same outcome while less blood was spilled. However, other parameters were also quite different from those governing Sudan's economic and political environment

Like in Sudan, the north-south violence had been endemic in Chad since time immemorial, for the same reasons (Azevedo, 1998, Burr and Collins, 2008, Lemoine, 1997). The French colonization had given some prominence to the Southerners, as their land south of the Chari River was favorable to the development of the cotton sector under the *aegis* of the French CFDT (*Compagnie Française des Textiles*). The land of the Sara was then called "le Tchad utile" (the useful Chad). Moreover, their Christian religion was compatible with attending the French school and then passing the competitive exams for joining the civil service, and then for some, the political elite. The Muslims from the north and the east were much more reluctant to enroll. This created an unbalanced civil service and political elite dominated by the southerners, while the Muslims still remembered them as the natural preys for slave hunters. The remainder of Chad was more or less left alone, with only some light taxes to pay on their livestock. After a long build up, a civil war followed by widespread massacres in the south took place from 1975 to 1982, bringing the Tubu leader Hissein Habré to power. The latter was supported by the West because of his staunch opposition to Qaddafi, whose Libyan army was occupying the Aozou strip, a low-value stretch of land along the Libyan border in the north of Chad including the Aozou oasis. Qaddafi tried to invade Chad in

1986, but he was repelled in 1987 by Habré with some discreet help from the French. The heavy armory of the Libyan tanks was no match in Chad's Sahelian environment to the Chadian army's lightly-armed speedy Toyota pick-ups loaded with determined soldiers. However, Habré sold to the US the Soviet weaponry seized as the Libyans fled, without letting the French even look at it, and he was dumped by Mitterrand (Lemoine, 1997).

In 1990, the Zaghawa leader Idriss Déby took over, after a lightning attack across Chad from a retreat that he had taken in Darfur because of his opposition to Habré. The latter was then isolated and his forces weakened, and he fled without much resistance. Déby's personal guard was mainly comprised of Arab-speaking Zaghawa from Darfur. He then applied a "carrot and stick" strategy to convince the southerners to cooperate with him. While he was waging a near-genocidal campaign in the south, in order to suppress the "codo" (short-hand for commando) rebellion, he invited the rebel leaders to a "National Conference" in N'Djamena in 1993 (Buijtenhuijs, 1998). Idriss Déby gave up the traditional alliance with the Tubu, the nomadic Muslims from the north, as their homeland lies too far away from the future oil fields in the south and the pipeline, given that the latter would clearly be heading south from southern Chad. Moreover, the long civil war and then the war against Qaddafi had left Hissein Habré's army quite exhausted. The Tubu had been deeply divided over this whole period as there was a faction led by Gukuni Wedeï which had sided with the Libyans. This reduced further their implicit threat on the oil sector, beside the remoteness of their homeland. Déby favored instead a close partnership with the southern groups, often referred to collectively as the Sara. He gave General Kamougué, the rebel leader of the south, the National Assembly's presidency, which is constitutionally the number 2 position in the regime. More importantly, he did not dismantle the former rebel units, merging them formally in the Chadian army while keeping them operational. This was a clever commitment device, as Kamougué was thus left in a position to resume the civil war at any time in case of cheating

by Déby. Azam and Mesnard (2003) provide a theoretical discussion of this kind of policy. It seems that this sophisticated strategizing was only available to Déby because of his strong autocratic power. It is plausible that al-Bashir could have imagined such a strategy in Khartoum, but its sophistication might have exposed him to the risk of a coup being launched by coarser members of the Revolutionary Council, especially when Jihad was in every mind.

The (mainly US) oil companies and the World Bank pushed Déby to strengthen even further the implicit power-sharing agreement by creating a "College" for managing the oil money, with a strong presence of the Chadian civil society. Then, as peace seemed secure enough to the oil firms and the World Bank, the pipeline through Cameroon to the Kribi oil terminal was built very quickly, although it is buried underground for security reasons. Oil started to flow in 2003, while Chad only gets 15% of the oil money, the lowest share in any production-sharing agreement in the world (Ghazvinian, 2007). A smaller oil field is exploited near N'Djamena, with a refinery that provides energy to the city and its area.

6. Conclusion

This paper has shown how economic incentives may be stronger than ethno-religious ties when cooperation promises to enlarge massively the bargaining set between Muslim and Christian ethnic groups. In Sudan, political Islam and the Sharia Law were used for a while as a way to mobilize the different Muslim groups for a long-lasting ethnic cleansing campaign in the south. The African Muslims from Darfur fought loyally alongside the Arab Muslims for about fifteen years. This coalition perpetrated massive human rights violations until the oil started to flow thanks to the decisive intervention of the Chinese, who quickly built the pipeline across the whole country up to Port Sudan and the Red Sea. It then became clear that the government in Khartoum was unable to protect the pipeline against the southern rebels' attacks, so that the latter had to be included in the ruling coalition. This occurred quite quickly, as the leaders of the two sides managed to negotiate a peace agreement in which

economic arrangements took pride of place while ancient hatred and the memories of past bloodshed were brushed aside. Furthermore, Khartoum's former allies in the Jihad had now lost their importance, as their homeland was lying too far away from the pipeline to represent a credible threat. The violence of ethnic cleansing then turned against them, as Khartoum's government made them prey to the Janjaweed from the Arab Baqqara tribe and their sub-tribes. The memories of the joint Jihad waged against the southern Christians faded quickly, as the surviving Darfuris started to flock up in refugee camps, having lost their homeland to the Baqqara for ever. The timing of events was different in Chad as the US oil companies managed to hold out more credibly with the backing of the World Bank. Things moved pretty fast when Idriss Déby took over, as his strategy to cooperate with the southerners and to cut his ties with the other Muslim group from the north was clear from the start. However, the oil reserves present in Chad were certainly not as attractive as the southern Sudan's oil deposits and Déby had to be more accommodating to the foreign oil companies' demands.

Still, the result of this historical process is the same in Chad and Sudan, where oil is flowing, benefiting mainly a coalition that formed across the "civilization fault line", uniting Christians and Muslims, African farmers and nomadic herdsmen, Arabs and black Africans. In Sudan, Jihad turned out to be just an ideological instrument for conquering the land of the oil-owners, and it was discarded when cooperation was needed to keep the pipeline secure.

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