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**Escaping the Resource Curse:  
Ethnic Inclusion in Resource-Rich States  
in West Africa**

Manuel Vogt

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In his methodological approach, Manuel Vogt combines both quantitative and qualitative methods. To this end, he has conducted field research on post-conflict democratization in Guatemala, and Côte d'Ivoire. During his Masters studies, he also spent two semesters as an exchange student at Hamline University in St. Paul, MN (USA).

Manuel Vogt has published several newspaper articles in German and Spanish, and won the 2011 NCCR Knowledge Transfer Award for special achievements in transferring academic knowledge to society.

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## Abstract/Zusammenfassung/Résumé

This working paper argues that power sharing amongst ethnic groups is crucial for the political management of resource wealth in Africa. As ethnic conflicts often result from a struggle over access to the state and its material benefits, power sharing should decrease the conflict risk in resource-rich countries. The paper tests this argument in a quantitative analysis of West Africa, based on a new dataset on natural resource wealth. The results show that ethnic power sharing indeed significantly decreases the risk of ethnic conflict onset. Moreover, it mediates the conflict-fueling effect of resource production: Only where relevant ethnic groups are excluded does resource wealth lead to conflict. However, the analysis also indicates that for ethnic power sharing to be effective it needs to include all relevant ethnic groups in a country.

In diesem Working Paper wird argumentiert, dass Machtteilung unter ethnischen Gruppen entscheidend für den politischen Umgang mit Rohstoffreichtum in Afrika ist. Da ethnische Konflikte häufig auf Kämpfe um den Zugang zum Staat und damit einhergehenden materiellen Nutzen zurückgehen, sollte Machtteilung in rohstoffreichen Ländern das Konfliktrisiko mindern. Das vorliegende Working Paper untersucht dieses Argument mithilfe einer quantitativen Analyse zu Westafrika, die auf einem neuen Datensatz zu Rohstoffressourcen basiert. Die Resultate zeigen, dass ethnische Machtteilung tatsächlich das Risiko für den Ausbruch ethnisch motivierter Konflikte entscheidend schmälert. Zudem reduziert sie die konfliktschürenden Auswirkungen der Rohstoffproduktion. Nur dort, wo relevante ethnische Gruppen ausgeschlossen werden, führt Ressourcenreichtum zu Konflikt. Die Analyse zeigt aber auch, dass eine wirksame ethnische Machtteilung nicht umhinkommt, alle relevanten ethnischen Gruppen in einem Land einzubeziehen.

Ce *working paper* soutient que le partage du pouvoir entre les groupes ethniques est crucial pour la gestion politique des richesses naturelles en Afrique. Les conflits ethniques résultant souvent de la lutte pour l'accès à l'État et les avantages matériels qui y sont liés, le partage du pouvoir devrait réduire le risque de conflit dans les pays riches en ressources naturelles. Ce *working paper* teste cet argument à l'aide d'une analyse quantitative se basant sur de nouvelles données sur les richesses naturelles en Afrique de l'Ouest. Les résultats montrent que le partage du pouvoir ethnique réduit en effet sensiblement le risque de l'éclatement de conflits ethniques. De plus, il réduit les effets conflictuels de la production de ces ressources. En effet, la richesse en ressources naturelles engendre seulement des conflits si des groupes ethniques importants sont exclus. L'analyse montre toutefois aussi que le partage du pouvoir efficace doit comprendre tous les groupes ethniques pertinents dans un pays.

# Introduction

The notion of a 'resource curse' has become widely accepted in both the academic and the political world. Resource wealth seems to be robustly related to undemocratic regimes, high corruption, and slow economic growth (see e.g. Gylfason 2001; Mehlum, Moene, and Torvik 2006; Ross 2001; Sachs and Warner 2001). It has also been argued that the negative effect of natural resources particularly affects ethnically fractionalized countries (Hodler 2006). Specifically in regard to the African continent, Jensen and Wantchekon (2004) suggest that the outcome of the 'third wave' of democratizations in Africa in the 1990s was strongly influenced by states' resource profiles: Higher dependence on natural resource exports tended to correlate with a decline in the level of democracy in the mid-1990s.

A number of recent studies have also suggested a causal link between natural resources and the occurrence of civil violence (see e.g. Collier and Hoeffler 2004; Fearon and Laitin 2003; Ross 2004, 2006). However, most of these studies have not paid sufficient attention to the political management of resource wealth.

Focusing specifically on ethnic conflict onset, this paper suggests that such conflicts should be seen as the result of a struggle between different ethnic groups over access to the state and its material benefits. Natural resources, such as oil, precious metals etc., are key resources of the state to which the ethno-political competitors try to gain access. Therefore, the paper argues that the risk of ethnic conflict onset in resource-rich countries should decrease if all relevant ethnic groups in a country are included into government. For under this condition of broad ethnic inclusion – what I will call 'ethnic power sharing' in the remainder of the text –, all groups are able to benefit from the resource revenues.

Moreover, where all relevant ethnic groups have access to the benefits of resource production, the latter's conflict-fueling effect that has been asserted in the literature should disappear. This means that besides its direct stabilizing effect, ethnic power sharing should also have a mediating effect on the relationship between natural resources and political stability.

As politically relevant ethnic groups can be considered all those ethnic groups which have made explicit political claims qua ethnic groups towards the state.<sup>1</sup> Ethnic conflicts are defined here as conflicts in which a) the recruitment of fighters occurred along ethnic lines, and b) explicit ethnic claims were made on the part of the insurgents.<sup>2</sup>

Drawing on a new dataset on natural resource production in the region, based on information from the U.S. Geological Survey (USGS), the study tests this argument in a quantitative analysis of ethnic conflict onsets in West Africa from 1961 to 2009. West Africa constitutes one of the world regions most often associated with resource-driven conflicts and, thus, serves as a paradigmatic test for the theoretical argument.

After revisiting the literature on natural resources and civil violence, the theoretical argument of the paper and its hypotheses are developed in section 2. Section 3 discusses the data used to test them, followed by the empirical analysis in section 4. Section 5 concludes by highlighting the importance of ethnic power sharing as a means to avoid violent ethnic conflict in resource-rich, multiethnic countries.

<sup>1</sup> See section 3 for the precise operational definition of politically relevant ethnic groups in this paper.

<sup>2</sup> Cp. Sambanis (2001), and Cederman, Wimmer, and Min (2010). Ethnic claims may refer to, for example, self-determination, a larger share of power for one's group, the end of ethnic discrimination etc.

# 1 Natural Resources and Conflict in Africa: The Literature

A wave of recent studies has called our attention to the role of natural resources in civil violence. According to one notion, civil conflicts have changed with the end of the Cold War from ideologically motivated to resource-driven conflicts, partly because resource looting has become paramount for financing wars (Keen 1998), and partly because of increased competition over scarce resources (Klare 2001).

This economic approach to explaining the occurrence of civil war sees lootable resources available in a country, the consequential greed of certain criminal-like actors, and state weakness as the main sources of civil conflicts (see e.g. Addison, Le Billon, and Murshed 2003; Collier and Hoeffler 2004; Fearon and Laitin 2003; Ross 2006). Implicitly or explicitly, this argument often rests on recent conflict experiences in Sub-Saharan Africa and – in the face of the Sierra Leonean and Liberian experiences – particularly in West Africa.<sup>3</sup>

In a quantitative analysis of the Sub-Saharan African region, Collier and Hoeffler (2002) ascribed the rising trend of conflict – which stands in stark contrast to the global trend of declining conflict risk – to the deteriorating economic indicators and the dependence on primary commodity exports. Addison, Le Billon and Murshed (2003) emphasized the conflicts' economic profitability and argued that this often leads to prolonged periods of low-intensity fighting in the region. Le Billon (2001) has also causally linked conflict motivation and funding in a number of the continent's most infamous conflicts to natural resources. Finally, in a somewhat extended argument based on an analysis of three diamond producing West African countries, Snyder and Bhavnani (2005) proposed that lootable resources may lead to civil conflicts by creating weak states but that this, in turn, depends on other factors such as the availability of nonlootable resources, the mode of extraction, and patterns of state spending.

Hence, these studies highlight the influence of natural resources on both conflict onset and duration in Sub-Saharan Africa. Since this paper focuses on ethnic conflict onset, let us look a little more closely at the precise causal mechanisms that the literature proposes with regard to the influence on onset. Easily lootable resources which do not require industrial infrastructure to be exploited – such as diamonds and timber – are said to increase the conflict risk because they a) provide the financial means for rebels to mount their insurgency (Collier and Hoeffler 2004; Keen 1998), b) make rebellion more attractive (greed) (Ross 2006), and c) arouse separatist desires in resource-rich regions of a country (Ross 2004, 2006). Oil, although not easily lootable, has also been identified as a high risk commodity because it a) leads to weaker state apparatuses, and at the same time increases the value of the state as a target (Fearon and Laitin 2003; Ross 2006), b) is a source of trade shocks, and c) also acts as a stimulus for separatist insurgencies (Ross 2006). On the other hand, scholars are more uncertain about the role of other commodities (Ross 2006). Snyder and Bhavnani (2005) consider nonlootable resources to be a potentially stabilizing factor as they provide favorable revenue opportunities for rulers.

More recent studies, relying on more precise quantitative data, produced new empirical evidence for some of these mechanisms. Distinguishing between resource production and reserves, Humphreys (2005) found support for the 'weak state' rather than the 'greed' argument, showing a correlation between conflict onset and past production whereas no such correlation existed between reserves and conflict. Lujala, Gleditsch and Gilmore (2005) found the production of lootable alluvial diamonds (but not of primary diamonds of subsoil deposits) to be positively related to ethnic war onset. In contrast, Ross (2006) showed fuel rents and primary diamond production to be associated with both ethnic and non-ethnic conflict onset.

<sup>3</sup> For West African conflicts, see e.g. Abdullah and Muana (1998); Collier (2000, 106); Ducasse-Rogier (2004); Ellis (1998); Keen (2003); Le Billon (2001, 573-5); McGowan (2005); and Reno (1998).

Overall, while propagating almost deterministically direct links from resource existence/production to civil conflict, the political management of resource wealth has been mainly ignored in these studies. In particular, ethno-political factors have been rejected as relevant variables by the most prominent quantitative studies (Collier and Hoeffler 2004; Fearon and Laitin 2003). In accordance with the notion that "grievances increase with population due to rising heterogeneity" (Collier and Hoeffler 2004, 588), both of these widely cited works used aggregated data regarding a country's ethnolinguistic fractionalization (ELF) to cover the concepts of ethnicity and ethnic grievances.<sup>4</sup> In doing so, however, these studies ignore the socio-political aspects of the concept to which their conclusions refer.<sup>5</sup> The result is a huge gap between what such studies attempt to capture theoretically and what is actually measured.<sup>6</sup>

This paper attempts to look more closely at the impact of political factors. Focusing specifically on ethnic conflict onset in West Africa, it argues that ethnic power sharing is crucial for the management of resource wealth in Africa.

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<sup>4</sup> Both studies drew on the Soviet *Atlas Narodov Mira* (USSR 1964) as basis of the ethnolinguistic fractionalization (ELF) index.

<sup>5</sup> Cp. e.g. Collier and Hoeffler (2002, 22): "Africa's problem has decidedly not been the primeval ethnic hatreds of popular imagination."

<sup>6</sup> Cp. Posner (2004).

## 2 Ethnicity, the Distribution of Resource Wealth, and Political Stability

In Africa most economic opportunities are in some way connected to the state. The latter is often the main employer, either through the security forces or its bureaucracy. Business contracts with the government belong to entrepreneurs' most important sources of economic success. As Bratton (1989, 411) wrote, in a sparse institutional environment, the African state looks like a "veritable Kilimanjaro". Under these conditions, economic well-being becomes highly contingent on political power.

This is true for the educated elites who seek employment or lucrative business contracts through the state. But it also applies to the general population. Through mechanisms of patronage, elites share some of the material benefits they gain from their access to the state with their partisans in exchange for political support (Jackson and Rosberg 1984; Lemarchand 1972). Hence, the well-being of whole groups of the population becomes directly coupled to the fate of specific leaders representing these groups.

In Sub-Saharan Africa's multi-ethnic states, ethnic ties often constitute the most important criterion for political alliances (Horowitz 1985, 74-81).<sup>7</sup> Thus, it is usually through networks of *ethnic* clientelism that the distribution of the state's goods takes place in these countries (Bratton 1989, 414; Wimmer 1997, 2002).

Ethnic representatives in the state bureaucracy act as guardians of ethnic groups in a kind of "protectoral" system (Jackson and Rosberg 1984, 193). At the same time, there is often severe competition among these ethnic elites over access to the state and its resources, and over the size of each group's piece of the cake (Horowitz 1985; Wimmer 1997, 2002). It is not surprising then that the legitimacy of political regimes in Sub-Saharan Africa has become strongly linked to patterns of ethnic inclusion and exclusion.

If elites of specific ethnic groups become excluded from access to the state and its material benefits, this ethnic competition might escalate into violent ethnic conflict with the excluded elites trying to gain access by taking up arms against the government (Gurr et al. 1993; Horowitz 1985; Wimmer 1997, 2002). In addition, because in patronage-based political systems, ethnic exclusion usually also leads to economic marginalization, ordinary members of the affected group might be more inclined to pay heed to elites' discourse of ethnic injustice, leading to armed mobilization at the rank-and-file level of the group (Wimmer 1997). Indeed, empirical research on the global level shows that political exclusion or discrimination along ethnic lines often leads to the outbreak of violent ethnic conflicts (Cederman, Wimmer, and Min 2010; Gurr 2000; Gurr et al. 1993; Petersen 2002).<sup>8</sup>

Several African rulers – among them Cameroon's Paul Biya, and Gabon's Bongo dynasty – have created highly personalistic, but ethnically very inclusive regimes based on the loyalty of co-opted key representatives of all relevant ethnic groups. By adroitly distributing the state's resources to selected ethnic guardians and their ethnic bases, these regimes have achieved long-term political stability amidst severely flawed democratic processes.<sup>9</sup> Bayart (1993) coined the term *politics of the belly* to refer to these processes.

<sup>7</sup> Ethnicity is usually understood as a person's most basic identity, related to such traits as language, religion, color, and other phenotypical features believed to be innate (Horowitz 1985, 51-2). Based on such observable, descent-based markers ethnic groups are seen and/or see themselves as communities of a shared culture and common ancestry (Horowitz 1985; Weber 1976).

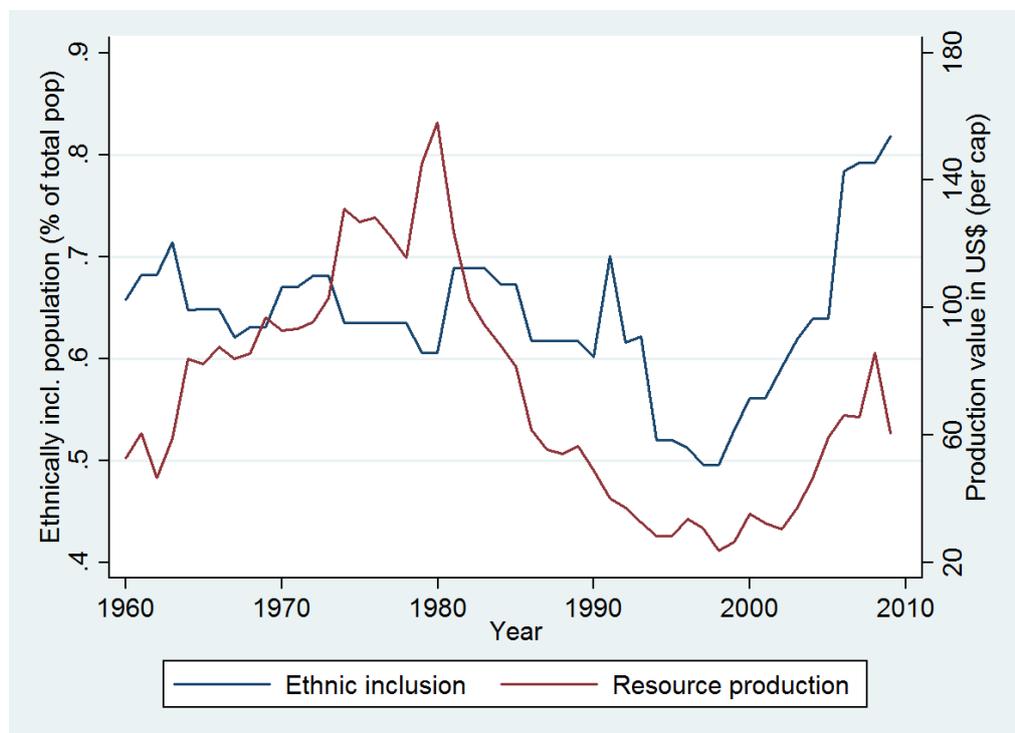
<sup>8</sup> See also Vogt (2007) for an analysis of these mechanisms in West Africa.

<sup>9</sup> For Cameroon, see e.g. Gabriel (1999), and Mehler (1993). For Gabon, see e.g. Gardinier (1997), and Gardinier and Yates (2006).

Clearly, natural resources, such as oil, precious metals etc., constitute key resources of the state that are at the disposition of the power holders. Usually, the export of natural resources is at least indirectly controlled by state administration, either through parastatal companies or the awarding of export licenses heavily influenced by political alliances. Hence, in countries with large natural resource wealth, the ethnic struggle over access to the state should be particularly contentious.

Under these conditions, ethnic inclusion must be seen a crucial means of achieving political stability. Indeed, an historical examination of resource production and ethnic inclusion in West Africa shows a relatively close connection between these variables' development over time (see Figure 1).<sup>10</sup> With the exception of a short discrepancy after the 1979 Iranian oil crisis when oil prices skyrocketed, the trends follow each other closely.

Figure 1: Natural resource production and ethnic inclusion in West Africa. Historical time trends



What the figure does not tell us is whether this strategy of constructing inclusive regimes actually works. However, we can draw some first assumptions from cases where the strategy was *not* applied: The events in countries such as Congo-Brazzaville, Nigeria, or Angola show clearly how the political exclusion of ethnic groups under conditions of resource abundance (in these cases oil) may lead to violent inter-group conflicts in Sub-Saharan Africa.<sup>11</sup>

<sup>10</sup> The figure was constructed from regional mean values of per capita resource production and regional mean levels of ethnic inclusion. The data comes from the U.S. Geological Survey and the Ethnic Power Relations (EPR-ETH) dataset (Cederman, Wimmer, and Min 2010). See section 3 for more details.

<sup>11</sup> For Congo-Brazzaville, see e.g. Clark (1997), and Englebert and Ron (2004). For Nigeria, see e.g. Bah (2005), and Ejobowah (2000). For Angola, see e.g. Malaquias (2000).

Therefore, this paper argues that the inclusion of all relevant ethnic groups into government should lower the risk of violent ethnic conflict despite resource wealth as all groups are able to benefit from the resource revenues.

**Hypothesis 1: Ethnic power sharing decreases the risk of ethnic conflict onset, ceteris paribus.**

If ethnic power sharing generally has a stabilizing effect, then we can also assume that resource wealth itself does not increase the ethnic conflict risk if all ethnic groups are included in government. In other words, where all groups have access to the material benefits of resource production, the latter's conflict-fueling effect that has been asserted in the literature should disappear. Hence, the second hypothesis refers to the mediating effect of power sharing on the relationship between natural resources and political stability.

**Hypothesis 2: Natural resource wealth increases the risk of ethnic conflict onset only if no ethnic power sharing is practiced (that is, if one or more relevant ethnic groups are excluded from political power).**

As almost all West African countries consist of numerous different ethnic groups, it is important to complement the concept of ethnic power sharing with a continuous measure of ethnic inclusion. We can then assume a negative linear relationship between the number of politically included ethnic groups and ethnic conflict risk.

**Hypothesis 3: The higher the share of included ethnic groups, the lower the risk of ethnic conflict onset in a country.**

The study tests these hypotheses for West Africa which constitutes one of the regions most affected by resource-related conflicts, and thus serves as a paradigmatic test for the theoretical arguments made here.

## 3 Data and Measurement

### 3.1 Conflicts in West Africa

Belonging to the West African region are the 15 member states of the Economic Community of West African States (ECOWAS): Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo. Due to its small population, Cape Verde is not included in the Ethnic Power Relations (EPR-ETH) dataset (see below) and, thus, cannot be included in the analysis of this study. This leaves us with 14 countries.

The data on civil conflicts used here is taken from the Armed Conflicts Dataset by the Uppsala Conflict Data Program (UCDP), and the International Peace Research Institute, Oslo (PRIO). A conflict is defined as a contested incompatibility over government or territory between two parties of which at least one is the government of a state, resulting in at least 25 battle-related deaths per year (Gleditsch et al. 2002). The classification of conflicts as ethnic or non-ethnic followed the definition provided in the introduction section of this paper. All in all, there were 25 conflicts registered in West Africa between 1946 and 2009 of which 14 can be classified as ethnic. Table I shows all conflicts identified as ethnic and indicates the ethnic groups connected to the insurgency.

Table I: Ethnic conflicts in West Africa. Overview

Country	Year(s)	Rebel forces	Ethnic group(s) involved
Côte d'Ivoire	2002-2004	MPCI, MJP, MPIGO, FN	Northerners, Southern Mande
Liberia	1980	Military faction	Indigenous Peoples
	1989-1995	NPFL, INPFL	Gio, Mano
Mali	1990	MPA	Tuareg, Arabs
	1994	FIAA	Tuareg, Arabs
	2007-2009	ATNMC	Tuareg
Niger	1991-1992	FLAA	Tuareg
	1994	CRA	Tuareg
	1995	FDR	Toubou
	1997	FARS, UFRA	Toubou, Tuareg
Nigeria	1967-1970	Republic of Biafra	Igbo
	2004	NDPVF	Ijaw
Senegal	1990-2003	MFDC	Diola
Togo	1986	MTD	Ewe

## 3.2 Politically Relevant Ethnic Groups and Their Access to State Power

Data on ethnic groups and their access to state power are available from the EPR-ETH dataset (Cederman, Wimmer, and Min 2010). The dataset contains information about all politically relevant ethnic groups in all countries with a population of at least 500,000, from 1946 (or the year of independence) to 2009.

Ethnic groups are considered to be 'politically relevant' if at least one political organization has claimed to represent its interests on the national level or if its members are subjected to state-led political discrimination (Cederman, Wimmer, and Min 2010, 99).<sup>12</sup>

Ethnic groups' access to state power is expressed through ordinal categories reflecting the degree of group leaders' access to or exclusion from executive power at the level of the central state and ranging from 'monopoly power' to 'discriminated'. Groups with the status of 'monopoly', 'dominant', 'senior partner', and 'junior partner' are considered to be politically included.<sup>13</sup>

Consistent with its level of analysis, this study draws on EPR's country-level dataset which provides aggregated measures of the number of politically relevant groups, and of included and excluded groups for each country in each year. I measure the *share of included ethnic groups* as the ratio of the number of included groups to the total number of politically relevant groups. For example, if in a country three ethnic groups are politically relevant of which only one has access to state power, the indicator takes on the value of 0.33.

*Ethnic power sharing* is operationalized as a dummy variable that is coded as 1 if *all* politically relevant ethnic groups in a country are politically included (i.e. if the ratio variable takes the value of 1), and zero if one or more groups are excluded.

## 3.3 Natural Resource Production in West Africa

This study presents a new dataset on resource production in West Africa, based on the Minerals Information of the U.S. Geological Survey (USGS). USGS provides detailed figures on current and historical mineral production of all countries in the world.<sup>14</sup> The dataset covers the period from 1959 (or the country's year of independence) to 2009, indicating the precise production volume of each commodity in each country and year. Thus, the focus is on mineral *production* rather than on exports or deposits as this seems to be a more suitable indicator of resource wealth.<sup>15</sup>

I multiplied the production figures with the corresponding – inflation-adjusted – commodity prices of the respective year obtaining the production *value* of each of the commodities in each country-year. Almost all data on historical mineral prices stem from the Minerals Information of the USGS as well.<sup>16</sup> For each commodity, I additionally calculated the yearly production *values per capita* using

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<sup>12</sup> Importantly, this coding does not imply any group history of political violence and thus evades problems of endogeneity: Only 0.45% of all years with mobilized or discriminated groups are characterized by conflict (Cederman, Wimmer, and Min 2010, 99, fn 65).

<sup>13</sup> See Cederman, Wimmer, and Min (2010, 100-1) for precise definitions of the categories.

<sup>14</sup> Other scholars have already relied on USGS to check and correct existing datasets (e.g. Ross 2006), but to the author's knowledge, it has not been used as a single data base by itself in conflict research until now.

<sup>15</sup> It avoids for example the error of including re-exports in the analysis. Previous research has also indicated that mineral deposits are not associated with higher conflict risk (Humphreys 2005; Lujala, Gleditsch, and Gilmore 2005).

<sup>16</sup> Data on oil prices stem from the Web site of 'Inflation Data', on uranium prices from the IMF (available only from 1980 to

historical population figures from the United Nations Population Division. Finally, I added all these values to construct a measure of the total value of resource production per capita for each country-year which will be used in the statistical analyses to measure a country's resource wealth.<sup>17</sup> Table II shows a country ranking of mineral resource production in West Africa, providing each country's average per capita production value per year since independence. Not surprisingly, Liberia and oil-rich Nigeria figure above all other countries, while in Guinea-Bissau, the Gambia, and Burkina Faso mineral resource production has been sparse (or even absent).

Table II: Mineral resource production in West Africa: Country ranking

Country	Avg. yearly per cap. production since independence (US \$)	Main resources
Liberia <i>a)</i>	356	Iron ore, gold, gemstones
Nigeria	296	Oil, natural gas, coal
Guinea	113	Bauxite, gemstones, alumina
Ghana	76	Gold, manganese, aluminum
Sierra Leone	52	Rutile, bauxite, gemstones
Côte d'Ivoire	25	Oil, manganese, gold
Togo	23	Gold, phosphate rock
Niger	14	Uranium, gold, coal
Mali	12	Gold
Senegal	9	Phosphate rock, oil
Benin	4	---
Burkina Faso	3	Gold
Gambia	0	---
Guinea-Bissau	0	---

Based on U.S. Geological Survey (USGS) production figures.

*a) Since 1959*

2009), on coal and natural gas prices from the Energy Information Administration.

<sup>17</sup> Note that since this paper intends to make a general point about the importance of the political management of resource wealth, it does not distinguish between different types of resources. Moreover, the small sample of countries does not allow for a more fine-grained analysis with several different resource variables.

### 3.4 Control Variables

Four control variables are used in the analyses to account for global characteristics of the countries. GDP per capita, drawn from the Penn World Table Version 7.0 (Heston, Summers, and Aten 2011), is used as a proxy for economic development. The population variable stems from the United Nations Population Division. To measure the level of democracy I rely on the Polity index by Gurr, Jagers, and Moore (1989). Finally, a peace-years variable controls for a country's conflict history. It counts the number of years since the end of the last conflict in a country (or since independence if no conflict has occurred).

The data are structured in a country-year format. Table III gives a summary of the main independent variables used in the analyses. Overall, the dataset consists of 699 country-years. However, due to the (logged) resource variable, the models in this study are restricted to the period from 1961 to 2009.

Table III: Summary of the data

Variable	N	Mean	Median	Std. Dev.	Min	Max
Value of resource production	683	72.66	11.82	155.82	0	1058.19
Power sharing	699	.33	0	.47	0	1
Share of included ethnic groups	617	.68	.75	.30	.17	1
Peace years	699	13.06	11	10.91	0	49
Polity IV index	696	-2.67	-6	5.65	-9	8
Population	695	12'000'000	5'288'000	23'600'000	409'000	150'000'000
GDP per capita	674	573.63	525.25	347.75	84.23	2373.24

Table III reveals that some of the main variables are clearly skewed, especially the resource variable. Therefore, logged versions were used in the following statistical analyses.

## 4 Analysis

To test the hypotheses empirically, logit regression models with ethnic conflict onset as a dependent variable and with clustering on the 14 countries for robust standard errors are used. Table IV summarizes the results.

Model 1 is the basic model, including the power-sharing and resource production variables, and the four control variables mentioned above. As resource production may be heavily influenced by political violence, the variable was lagged one year. Also the GDP and democracy indicators were lagged.<sup>18</sup>

Table IV: Regression results

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Resource production (logged, lagged)	.198*** (.062)	.195** (.063)	.153** (.048)
Ethnic power sharing	-1.473* (.625)	-1.606* (.788)	–
Inclusion ratio	–	–	-1.725 (.927)
Population (logged)	-.126 (.134)	-.127 (.136)	-.143 (.159)
GDP per capita (logged, lagged)	.365 (.425)	.369 (.427)	.427 (.478)
Polity IV (lagged)	.103* (.046)	.104* (.047)	.093* (.044)
Peace years	.024 (.019)	.024 (.019)	.022 (.020)
Power sharing*resource production (logged, lagged)	–	.042 (.224)	–
Constant	-4.375 (3.114)	-4.370 (3.104)	-3.568 (3.029)
N	657	657	576
Log likelihood	-59.478***	-59.472***	-59.557*

Robust standard errors, with clustering on countries, in parentheses.

\*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$ . +  $p \leq 0.1$

<sup>18</sup> The power-sharing variable does not need to be lagged since EPR always takes January 1<sup>st</sup> as reference point for the coding of the ethno-political situation of each year.

First of all, the results indicate that the production of mineral resources indeed seems to be associated with a higher risk of ethnic conflict. The effect of the variable is positive and highly significant. Thus, from the perspective of our theoretical argument, the greater the benefits of having access to state power are, the more likely it is that the struggle between ethno-political contenders becomes violent.

However, and more importantly, the model also confirms the notion that ethnic power sharing is an effective counterstrategy. If all ethnic groups in a country are included into government and thus enjoy access to the benefits of the state, the risk of ethnic conflict decreases significantly, despite the contentious revenues from resource production. Holding all other variables at their means, the risk decreases by 1.2%. Therefore, Model 1 gives support to our first hypothesis.

The results are robust when using a logistic regression for rare events data as proposed by King and Zeng (2001). Using the (logged) absolute value of resource production instead of the per capita value does not change the results either. An additional robustness check included a cubic spline in peace-years as proposed by Beck, Katz, and Tucker (1998) to deal with temporal interdependence of the data, but this did not change the results either.

A last robustness issue concerns the ethnicity coding: Since the power-sharing variable is automatically coded as 0 if the ratio of included ethnic groups is below 1 in a given country-year, the variable also takes the value of 0 when ethnicity is considered politically irrelevant in a country – either during a certain period or over the whole of its history. However, the non-politicization of ethnic differences might actually be a sign of implicit ethnic power sharing in a country. If this is the case, this coding might distort the results of the analysis. Hence, Model 1 was run again without those country-years in which ethnicity is considered politically irrelevant.<sup>19</sup> While all other variables remain stable, the effect of ethnic power sharing becomes stronger and is significant at a higher level.

In sum, Model 1 gives ample support to our first hypothesis: Ethnic power sharing does seem to significantly decrease the risk of ethnic conflict despite mineral resource production.

The importance of this political strategy is also demonstrated by a look at the negative examples. Table V chronologically lists all conflicts in West Africa that took place in countries with significant resource production, namely where the value of resource production was above the variable's median value in the year before an outbreak of conflict. In all of these cases significant ethnic groups were excluded from state power, and in all of them it was exactly one or more of these groups which engaged in ethnic rebellion against the state – from Igbo secessionism in Nigeria in 1967 to the Tuareg and Toubou conflicts in Niger in 1997, the northern rebellion in Côte d'Ivoire in 2002, and the most recent ethnic conflict in Nigeria.<sup>20</sup>

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<sup>19</sup> In the West African sample this affects Burkina Faso (which is coded with 'ethnicity not relevant' for the whole of its history in the EPR dataset), Gambia under Jammeh (from 1994 to 2009), Sierra Leone from 1992 to 2001, and Liberia from 1990 to 1996. In the last two cases, ethnicity is coded as irrelevant because of state collapse: Since central state power completely broke down during the civil wars and different pieces of the countries were ruled by different rebel groups, gangs etc., the term 'access to state power' became meaningless.

<sup>20</sup> For the two Liberian conflicts listed in Table V, see Ballah and Abrokwa (2003), and Outram (1999); see also Bøås (2001), and Harris (2006) for the 1989 conflict. For the bloody coup attempt in Togo in 1986, see Decalo (1996).

Table V: Ethnic conflicts in countries with significant natural resource production

Ethnic conflict	Excluded groups <i>a)</i>	Per capita resource production value (in US \$) <i>b)</i>
Nigeria 1967	Igbo, Ijaw, Tiv, Ogoni	67
Liberia 1980	Indigenous African groups	699
Togo 1986	Ewe	27
Liberia 1989	Gio, Mano, Americo-Liberians	236
Niger 1997	Hausa, Tuareg, Kanouri, Toubou	16
Côte d'Ivoire 2002	Northerners	14
Nigeria 2004	Ijaw, Tiv, Ogoni	285

a) Before conflict outbreak.

b) In year before conflict outbreak.

The opposite example can be found in Ghana. As Table II shows, the country produces far more natural resources than, for example, Côte d'Ivoire, Togo, or Niger, and exhibits a similar resource profile – based mainly on nonlootable, 'non-risk' resources (cp. Ross 2006; Snyder and Bhavnani 2005) – yet has avoided the violent ethnic power struggle of these other countries. Again, we find clear evidence of the validity of our theoretical argument: Although not spared from fierce competition between different ethnic elites, Ghanaian governments have (almost) always maintained a careful ethno-regional balance over the course of post-independence history which prevented this competition from turning into a violent ethnic conflict (Asante and Gyimah-Boadi 2004; Chazan 1982).

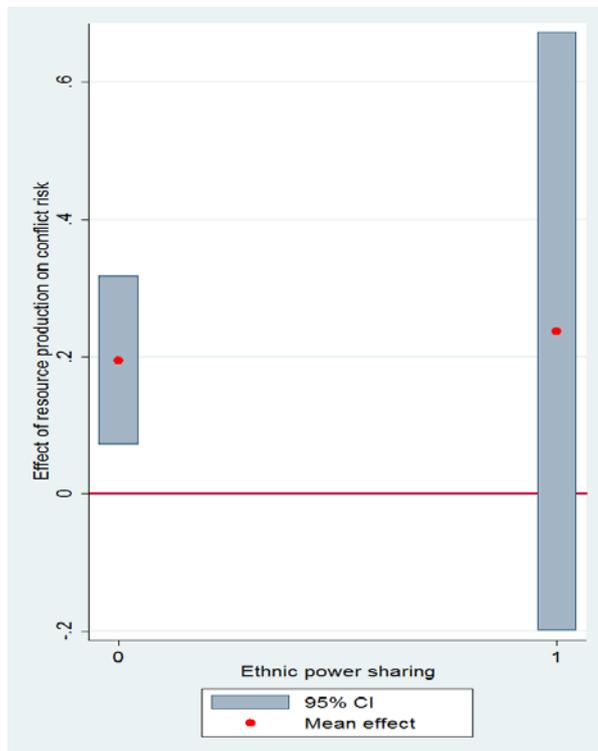
From its independence until 1985 and again in 2009, Guinea – another resource-rich West African state – is also a good example of broad ethnic power sharing. Guinea has also never suffered from an ethnic conflict. It did however experience a two-year non-ethnic civil war (2000-2001) which notably occurred during Lansana Conté's more exclusionary regime between 1986 and 2008.

So far, we have received evidence for an opposite effect of natural resource production and ethnic power sharing. But does the latter also mediate the effect of the former? Or, in other words, does the negative effect of resource wealth fade away in situations of ethnic power sharing, as stipulated by our second hypothesis? To test this assumption, Model 2 in Table IV uses an interaction term generated by the multiplication of the resource variable with the power-sharing variable from Model 1. Since the latter is a dummy variable the results are relatively straightforward to interpret: If ethnic power sharing does not exist (i.e. the dummy variable takes the value of 0), the effect of natural resource production is given by its own coefficient. Where ethnic power sharing does exist, we need to add the coefficient of the resource variable to the coefficient of the interaction term.

The results confirm our assumption: Without ethnic power sharing, natural resource production exerts a significant positive effect on the risk of ethnic conflict. The higher the per capita value of the resources produced in a country, the higher the risk that this country will experience an ethnic conflict. In contrast, if all ethnic groups are included in government the effect of natural resource

production is not statistically significant anymore. As can be seen in Figure 2, although the mean of the added coefficients is even higher, the variance and the uncertainty about the effect that comes with it are extremely large.<sup>21</sup>

Figure 2: Resource production and ethnic conflict risk, with/without power sharing



The same robustness tests were performed as in Model 1 but they did not change the results in any way. This confirms our second hypothesis: Resource wealth increases the risk of ethnic conflict only if relevant ethnic groups are excluded from political power. Under conditions of ethnic power sharing, there is no significant effect. Therefore, power sharing mediates the effect of resource production on ethnic conflict risk.

Does ethnic power sharing also work in a less comprehensive form? To test our third hypothesis, Model 3 in Table IV uses the continuous measure of the ratio of included ethnic groups instead of the dummy variable. The variable is coded as missing in all country-years where ethnicity is considered to be politically irrelevant (see above). This reduces the number of observations by 81.

The result is ambiguous: The continuous inclusion variable fails to reach the conventional level of statistical significance, but only narrowly ( $p = 0.063$ ). Also, the model as a whole is less significant than Model 1. Importantly, the weakness of the inclusion variable is not due to the loss of observations. As noted above, the dummy variable actually performs even better in this smaller sample. Therefore, our third hypothesis does not receive clear support from the statistical analysis.

<sup>21</sup> The confidence interval of the added coefficients was calculated with simulation methods based on Clarify (King, Tomz, and Wittenberg 2000).

Clearly, a simple alliance between a few ethnic groups (or their elites) is not enough. The trick seems to lie in ensuring that *all* groups have access to a meaningful portion of political power and of the material benefits that follow from it.

The effects of the control variables remain constant across the different models. Interestingly, while the effects of the other three control variables are statistically insignificant, the democracy indicator is consistently and robustly associated with a higher risk of ethnic conflict.<sup>22</sup> As surprising (and uncomfortable) as this may seem at first view, it is not completely contradictory to the theoretical argument made in this paper: If political legitimacy is highly dependent on ethnic inclusion, majoritarian democratic procedures might be problematic in multi-ethnic states. Where the electoral rules turn demographically small groups into permanent political minorities, they might try to achieve political inclusion through violent means – particularly if the material stakes are high, as is the case in resource-rich countries.<sup>23</sup>

Other scholars have already highlighted the possible negative short-term effects of democratization in multi-ethnic countries before.<sup>24</sup> Under such circumstances, competitive elections often turn into a different expression of the zero-sum power struggle among ethnic groups (Bakwesegha 2004; Gurr 1994; Horowitz 1985; Rothchild 2004). Therefore, mechanisms are needed that ensure inclusion in the context of majoritarian democracy. Simply following majoritarian rules without paying heed to ethnic inclusion may turn out to be a disastrous strategy in resource-rich African countries.<sup>25</sup>

<sup>22</sup> This result holds if the Freedom House indicators for political rights and civil liberties are used instead of the Polity index.

<sup>23</sup> Nigeria's First Republic (1963-66), where population censuses turned into virtual contests over political power, is a highly instructive example of this mechanism (cp. Diamond 1988).

<sup>24</sup> For a more profound discussion of the nexus between nationalism, democracy, and ethnic exclusion, see in particular Mann (2005). For a discussion of the relationship between democracy, ethnic exclusion, and ethnic conflict in the Arab World, see Bormann, Vogt, and Cederman (2012).

<sup>25</sup> In fact, an interaction of the Polity variable with the ethnic power sharing dummy – analogous to the resources-power sharing interaction term in Model 2 – shows that democracy *only* has a significant effect on ethnic conflict risk ( $p=0.056$ ) if there is *no* ethnic power sharing (model not reported here).

## 5 Conclusions

While the notion of a 'resource curse' has become widely accepted in both the academic and the political world, this paper has highlighted the possibilities of political management of a country's resource wealth. In Africa, like in other continents, economic opportunities are highly dependent on links to political power, and ethnic elites often become engaged in a struggle over access to the state and its benefits. This struggle becomes more virulent the higher the economic stakes are. In resource-rich countries the stakes are particularly high and repeatedly fuel violent conflict. Consequently, the distribution of political power among different ethnic groups – namely, the presence or absence of ethnic power sharing – should condition the effect of natural resources on conflict risk that has been propagated in numerous recent studies.

Focusing on ethnic conflict onsets in West Africa, the paper has tested this argument in a region which has commonly been associated with resource-driven conflicts and which therefore serves as a paradigmatic test region. To this end, it has relied on a new dataset on natural resource production in the region based on information from the USGS. The quantitative analysis produced three main findings: First, while higher values of natural resource production do increase the risk of ethnic conflict onset in the region, ethnic power sharing seems to be an effective counter strategy, significantly decreasing the conflict risk. Second, power sharing mediates the effect of resource wealth on ethnic conflict onset; only where relevant ethnic groups are excluded, does the latter increase the risk of ethnic conflict. And third, ethnic power sharing only seems to work in a very comprehensive way, namely if *all* relevant ethnic groups are included in government. This points to the importance of constructing truly inclusive political regimes.

The various empirical examples of ethnic conflicts in resource-rich countries discussed in this study undergird this statistical correlation. This should make it clear that the concepts of ethnic exclusion and ethnic power sharing are not just theoretical fabrications but political phenomena (or strategies) of significant practical relevance.

Two words of caution, however, seem necessary. First, although addressing a region of high theoretical significance, the study is based on a very small sample of countries which makes conclusions about global patterns rather tentative. Also due to the small sample, the analysis has not distinguished between different resource types. Clearly, more research on other regions or at a global scale will be needed to more solidly support the theoretical argument made in this paper.

Second, the study has addressed only one negative consequence of resource wealth among several that have been discussed in the literature. Even if ethnic power sharing may decrease the risk of ethnic conflict, it certainly does not constitute an equally effective antidote against, for example, administrative corruption. Corruption may even increase in an environment where state revenues are explicitly used as goods to be distributed between the different political contenders. However, since their human, political, and economic costs are extremely high, civil conflicts probably constitute the worst fate that can befall a country. Therefore, this paper highlights the political possibilities of escaping at least the most threatening aspect of the resource curse.

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# List of Acronyms

<b>ATNMC</b>	Alliance Touareg Nord Mali pour le Changement
<b>CI</b>	Confidence interval
<b>CRA</b>	Coordination de la résistance armée
<b>ECOWAS</b>	Economic Community of West African States
<b>EPR(-ETH)</b>	Ethnic Power Relations dataset, Vers. 2.0 by ETH Zurich
<b>FARS</b>	Forces armées révolutionnaires du Sahara
<b>FDR</b>	Front démocratique du renouveau
<b>FIAA</b>	Front Islamique Arabe de l'Azaouad
<b>FLAA</b>	Front de libération de l'Aïr et l'Azaouad
<b>FN</b>	Forces Nouvelles
<b>GDP</b>	Gross domestic product
<b>IMF</b>	International Monetary Fund
<b>INPFL</b>	Independent National Patriotic Front of Liberia
<b>MFDC</b>	Mouvement des forces démocratiques de Casamance
<b>MJP</b>	Mouvement pour la justice et la paix
<b>MPA</b>	Mouvement Populaire de l'Azaouad
<b>MPCI</b>	Mouvement patriotique de la Côte d'Ivoire
<b>MPIGO</b>	Mouvement populaire ivoirien du Grand Ouest
<b>MTD</b>	Mouvement Togolais pour la Démocratie
<b>NDPVF</b>	Niger Delta People's Volunteer Force
<b>NPFL</b>	National Patriotic Front of Liberia
<b>PRIO</b>	International Peace Research Institute, Oslo
<b>UCDP</b>	Uppsala Conflict Data Program
<b>UFRA</b>	Union des forces de la résistance armée
<b>US</b>	United States of America
<b>USGS</b>	U.S. Geological Survey

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