

Property rights under selective enforcement

How mining cadastres relate to conflict in low income countries: WIP 2

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Agenda

Third chapter (12 min.)

Outlook/ Mechanism (4 min.)

Discussant 1 (20 min.)

Discussant 2 (20 min.)

RQ: Do property rights reduce local conflict?

- Provide clear and legally enforceable ownership boundaries, reducing disputes over resource use and access.
- Mining in low income countries is associated with multiple types of conflicts.
- But institutions reward and enforce property rights
→ Causality dilemma in low state capacity settings.

This project

- Examines whether/how property rights moderate the link between resource extraction and conflict in low income countries.
- Introduces two data sets: 1) Mining activities and 2) Legal status.
- Argument: The utility of property rights depends on their design + enforcement.
- Political actors, institutions and **multinational firms** are crucial for design + enforcement of mining licenses.

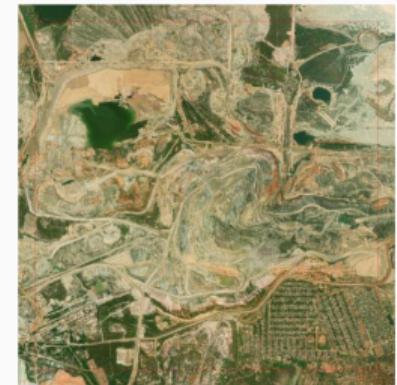


Figure 1: Metalkol mine kolwezi in the DRC

Why property rights should reduce local conflict

- Better enforcement & transparency (Besley 1995)
 - Improves fiscal- and state capacity (Besley and Persson 2009)
 - Overall economic development (Galiani and Schargrodsy 2010).
- Reduce the tread of expropriation.



Figure 2: Historic example: The Glorious Revolution (North and Weingast 1989)

Why property rights might not work

- Property rights gaps (Albertus 2021)
- Weak state capacity (Joireman 2007; Toulmin 2009)
- Political motives/non-market strategies (Hassan and Klaus 2023).

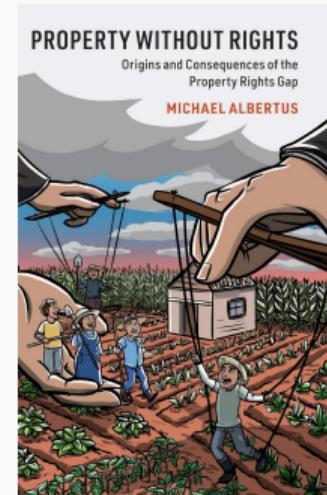


Figure 3: Property rights gaps (Albertus 2021)

What kind of conflicts exist around mines?

- "[...] armed groups can sell minerals on the black market" (Berman et al. 2017)
- Local communities vs. extracting firms (Christensen 2019)
- Small scale vs. industrial mining (Rigterink et al. 2023)



Figure 4: M23 rebel group in Kivu province and protest against a mine in the Copper belt

Argument of this paper

- The actual utility of property rights depends on:
 - Domestic and foreign institutions.
 - Multinational corporations and global profit shifting.
- Newly established property rights can have no or even negative effects on local conflict levels.



Figure 5: Selective property rights in the DRC.

Identification & Data

Identification

- Challenge: Economic value and legal status of mine are not independent to each other.
- Solution: World market commodity prices as a way to observe exogenous variation in the economic value of mines.
- Very established identification approach in the literature (e.g. Berman et al. (2017), Christensen (2019), and Rigterink et al. (2023)) and established approach:

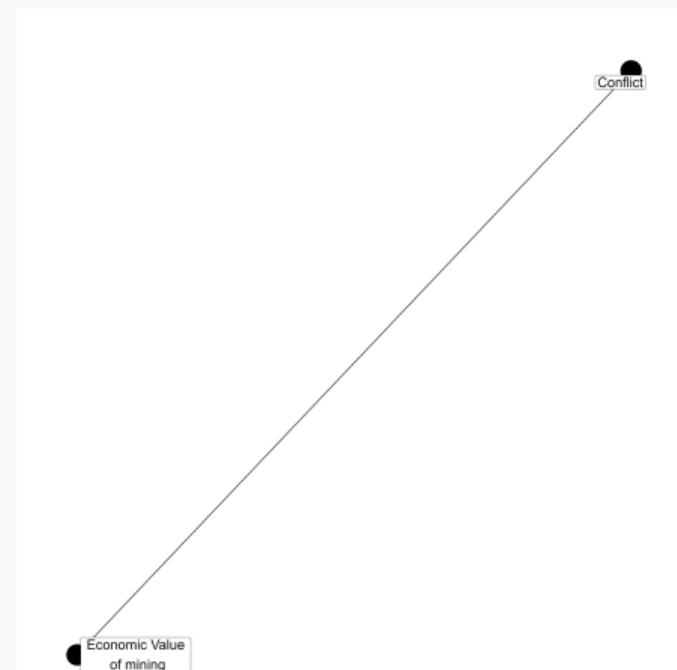


Figure 6: "traditional" mining-conflict DAG

Identification

- Next: Introduce property rights as a channel to moderate the link between the economic value of mines and their local conflict levels.
- Do property rights reduce the link between economic value and conflict ?

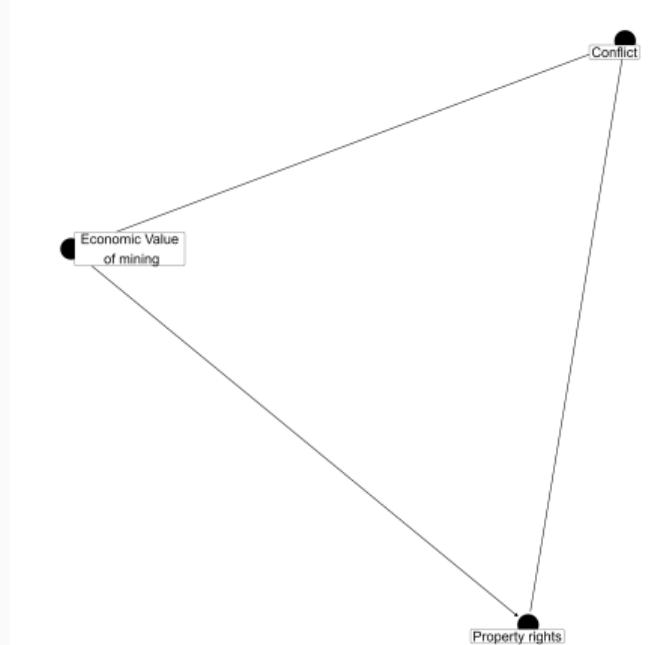


Figure 7: Economic value co founds legal status

Identification

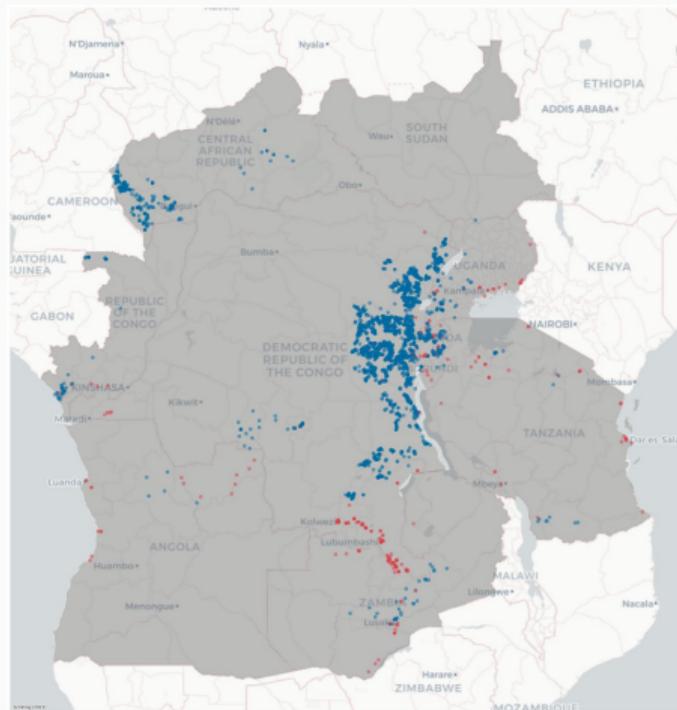
- Do different types of mining activities benefit differently from property rights?
- Large scales mining (LSM), artisanal small scale mining (ASM).
- Licenses that are enforced by foreign institutions, the Dodd-Frank-Act section 1502 (DFA).
- The origin of T3 minerals needs to be documented, other material not.

Regulation over extracted commodity	Scale of production
DFA	ASM
non-DFA	LSM

Table 1: Consider production and license types for the baseline regression

Data Sources: Two new measures

Location of mines:



Legal status of mines:

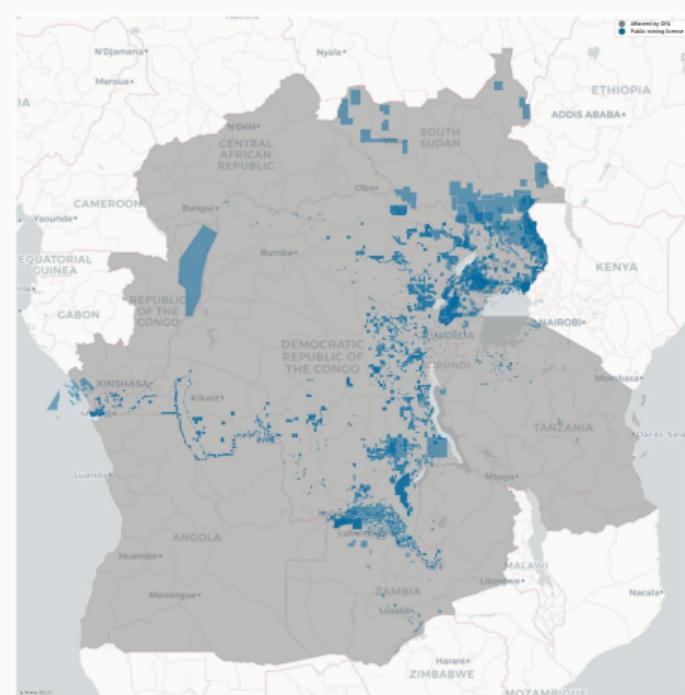


Illustration: A 5km^2 grid cell

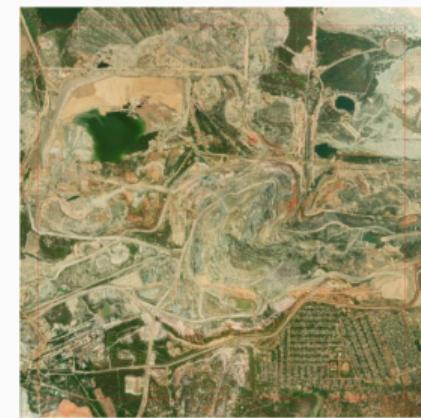
Production:



Legal:



Satellite:



Findings and Mechanism

Baseline regression

Table 2: Effect of different mining activities on likelihood for conflict with or without Production license on a cell level 2000-2020. The baseline probability of a conflict event per cell in a given year is 0.00151

Dependent Variable:	P(any ACLED event)			
Model:	(1)	(2)	(3)	(4)
<i>Variables</i>				
DFA ASM	0.0072*** (0.0014)			
License	0.0019*** (0.0007)	0.0017** (0.0007)	0.0014** (0.0006)	0.0016** (0.0007)
DFA ASM × License	-0.0010** (0.0005)			
DFA LSM		0.0159*** (0.0046)		
DFA LSM × License		-0.0046* (0.0024)		
no DFA ASM			0.0037*** (0.0011)	
no DFA ASM × License			0.0006 (0.0011)	
no DFA LSM				0.0046 (0.0029)
no DFA LSM × License				0.0002 (0.0024)
<i>Fixed-effects</i>				
Cell level (333,719)	Yes	Yes	Yes	Yes
Year (21)	Yes	Yes	Yes	Yes
<i>Fit statistics</i>				
R ²	0.23508	0.23501	0.23504	0.23501
Adjusted R ²	0.19683	0.19676	0.19678	0.19676
Observations	7,008,099	7,008,099	7,008,099	7,008,099

Conley (9.2km) standard-errors in parentheses

Signif. Codes: ***: 0.01, **: 0.05, *: 0.1

Mechanism example: Non-market strategies by domestic political actors

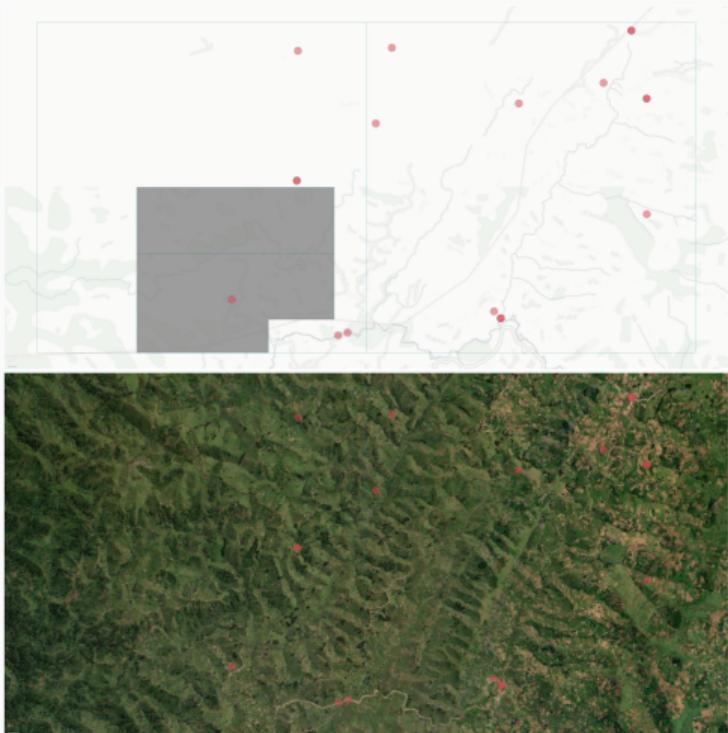


Figure 8: Selective provision of ASM license in northern Kivu

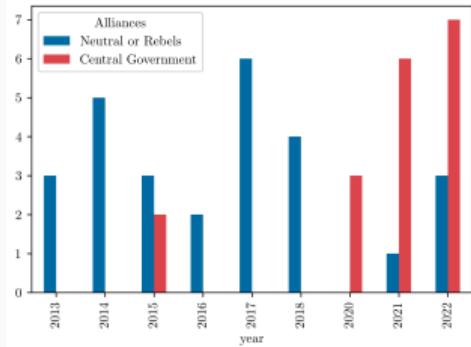


Figure 9: Top: M23 soldiers leaving Kivu, Bottom: Political control over ASM with licenses

Mechanism example 2: Profit distribution in cobalt mining

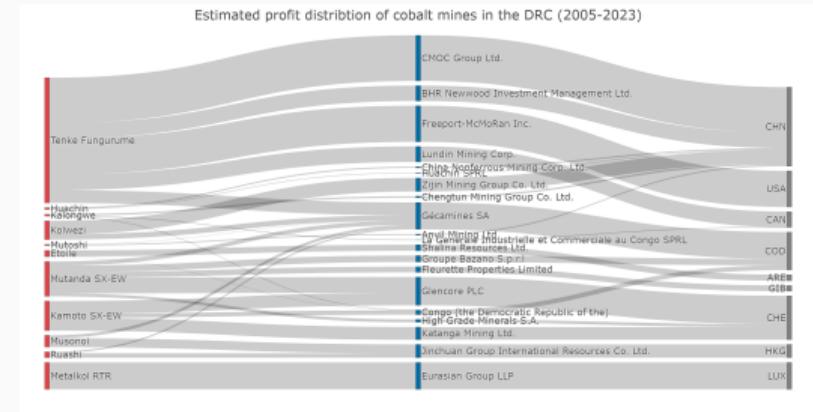


Figure 11: Profit distribution of Cobalt mines in the DRC

Figure 10: Cobalt mining in Kolewezi

Thanks!

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