

The Tragedy of the Grabbed Commons: Coercion and Dispossession in the Global Land Rush

JAMPEL DELL'ANGELO^{a,b}, PAOLO D'ODORICO^{c,d,a}, MARIA CRISTINA RULLI^e and PHILIPPE MARCHAND^{a,*}

^a National Socio-Environmental Synthesis Center, Annapolis, USA

^b VU University Amsterdam, The Netherlands

^c University of Virginia, Charlottesville, USA

^d University of California, Berkeley, USA

^e Politecnico di Milano, Italy

Summary. — Rural populations around the world rely on small-scale farming and other uses of land and natural resources, which are often governed by customary, traditional, and indigenous systems of common property. In recent years, large-scale land acquisitions have drastically expanded; it is unclear whether the commons are a preferential target of these acquisitions. Here we argue that the contemporary global “land rush” could be happening at the expense of common-property systems around the world. While there is evidence that common-property systems have developed traditional institutions of resource governance that make them robust with respect to endogenous forces (e.g., uses by community members), it is less clear how vulnerable these arrangements are to exogenous drivers of globalization and expansion of transnational land investments. In common-property systems, farmers and local users may be unable to defend their customary rights and successfully compete with external actors. We define the notion of “commons grabbing” and report on an exploratory study that applied meta-analytical methods, drawing from the recent literature on large-scale land acquisitions and land grabbing. Informed by political economy and political ecology approaches, we coded selected cases on the basis of acquisition mechanisms, claims and property rights, changes in production system, and coercive dynamics, and explored the interactions between the different variables using association tests and qualitative comparative analysis. We found that the majority of the cases included in this analysis (44 of 56) could be examples of commons grabbing.

© 2017 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Key words — commons, common property systems, large-scale land acquisitions, land grabbing, smallholders, coercion

1. INTRODUCTION

Small-scale farming remains the main means of food production globally, and the world's rural populations depend heavily on local land and natural resources and self-subsistence (IAASTD, 2009; Godfray *et al.*, 2010; Turner, Lambin, & Reenberg, 2007; Wily, 2011a, 2011b). A lion's share of land they rely on is governed by customary, traditional, and indigenous systems of common property. In sub-Saharan Africa, it has been estimated that 70% of this land can be categorized as customary common property (Deininger, 2003; Wily, 2011a, 2011b, 2012). However, since about 2008, an emerging phenomenon of global large-scale land acquisitions (LSLAs), popularly referred to as “global land grabbing” (“Buying Farmland Abroad: Outsourcing's Third Wave, 2009”), might be altering this picture. The amount of land that has recently been acquired through large-scale land deals in 63 low- and middle-income countries has been conservatively estimated at 44 million hectares (The Land Matrix, 2016). Several case studies and articles have reported that LSLAs are occurring in the context of communal and traditional lands (De Schutter, 2011a; Fuys, Mwangi, & Dohrn, 2008; Kugelman, 2012; Pearce, 2012; Wily, 2011b), but whether LSLAs are preferentially targeting communally owned lands remains unanswered.

The study of the agrarian transition driven by LSLAs faces several methodological challenges related to the validity and representativeness of the data. The Land Matrix (2016), a global database on large-scale land acquisitions, has provided useful information and triggered global studies and discussion,

but it does not provide in-depth information on fundamental issues such as land tenure, actors and subjects involved, prior land use, and the dynamics of the acquisition process. At the other end of the spectrum, a number of publications collected in different special issues have investigated LSLAs with an in-depth case-study approach (e.g., *Canadian Journal of Development Studies*, 2012; *Development & Change*, 2013; *Globalisations*, 2013; *The Journal of Peasant Studies*, 2012; *Third World Quarterly*, 2013). This body of literature, however, is still sparse and has a geographical bias.

To bridge the gap between global assessments and local in-depth case studies approaches, we conducted a meta-study of the scholarly literature on LSLA and land grabbing. Using formal criteria, we selected 56 cases in 27 countries described in 35 peer-reviewed articles. Using a combination of political-economy and political-ecology theoretical perspectives, we identified seven key variables that characterize the acquisition dynamics of LSLAs, coded the selected cases,

* This work was supported by the National Socio-Environmental Synthesis Center (SESYNC)—National Science Foundation Award Grant # DBI—1052875. We thank the anonymous reviewers for the many helpful suggestions that improved the paper. We are particularly grateful to Dan Cole (Ostrom Workshop, Indiana University) for his critical comments and inputs to the paper. We thank Nicholas Magliocca (SESYNC, University of Maryland) for his methodological suggestions and Lisa Palmer and Kelly Hondula (SESYNC, University of Maryland) and Amanda Morgan for their help with editing. Final revision accepted: November 8, 2016.

and explored the interactions between the variables. In this way we sought to explore the hypothesis that LSLAs are happening at the expense of the commons, with particular attention to the actors, dynamics of acquisition, claims and property rights conditions, land use and production changes, power dynamics, and conflicts.

(a) *The virtues VS the tragedy of the commons*

The overexploitation of natural common-pool resources, referred to as the “tragedy of the commons” (Hardin, 1968), is emblematic of many contemporary sustainability problems that range from the need to meet primary human needs to global environmental deterioration. In this context, an extensive body of scholarship, well represented by the work of Ostrom (1990) and colleagues, has demonstrated that community systems of production and subsistence societies are able to develop effective self-governing institutions (Dietz, Ostrom, & Stern, 2003) that achieve long-term sustainable use of their natural resources (Berkes, Feeny, McCay, & Acheson, 1989; Cox, Arnold, & Villamayor Tomás, 2010; Ostrom, 1990). While the degree of success or failure of common-property systems varies (Berkes *et al.*, 1989), empirical evidence has shown that sustainable governance of the commons is possible (Agrawal, 2001) and has highlighted the positive socio-environmental features of these systems, including reduction of the negative environmental effects of social inequality (Andersson & Agrawal, 2011), perdurability of natural resources (Agrawal, 2001; Berkes *et al.*, 1989; Cox *et al.*, 2010), food security (Barham & Chitemi, 2009; Béné, Macfadyen, & Allison, 2007), irrigation effectiveness (Lam, 1999), institutional stability, and maintained ownership of land (Deveroux, 2001). One of the characteristics of the success of common-property systems is that local communities can develop governing arrangements that are congruent with local conditions (Ostrom, 1990). Traditional communities that depend directly on the land and its resources have ethical beliefs that promote environmental stewardship (Callicott, 1989; Chapin *et al.*, 2010) and often develop adaptive management practices based on traditional ecological knowledge that can be more resilient to social and environmental disturbances (Berkes, Folke, & Colding, 2000). However, common-property systems might not have the institutional and political instruments to deal with the dynamics of private LSLAs and transnational land investments (De Schutter, 2011a; D’Odorico & Rulli, 2014; Wily, 2011a, 2011b).

From a scientific point of view, the complexity of LSLAs points to an emergent phenomenon relevant for the theory of the commons: common-property systems that, according to the literature, have the potential for high levels of resilience, adaptive capacity, and sustainability might be systematically undermined by the ongoing global land rush. The commons literature has often focused on the local (endogenous) conditions that characterize successful resource management. What it has not extensively taken into account is the study of external factors that can alter the functioning of well-rooted governance structures and processes. The exogenous process denounced as “land grabbing” has the potential to disrupt successful common-property systems and community resource governance worldwide.

Despite the recognized role of insecure land tenure conditions in the negotiation of land deals between agribusiness investors and local actors and the threats that land grabbing poses on the commons (German, Schoneveld, & Mwangi, 2013; Pearce, 2012; Wily, 2011a, 2011b), a systematic meta-study of the relationship between LSLAs and the commons

is still missing. The assumption that the commons, its users, and their traditional governance systems are negatively affected by LSLAs is often made, but is usually based on a few case studies.

(b) *Defining commons grabbing*

The term “commons” is not free from ambiguity, because it is often used to refer both to resources and their governance regimes (Ostrom *et al.*, 2002). From the biophysical perspective, the commons or common-pool resources are difficult to exclude (i.e., it is difficult to limit their appropriation or use) and have high levels of subtractability (i.e., their use or appropriation by a person or a group of people reduces the ability of others to benefit from them) (Ostrom, Gardner, & Walker, 1994). From the governance perspective, building upon Roman jurisprudence, institutional analysts have focused on the “big four” categories of property systems and institutional arrangements that can be associated with common-pool resources: private, public, common property, and open access (Cole & Ostrom, 2012). This categorical definition, however, cannot be easily applied to real-world cases because institutionally hybrid situations are generally diffuse (Dasgupta, 1995). For example, it is often the case that land that is (de jure) property of the government is (de facto) managed and used through customary, collective, community-based rules of use, access, and exclusion.

Similarly, the term “grabbing” needs etymological and analytical clarification. The concept of “land grabbing,” which is evocative of historical colonial dynamics, has become widely used to describe processes associated with the recent expansion in transnational land acquisitions. The term has been widely used by NGOs, activists, international organizations, media outlets, and scholars (Borras & Franco, 2010; Borras, Hall, Scoones, White, & Wolford, 2011; Zoomers, Gekker, & Schäfer, 2016). The International Land Coalition (ILC), a global alliance of civil society and intergovernmental organizations with 152 institutional members in 54 countries, defines land grabbing as LSLAs or concessions that are not transparent; violate human rights; do not seek free, prior, and informed consent; disregard social, economic, and environmental impacts; or are not based on democratic planning and participation (International Land Coalition, 2011).

However, a problem with the term land grabbing is that it is normative and politically charged and refers to a phenomenon that can be assessed very differently according to different perspectives and interests. An LSLA could be described, for example, from a mainstream development perspective as a needed form of investment and technological and economic progress, while from a critical perspective, it could be depicted as a case of dispossession of local land users and eradication of a traditional system of production. A fundamental question, then, is when and according to which definition can a LSLA be labeled as a land grab? In several instances, LSLAs are perfectly legal, but the process and dynamics of acquisition are characterized by injustice and illegal actions (Kaag & Zoomers, 2014; Zoomers *et al.*, 2016). Therefore, the discussion on when land deals are cases of grabbing is open (Holmen, 2015; Rulli & D’Odorico, 2013; Scoones, Hall, Borras, White, & Wolford, 2013), and, while global records of LSLAs are available (GRAIN, 2012; The Land Matrix, 2015; Von Braun & Meinzen-Dick, 2009), their assessment in terms of human rights violations, corruption, social and environmental impacts, and informed consent still needs to be addressed through a detailed case-by-case analysis. Another reason that “LSLA” and “land grab” should not

be used interchangeably is that, while the former generally refers to acquisition for commercial agricultural purposes, the latter has also been used to refer to acquisition for other purposes, such as mining and industry (e.g., Graef, 2013), as well as for ecotourism and conservation, a phenomenon also referred to as “green grabbing” (The Journal of Peasant Studies, 2012).

We are aware of the different interpretations that different authors have of these terms, and the fact that the two terms have often been equated in the literature. For this reason, despite the fundamental conceptual differences, we incorporated both terms in our systematic literature review and came up with a collection of cases that are a good representation of the current state of the debate on the contemporary global land rush. To contribute to this definitional discussion, we provide a multidimensional but simple framework that describes the notion of “grabbed commons” (Figure 1).

Our framework focuses the analysis of commons-grabbing on three dimensions. The first dimension is related to a broader interpretation of the different institutional regimes and looks at the types of claims and property systems that are present. The second dimension highlights the centrality of the system of production, ranging from subsistence/small-scale to commercial/speculative. The third dimension acknowledges coercion as a constitutive signal of the presence of commons grabbing. We think that there is a high likelihood that commons grabbing occurs when LSLAs involve land that is subject to multiple access and/or property rights, when this occurs with unbalanced power dynamics between investors and prior land users, which are often manifested through different levels of coercion, and entails a transition from subsistence farming and/or small-scale uses of natural resources to large-scale commercial agriculture and/or speculative investments.

2. METHODS

Synthesis studies and meta-study approaches are increasingly used to address global and regional patterns of social-environmental change (Magliocca, Rudel, & Verburg, 2015; Rudel, 2008), because they draw from empirical evidence to

identify patterns or causal mechanisms that contribute to theory building (Oberlack & Eisenack, 2014). In the emerging arena of studies on LSLAs and the recent global land rush, there is a great deal of controversy on the coherence and rigor of the available data (Edelman, 2013; Oya, 2013) while there is a clear need for more research (Liao, Jung, Brown, & Agrawal, 2016). One of the most comprehensive LSLA data sets was developed by the Land Matrix initiative (The Land Matrix, 2015), which provides information on each land deal and has global coverage (Anseeuw, Lay, Messerli, Giger, & Taylor, 2013), making it possible to analyze LSLA dynamics as a global phenomenon (Rulli, Savioli, & D’Odorico, 2013; Seaquist, Johansson, & Nicholas, 2014). It suffers, however, from some conceptual, definitional, and methodological limitations (Anseeuw *et al.*, 2013), and information that is crucial to the analysis of commons grabbing (e.g., property regimes, previous systems of production, power relations, and use of violence and conflict) is not provided.

A meta-analytical approach bridges the gap between global (but less detailed) assessments and in-depth case studies that cannot capture ongoing global patterns. Our approach can be defined as a synthesis that uses mixed-meta-analytical methods with characteristics of both variable and case-oriented meta-analysis, such as systematic case selection and theory-grounded coding (Magliocca *et al.*, 2015). To identify the case studies included in our analysis, we conducted a systematic literature review, looked for cross-references among articles, and used the keyword search [“land grab*” OR “large-scale land acquisition*”] in the Web of Science database. Criteria for case inclusion were that the case was published in a peer-reviewed journal article and the article provided empirical information about a concrete land acquisition process. Criteria for exclusion were that the article did not provide empirical information on specific cases of acquisition, thus ruling out, for example, overviews, global studies, and meta-theoretical discussions.

A final selection of 56 cases from 35 different peer-reviewed articles was made. Our descriptive coding of the case studies included 39 categories split across eight variables: a. Property Systems Prior Acquisition; b. Land Use Prior Acquisition; c. Users Prior Acquisition; d. Land Use Post Acquisition; e. Acquirers; f. Acquisition mechanism; g. Government favoring

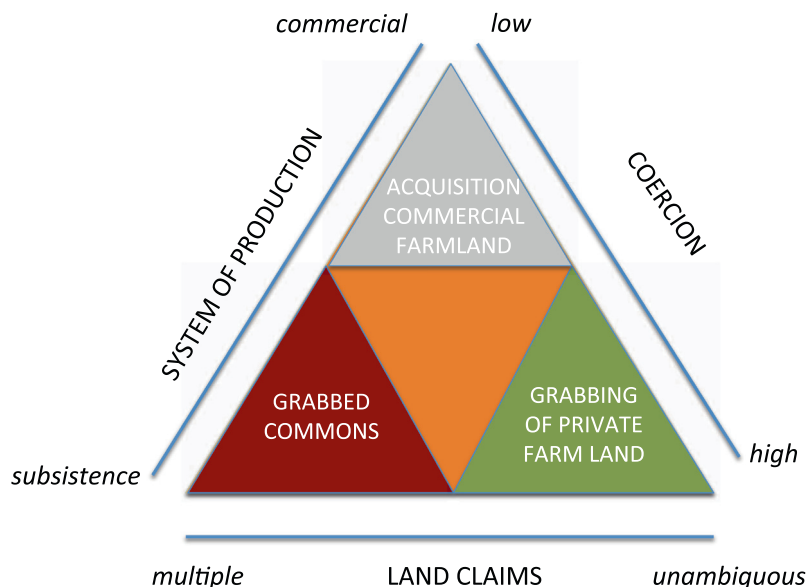


Figure 1. Multidimensional definition of commons grabbing.

acquisition (Tables S1 and S2). Considering the data and information limitations, potential literature bias, and knowledge gaps associated with the recent phenomenon of global transnational land investments, these 56 cases are not proposed to be statistically representative of the phenomenon globally. However, they are an exhaustive selection of cases from peer-reviewed articles that well represents the current state of the art of this frontier body of literature. In this sense, this synthesis shows emerging patterns and associations that would not be possible to observe without a comparative analytical approach.

For our statistical analysis we simplified the coding to increase statistical power by minimizing the number of categories with low case counts. We reduced the variables from eight to seven combining “users prior acquisition” and “land use prior acquisition” into a single “land use and users combined prior” variable. We also combined categories within other variables resulting in a total of 24 categories (Tables S3 and S4). The codes used in the analysis are described in Table S3. To identify associations between categorical variables, we produced contingency tables for all pairs of variables (21 pairs). We used Fisher’s exact test to account for the low number of cases (<5) in some categories. Applying a Bonferroni correction for multiple comparisons, we set the p-value threshold for individual tests to 0.002 to ensure an overall significance level of 0.05. In addition to the significance level, we reported Cramer’s V as a measure of the strength of association. This statistical analysis was performed in R (R Core Team, 2015) using the “vcd” package (Meyer, Zeileis, & Hornik, 2014).

Based on the significant pairwise associations found, we then performed a qualitative comparative analysis (QCA) (Ragin, 1987; Rihoux & Ragin, 2009) to identify co-occurrence relationships involving more than two variables, using the “QCA” package in R (Dusa & Thiem, 2014). With a small to moderate sample size, QCA provides a favorable alternative to regression-based methods (e.g., logistic regression) to study the structure of interactions between multiple categorical variables. Taking each level of a categorical variable as a binary (0 or 1) indicator, QCA finds simplified logical expressions that predict the presence of one category (the outcome) based on all others (the conditions). Each logical expression is associated with an inclusion or consistency score (the proportion of cases in which the conditions are present that show the predicted outcome) as well as a coverage score (the proportion of cases in which the outcome is present that match these particular conditions). In our QCA analysis, we produced two types of solution: a parsimonious solution, which finds the minimal logical relationships between conditions and outcome within our sample, and a complex solution, which is more conservative as it excludes any inference about combinations of conditions that are not found in the sample.

3. RESULTS

Informed by political economy and political ecology perspectives (Agrawal, 2005; Borras *et al.*, 2011; Clement, 2010; Poteete, Janssen, & Ostrom, 2010; Ribot & Peluso, 2003), we have identified different dimensions of analysis that characterize the dynamics of LSLAs in the cases included in our study (Figure 2). We analyzed social, institutional, and land-use change dimensions reported in these studies by looking at the main features of the acquisition dynamics. We focused on the conditions characterizing the production system both before and after the acquisition. Based on this assessment,

we found that, in 63% of the cases, small-scale farming was the main system of production before the acquisition. Use of forests for timber and non-timber products and benefits from other ecosystem services were reported in 21% of the cases, and traditional pastoralist activities were indicated in 21% of the cases.¹ The main users affected by the land acquisitions were described as smallholders (in 61% of the cases), indigenous people (20% of the cases), pastoralists (16%), or commercial farmers (5%). The analysis of property systems revealed that in 55% of the cases, acquisitions happened in the presence of common-property regimes; in 13% of the cases, the authors explicitly reported cases of legal pluralism (i.e., coexistence of different kinds of property regimes); the land was described in 11% of the cases as state land and in 5% as private property.

In 61% of the cases, the acquired land was designated for large-scale production of crops as food, while in 36% of the cases, the land was acquired for crops for non-food uses, such as biofuels; extensive ranching and logging were reported in 9% and 5% of the cases, respectively, while altogether, industrial and real estate development accounted for 9% of the cases. Foreign private companies were the main actors in 54% of the cases, domestic private companies in 29%, domestic–foreign joint ventures in 16%, and government–private partnerships in 13%. The acquisitions took place through different mechanisms: prevalently through government leases (54% of the cases) but also through broader government and titling policies (29%) and direct or indirect purchase (21%); other factors such as market pressures also have played a role in some land transactions (16% of the cases). In a large majority of the cases (89%), the national government favored the acquisition.

Finally, we identified different typologies of coercion, using the categories of a. coercion without manifested conflicts, b. coercion with non-violent conflict, and c. coercion with violent conflict. Coercion in this context can be understood as a system of practices and mechanisms that directly or indirectly influence through varying degrees of use of force, the possibility of the local land users to keep control of their land and natural resources. Coercion in land acquisitions can be observed both through explicit power imbalances and absence of safeguards for more vulnerable actors or by different signals such as the ones produced by conflicts with or without violence. Following this categorization, we identified coercion without manifested conflicts when the acquisition happened taking advantage of a clear power imbalance, consent by the previous users was not reported or cases of corruption were reported, but the acquisition did not lead to manifested conflicts. This was coded for 34% of the cases. Coercion with non-violent conflicts, defined as explicit confrontation between the different actors involved in the acquisition, ranging from protest to physical but not violent resistance, for 25%; and coercion with violent conflict (involving violent confrontation or oppression that resulted in violent physical actions) for 23%. In the remaining cases (18%) the articles reviewed did not report information on any coercion dynamics.

(a) *Grabbed commons*

In order to apply our multidimensional definition of grabbed commons (Figure 2), we applied a trivariate filter that required the coexistence of multiple claims (common-property regimes, legal pluralism, and public land), small-scale farming (based on both the land use pre-acquisition and users affected), and coercion (including coercion without manifested conflicts, coercion with non-violent coercion, and coercion with violent conflict). Of the 56 cases, 44 exhibited these three characteristics and thus can be defined as grabbed commons. Further, the

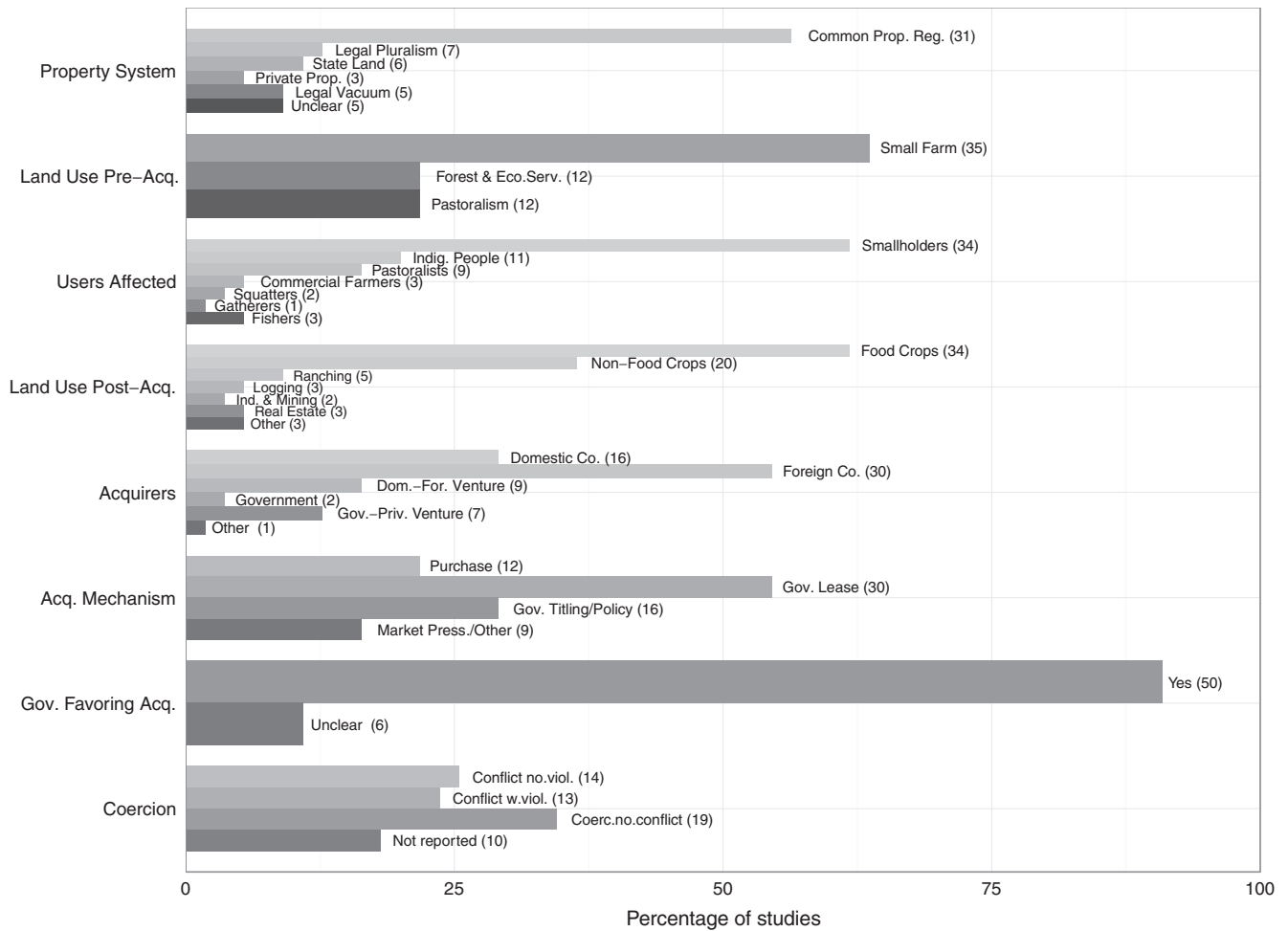


Figure 2. Frequency distribution of each categorical variable over the 56 case studies.

binary relationships between the different dimensions of our analysis (Figure 3) highlighted the share of cases in which a category occurred in conjunction with another category.

Focusing on the acquisition mechanisms, in 21 of the 30 cases involving a government lease (i.e., 70%), the land was in a common-property regime prior to acquisition (Figure 3A). In 27 of the 29 cases of government leases for which the land use after the acquisition was reported (i.e., 93%), the land was designated for crop production, the exceptions being 1 case each of ranching and nonagricultural use. In 7 of the 12 cases involving land purchases (i.e., 58%), the acquisition was for crop production, in 3 cases (25%) for ranching, and in 5 cases (42%) for nonagricultural use such as logging, industry, or mining (Figure 3B).

Regarding the relationship between coercion and acquisition mechanisms (Figure 3C), conflict with violence was only present in cases of government lease, occurring in 13 of 30 (43%) of such cases, while conflict without violence was mentioned in 5 of 12 (42%) cases involving purchase and 9 of 30 (39%) cases involving government leases (Figure 3C). Regarding the relationship between coercion and property regime prior to acquisition, 9 of 13 (70%) of the cases of conflict with violence and 7 of 14 (50%) of the cases of conflict without violence happened when the regime was common property (Figure 3D). Common-property regimes were also reported in 12 of 19 (63%) of the cases of coercion without manifested conflicts.

The analysis of pairwise contingency tables (Figure 3) showed significant associations only between acquisition

mechanism and land use after acquisition ($p = 0.0006$, Cramer's $V = 0.38$) and between acquisition mechanism and coercion ($p < 10^{-5}$, Cramer's $V = 0.44$). Government leases constituted the primary mechanism of land acquisition for agriculture, while government policies or titling were more prevalent for nonagricultural uses (Figure 3B). Government leases were involved in all cases for which coercion with violent conflicts were reported, whereas no overt conflicts were reported in cases where the land was acquired through government policies or titling and market pressures. Coercion without manifested conflicts, however, occurred in combination with all of the acquisition mechanisms (Figure 3C).

(b) Qualitative comparative analysis

Since the above results highlight the existence of a significant relationship between post-acquisition land use, acquisition mechanism, and coercion, we performed a QCA to determine the specific conditions that, according to our data set, lead to manifested conflictual outcomes. All categories of post-acquisition land use and acquisition mechanism were used as conditions, whereas a binary outcome variable was defined as the presence of conflict by aggregating the "conflict with violence" and "conflict without violence" categories (27 out of the 56 cases). The QCA truth table (Table 1) includes 19 distinct combinations of conditions from the case studies and their associated outcomes.

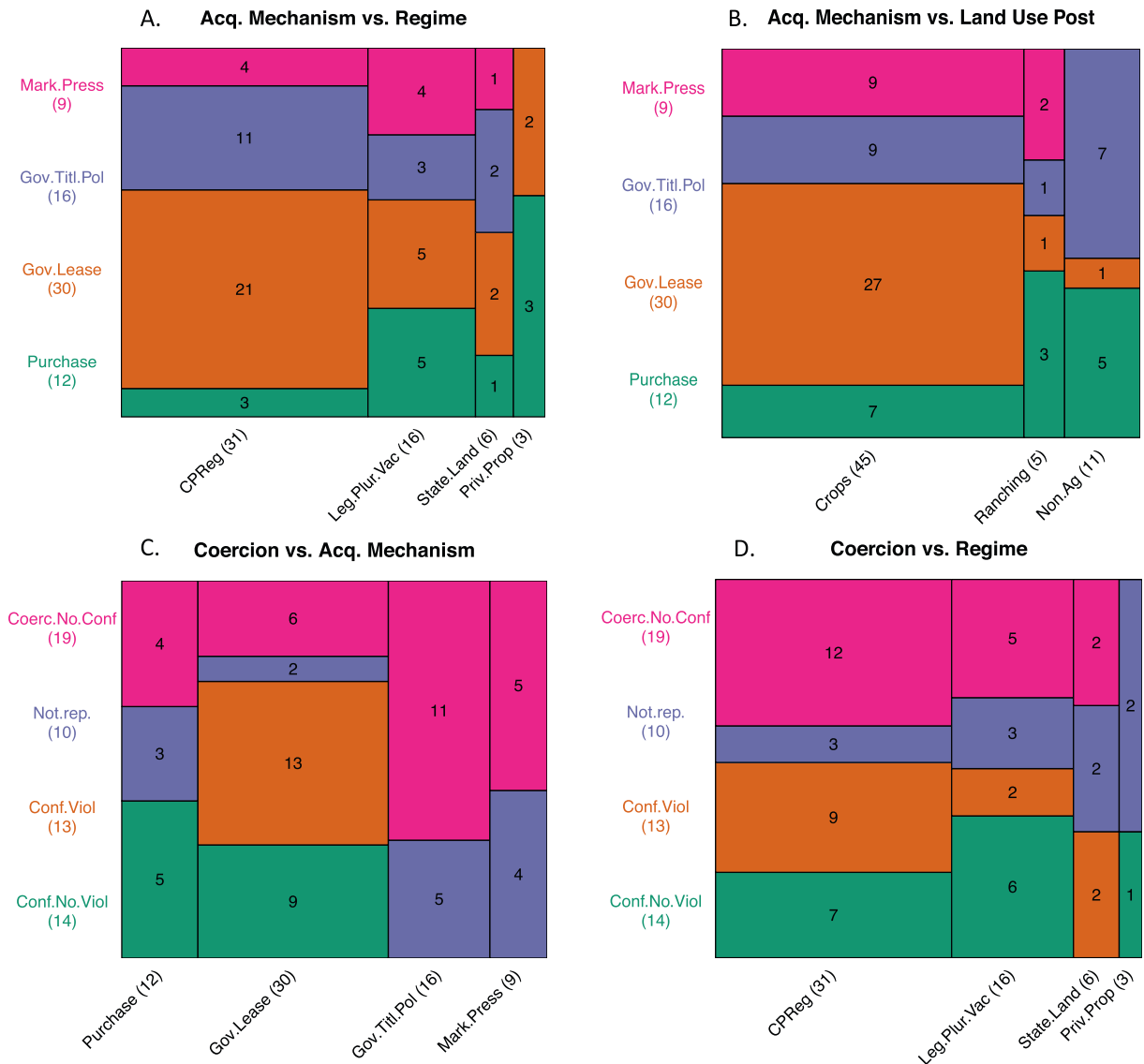


Figure 3. Spine plots of the binary relationships between acquisition mechanisms and (A) property regime before the acquisition, (B) land use after the acquisition; (C) and coercion; and (D) property regimes before the acquisition and coercion. Numbers on axis labels and in plot indicate how many studies were associated with each category and each pair of categories, respectively.

We provide two types of QCA solutions for both the affirmative (conflict) and negative (no conflict) outcomes (Tables 2A and 2B, respectively). The parsimonious solution for the affirmative case indicates that conflict (with violence and without violence) occurs when (a) government lease is the sole acquisition mechanism (22 cases, 82% of conflict cases) or (b) the land is used for crops and purchase is the sole acquisition mechanism (4 cases, 15% of conflict cases). The complex solution includes additional terms in order to avoid making assumptions about (i.e., excluding) combinations of categories that do not appear in the sample. Its first two terms expand condition (b) above to exclude cases where purchase is the sole acquisition mechanism and all three types of land use (crops, ranching, and nonagricultural use) are present. Its last term adds crops as a supplementary condition to condition (a), excluding cases where government lease is the sole acquisition mechanism and no crops are present. The parsimonious solution for the negative case shows that no conflict arises if the land is acquired through government titles or policies (16 cases, 55% of no-conflict cases),

market pressure (9 cases, 31% of no-conflict cases), or a combination of government lease and purchase (4 cases, 14% of no-conflict cases). The complex solution includes additional terms that enumerate the types of post-acquisition land use associated with each of the acquisition mechanisms in our set of cases.

The parsimonious QCA solutions, both affirmative and negative, correctly describe the outcome in all but 3 of the 56 cases, for total inclusion and coverage scores ranging from 93% to 100%. For this collection of case studies, the occurrence of conflict (violent or not) can thus be determined almost exclusively based on the acquisition mechanism and, to a lesser extent, the post-acquisition land use.

4. DISCUSSION AND CONCLUSIONS

Some scholars writing about “land grabs” today analogize to earlier large-scale “land reforms” that privatized previously unowned, common, or “waste” lands (Cotula, 2013; White,

Table 1. *QCA truth table*

CROPS	RANCHING	NON.AG	PURCHASE	GOV.LEASE	GOV.TITL.POL	MARK.PRESS	OUT	<i>n</i>	Incl
0	0	0	0	1	1	0	0	1	0
0	0	1	0	0	1	0	0	5	0
0	0	1	1	0	0	0	C	2	0.5
0	0	1	1	0	1	0	0	1	0
0	0	1	1	1	0	0	0	1	0
0	1	0	1	1	0	0	0	1	0
1	0	0	0	0	0	1	0	6	0
1	0	0	0	0	1	0	0	3	0
1	0	0	0	0	1	1	0	1	0
1	0	0	0	1	0	0	1	23	0.957
1	0	0	0	1	1	0	0	2	0
1	0	0	1	0	0	0	1	1	1
1	0	0	1	0	1	0	0	1	0
1	0	0	1	1	0	0	0	2	0
1	0	1	0	0	1	0	0	1	0
1	0	1	1	0	0	0	1	1	1
1	1	0	0	0	0	1	0	1	0
1	1	0	0	0	1	1	0	1	0
1	1	0	1	0	0	0	1	2	1

Conditions: all types of Land Use post-acquisition and all types of acquisition mechanisms.

OUT = Outcome (1 = Conflict, 0 = No conflict, C = Contradiction).

N = number of cases.

Incl = sufficiency inclusion score (threshold set at 0.95).

Table 2A. *Results of the qualitative comparative analysis with "Conflict" as outcome (Broadly, includes "Conflict with violence" and "Conflict without violence" codes)*

	Inclusion	Coverage
<i>Complex solution</i>		
1 CROPS*non.ag*PURCHASE*gov.lease*gov.titl.pol*mark.press	1.000	0.111
2 CROPS*ranching*PURCHASE*gov.lease*gov.titl.pol*mark.press	1.000	0.074
3 CROPS*ranching*non.ag*purchase*GOV.LEASE*gov.titl.pol*mark.press	0.957	0.815
	0.963	0.963
<i>Parsimonious solution</i>		
1 purchase*GOV.LEASE*gov.titl.pol*mark.press	0.957	0.815
2 CROPS*PURCHASE*gov.lease*gov.titl.pol*mark.press	1.000	0.148
	0.963	0.963

Table 2B. *Results of the qualitative comparative analysis with "No Conflict" as outcome*

	Inclusion	Coverage
<i>Complex solution</i>		
1 CROPS*non.ag*purchase*gov.lease*MARK.PRESS	1.000	0.310
2 ranching*NON.AG*purchase*gov.lease*GOV.TITL.POL*mark.press	1.000	0.207
3 CROPS*ranching*non.ag*gov.lease*GOV.TITL.POL*mark.press	1.000	0.138
4 ranching*non.ag*purchase*GOV.LEASE*GOV.TITL.POL*mark.press	1.000	0.103
5 CROPS*ranching*non.ag*PURCHASE*GOV.LEASE*gov.titl.pol*mark.press	1.000	0.069
6 crops*ranching*NON.AG*PURCHASE*GOV.LEASE*gov.titl.pol*mark.press	1.000	0.034
7 crops*RANCHING*non.ag*PURCHASE*GOV.LEASE*gov.titl.pol*mark.press	1.000	0.034
8 crops*ranching*NON.AG*PURCHASE*gov.lease*GOV.TITL.POL*mark.press	1.000	0.034
	1.000	0.931
<i>Parsimonious solution</i>		
1 GOV.TITL.POL	1.000	0.552
2 MARK.PRESS	1.000	0.310
3 PURCHASE*GOV.LEASE	1.000	0.138
	1.000	0.931

Uppercase names denote the presence of a category and lowercase names denote its absence; "*" represents a logical "AND". The inclusion ("incl.") and coverage ("cov.") scores are defined in the Methods. Outcome: Conflict (broadly, includes "Conflict with violence" and "Conflict without violence" codes). *Conditions:* categories of Land Use Post, Acquisition Mechanism.

Borras, Hall, Scoones, & Wolford, 2012; Wily, 2013). The first known, and most extensively studied, such privatization was the enclosure movement that began in England in the 15th century alongside an increase in sheep ranching and commercial farming, which required the enclosure of open fields (Curtler, 1920). By the 17th century, enclosure was a large-scale operation almost invariably undertaken pursuant to acts of Parliament. Those acts were always promoted by large landholders, and operated to the detriment of commoners, turning many users of the commons into trespassers and, ultimately, criminals. The enclosure movement in England has often been cited as an example of a large-scale institutional change that made possible higher levels of economic growth because of the superior incentives to production and conservation provided by private and individual ownership of land (Cole, 2001; North & Weingast, 1989), though this economic efficiency hypothesis has been challenged (Allen, 1994). The legal reforms associated with the enclosure movement directly contributed to the commodification of land (Polanyi, 1944), a process that subordinated social relations and the natural environment to the economic system (Cotula, 2013). Putting the current global land rush in a historical perspective shows continuities and contrasts with past land rushes such as those associated with the colonial experience, and the historic trend in dispossession of native populations across the world and across centuries (White *et al.*, 2012; Wily, 2012).

While generalizations and historical analogies are parlous, our synthesis highlights some patterns that can better serve the understanding of how the global land rush represents “a new frontier in historical shifts between social embeddedness and commodification in land relations” (Cotula, 2013, p. 1623):

1. The ongoing LSLAs are associated with a change in production system, from subsistence and smallholding to commercial farming, that entails fundamental social transformations.
2. LSLAs preferentially target common land and land with multiple access and use claims and turn that land into private property or concessions for the exclusive use of the investors.
3. Acquisitions are generally characterized by imbalanced power relations, and they are not conflict free. The degree of conflict varies through different forms of coercion, such as when deals are closed without the informed consent of previous land users, who are excluded from the negotiation process, not adequately informed about the implications of these acquisitions, or evicted and forced off the land which is often associated with instances of physical violence.

Building on these three elements, we assessed that according to the literature, commons grabbing is a constitutive part of the global agrarian transformation associated with expansion of LSLAs. The majority of the land acquisitions considered in this study (44 of 56) could be considered cases of commons grabbing. Moreover, most of the cases of conflict (including violent and non-violent conflict) emerged when the land was acquired through government lease, and such leases were mainly for large-scale crop production.

This is a reason for concern, as the transformation of communal land access, ownership, use, and property regimes that are produced by LSLAs can negatively affect local communities and vulnerable groups (Anseeuw *et al.*, 2013; De Schutter, 2011a, 2011b; Robertson & Pinstrup-Andersen, 2010). Critics have pointed out that this is correlated with a process of dispossession, transformation of social networks, increase in conflict, and loss of livelihood strategies, assets, traditional knowledge, environmental stewardship, food security, and productive opportunities (Claeys, 2013; Davis,

D’Odorico, & Rulli, 2014; De Schutter, 2011a, 2011b; D’Odorico & Rulli, 2013; Rulli & D’Odorico, 2013, 2014).

The emergence of the commons-grabbing phenomenon highlights an element important for commons theory: common-property regimes and commons systems of governance that have successfully managed natural common-pool resources might be undermined by the expansion of LSLAs. The original argument that the commons can be governed sustainably under common-property regimes and associated traditional institutions (Ostrom, 1990) does not account for the emergence of such external drivers with increased globalization. While these institutions can be resilient with respect to endogenous drivers, they become vulnerable to exogenous factors such as the imposition of new systems of production and associated transformations in power relations.

Factors that historically contributed to the strength of the commons may now increase its vulnerability to the new drivers of globalization (Lambin *et al.*, 2001). The uses, claims, and values that traditional users, rural communities and indigenous people attach to land and its resources are often in contrast with the commodification associated with expansion of LSLAs (Brondizio & Le Tourneau, 2016; Cotula, 2013; Wily, 2011a, 2011b). For instance, the absence of formally defined private property rights, which historically would have prevented the land from being sold and would have allowed communities to transfer assets held in common to subsequent generations (Deveroux, 2001), can now work against the interests of the communities. Commons users can be excluded from the negotiation of LSLAs because they do not have formal property rights to defend (D’Odorico & Rulli, 2014); but at the same time, formalization and land titling might open the way to new dynamics of land commodification.

Similarly, commons users may be in a weaker position because they have no access to credit, since they cannot use the land as collateral for borrowing (Hanraja, Ferde, & Gemechu Gutta, 2009). This power imbalance emerges when a traditional system of production needs to compete with new economic models (De Schutter, 2011a). Moreover, the appearance of other exogenous forces that transform the value of land may render some communal land particularly appealing to investors. For example, the expansion of railways and roads has historically increased the value of land and expanded the frontier of acquisition, as in the cases of Mexico, Bolivia, and Guatemala (Grandia, 2013). Likewise, the recent global food and water crises have spurred interest in agribusiness investments in potentially productive but underperforming agricultural land close to watercourses (Anseeuw, Wily, Cotula, & Taylor, 2012).

LSLAs are carried out in various ways, with a variety of proximate and distal causes (Messerli, Giger, Dwyer, Breu, & Eckert, 2014; Scheidel & Sorman, 2012), and are often responsible for the transformation and redefinition of land regimes through both formal and informal routes (Adnan, 2013; Lavers, 2012a, 2012b). Formal mechanisms are typically based on seemingly legal changes in land ownership and land rights, whereas informal mechanisms often result from the emergence of new power relationships among the main actors and stakeholders (e.g., the state, investors, and local communities) (Robertson & Pinstrup-Andersen, 2010), which rely on a different “bundle of powers” rather than just on property rights (Ribot & Peluso, 2003).

A critical aspect of LSLAs is that they imply that land is commodified, and sold or leased for speculation purposes. This fact is partly evidenced by the number of cases in which the acquired land is not developed by the investors but kept fallow, presumably waiting to be sold once land prices rise (D’Odorico

& Rulli, 2013). The commodification of land (Harvey, 2005; Polanyi, 1944) makes the land a commodity exploited by broader groups of users, often with profit maximization objectives (D'Odorico & Rulli, 2013; Fairhead, Leach, & Scoones, 2012). This, in cases of transnational land investments, might impact long-term sustainability as the management of the resources may be driven by short-term economic considerations rather than by local land stewardship. Institutions that had historically allowed for a responsible governance of the commons are quickly dismantled, and local communities lose their most fundamental asset. The introduction of a speculative use of natural resources breaks the ethical link between the land and its people, leading to a loss of local environmental stewardship (D'Odorico & Rulli, 2013).

The multidimensional approach proposed here allows us to emphasize that the losses of rural livelihoods and environmental stewardship resulting from LSLAs or broader dynamics of land grabbing cannot be prevented by acting only on property regimes without addressing power dynamics and systems of production. Monodimensional approaches such as formalization of property rights, land titling, or privatization, which echo Hardin's argument about the tragedy of the commons (de Soto, 2000; Hardin, 1968; World Bank, 1989), do not account for power imbalances and may not be applicable to traditional systems of production. Indeed, legal instruments developed in capitalistic systems of production (e.g., formalization of titles or legal protections) may be inadequate to sustain subsistence systems based on common-property regimes. Securing land titles through legislative reform or formalization of property is complicated and runs the risk of producing unintended consequences. Property rights are dynamic and change over time, and simplistic approaches to tenure security do not allow an effective response to complex power dynamics and interactions between opposing claims (Behrman, Meinzen-Dick, & Quisumbing, 2012; Meinzen-Dick & Pradhan, 2001).

Systems of production such as pastoralism, which is practiced by between 200 and 500 million people worldwide (McGahery, Davies, Hagelberg, & Ouedraogo, 2014), are particularly affected by commons grabbing. Pastoralist societies that have historically been in conflict with state forms of governmentality (Dell'Angelo, 2013; Derman, Odgaard, & Sjaastad, 2007; Humphrey & Sneath, 1999; Scott, 1998) are a clear example of how moving from a theory of property to a theory of access is fundamental to understanding and developing policies that relate to non rural, community based or indigenous systems of production (Ribot & Peluso, 2003). Considering the transhumant characteristic of traditional pastoralist systems and the adaptive nature of these practices and the extension of their mobility, what matters for pastoralists is the ability to access pastures rather than the property right to a specific piece of land. The extension of forms of private

property to these systems has been historically associated with a process of sedentarization, which can result in the eradication of their traditional system of production and associated culture.

Finally, the results of our analysis highlight the importance of the role of the state—which is not a homogenous entity operating coherently on LSLAs. There are multifaceted differences in terms of sovereignty, authority, actors, institutions, practices, and discourses among and between countries (Wolford, Borras, Hall, Scoones, & White, 2013). However, our analysis identified a clear pattern emerging from the different studies: Governments favored acquisition in most of the cases and were directly responsible for allocation of leases and concessions, the main acquisition mechanisms. Our analysis points out that conflict, which is a main determinant for the identification of the grabbed commons, is prevalently associated with the governmental lease as the main mechanism of acquisition.

This synthesis highlights the involvement of governments in transnational land acquisitions, and it is consistent with the idea that governments have a fundamental role in facilitating land commodification through formal law and/or coercion (Cotula, 2013). This implies that commons grabbing is a phenomenon happening with a direct government intervention in these types of investments, and it supports the assertion that there is an ongoing process of global agricultural restructuring that favors large-scale over small-scale agriculture (Amanor, 2012). As highlighted by the results of our QCA, this restructuring is raising different levels of conflicts. While conflicts over land and water can be related to a variety of explanatory factors—including tenure changes, issues of identity and ethnicity, hydro-climatic change and scarcity, and politico-economic drivers (Barnett & Adger, 2007; Bebbington, 2011; Derman *et al.*, 2007; Humphreys, 2005; Kallis & Zografos, 2013; Ratner, Meinzen-Dick, May, & Haglund, 2013; Wolf, 2007)—our analysis highlights a clear association between the global land rush and the emergence of conflicts.

Without policies that take into account the multiple and diverging values (Cotula, 2013) of different societies, community systems of production will continue to be undermined and subject to dispossession by large-scale land investments and acquisitions. The problem should be redressed either with legal reforms aiming at strengthening common-property regimes (Wily, 2011a, 2011b) or by developing alternatives to these investments (De Schutter, 2011a, 2011b; German *et al.*, 2013). Policy-makers and international organizations have been increasingly discussing and addressing these issues (FAO, 2012; FAO, IIED, & IFAD, 2009; International Land Coalition, 2011; World Bank, 2011). But finding solutions that are effective and that reconcile competing interests on multiple governance levels will not be easy, and global panaceas are likely not the solution (Ostrom, Janssen, & Anderies, 2007; Sikor *et al.*, 2013).

NOTES

1. For the results of this section, note that the same case may fit into more than one category, so that the reported percentages do not necessarily sum to 100% for a given variable.

REFERENCES

- Adnan, A. (2013). Land grabs and primitive accumulation in delta Bangladesh: Interactions between neoliberal globalization, state interventions, power relations and peasant resistance. *Journal of Peasant Studies*, 40(1), 87–128.
- Agrawal, A. (2001). Common property institutions and sustainable governance of resources. *World Development*, 29(10), 1649–1672.
- Agrawal, A. (2005). *Environmentality: Technologies of government and the making of subjects*. Durham, NC: Duke University Press.

- Allen, R. (1994). Agriculture during the industrial revolution. In F. R. Floud, & D. McCloskey (Eds.). *The economic history of Britain since 1700* (Vol. I, pp. 1700–1860). Cambridge: Cambridge University Press.
- Amanor, K. (2012). Global resource grabs, agribusiness concentration and the smallholder: Two West African case studies. *Journal of Peasant Studies*, 39(3–4), 731–749. <http://dx.doi.org/10.1080/03066150.2012.676543>.
- Andersson, K., & Agrawal, A. (2011). Inequalities, institutions, and forest commons. *Global Environmental Change*, 21(3), 866–875. <http://dx.doi.org/10.1016/j.gloenvcha.2011.03.004>.
- Anseu, W., Lay, J., Messerli, P., Giger, M., & Taylor, M. (2013). Creating a public tool to assess and promote transparency in global land deals: The experience of the Land Matrix. *Journal of Peasant Studies*, 40, 521–530.
- Anseu, W., Wily, L., Cotula, L., & Taylor, M. (2012). *Land rights and the rush for land: Findings of the global commercial pressures on land research project*. Rome: ILC.
- Barham, J., & Chitemi, C. (2009). Collective action initiatives to improve marketing performance: Lessons from farmer groups in Tanzania. *Food Policy*, 34(1), 53–59.
- Barnett, J., & Adger, W. (2007). Climate change, human security and violent conflict. *Political Geography*, 26(6), 639–655.
- Bebbington, A. (2011). *Social conflict, economic development and the extractive industry: Evidence from South America*. London: Routledge.
- Behrman, J., Meinzen-Dick, R., & Quisumbing, A. (2012). The gender implications of large-scale land deals. *Journal of Peasant Studies*, 39(1), 49–79. <http://dx.doi.org/10.1080/03066150.2011.652621>.
- Béné, C., Macfadyen, G. and Allison, E.H., 2007. *Increasing the contribution of small-scale fisheries to poverty alleviation and food security* (No. 481). Food & Agriculture Org.
- Berkes, F., Feeny, D., McCay, B., & Acheson, J. (1989). The benefits of the commons. *Nature*, 340(6229), 91–93.
- Berkes, F., Folke, C., & Colding, J. (Eds.) (2000). *Linking social and ecological systems: Management practices and social mechanisms for building resilience*. Cambridge: Cambridge University Press.
- Borras, S., & Franco, J. (2010). Towards a broader view of the politics of global land grab: rethinking land issues, reframing resistance. *Initiatives in Critical Agrarian Studies Working Paper Series*, 1.
- Borras, S., Hall, R., Scoones, I., White, B., & Wolford, W. (2011). Towards a better understanding of global land grabbing: An editorial introduction. *Journal of Peasant Studies*, 38(2), 209–216. <http://dx.doi.org/10.1080/03066150.2011.559005>.
- Brondizio, E., & Le Tourneau, F. M. (2016). Environmental governance for all. *Science*, 352(6291), 1272–1273. <http://dx.doi.org/10.1126/science.aaf5122>.
- Buying farmland abroad: Outsourcing's third wave. (2009). *The Economist*. Retrieved from: <http://www.economist.com/node/13692889>. (Accessed Nov, 2015).
- Callicott, J. B. (1989). *In defense of the land ethic: Essays in environmental philosophy*. Albany, NY: SUNY Press.
- Canadian Journal of Development Studies (2012). Special issue on “Land grabbing in Latin America”. *Canadian Journal of Development Studies*, 33(4).
- Chapin, S. F., Carpenter, S. R., Kofinas, G. P., Folke, C., Abel, N., Clark, W. C., et al. (2010). Ecosystem stewardship: Sustainability strategies for a rapidly changing planet. *Trends in Ecology & Evolution*, 25(4), 241–249. <http://dx.doi.org/10.1016/j.tree.2009.10.008>.
- Claeys, & Vanloqueren. (2013). The minimum human rights principles applicable to large-scale land acquisitions or leases. <http://dx.doi.org/10.1080/14747731.2013.760940>.
- Clement, F. (2010). Analysing decentralised natural resource governance: Proposition for a “politicised” institutional analysis and development framework. *Policy Sciences*, 43(2), 129–156.
- Cole, D. (2001). “An unqualified human good”: EP Thompson and the rule of law. *Journal of Law and Society*, 28(2), 117–203. <http://dx.doi.org/10.1111/1467-6478.0018>.
- Cole, D., & Ostrom, E. (2012). The variety of property systems and rights in natural resources. In D. Cole, & E. Ostrom (Eds.), *Property in land and other resources* (pp. 37–67). Hollis, New Hampshire: Lincoln Institute of Land Policy.
- Cotula, L. (2013). The new enclosures? Polanyi, international investment law and the global land rush. *Third World Quarterly*, 34(9), 1605–1629. <http://dx.doi.org/10.1080/01436597.2013.843847>.
- Cox, M., Arnold, G., & Villamayor Tomás, S. (2010). A review of design principles for community-based natural resource management. *Ecology and Society*, 15(4).
- Curtler, W. H. R. (1920). *The enclosure and redistribution of land*. Oxford: Clarendon Press.
- D’Odorico, P., & Rulli, M. (2013). The fourth food revolution. *Nature Geoscience*, 6(6), 417–418.
- D’Odorico, P., & Rulli, M. (2014). The land and its people. *Nature Geoscience*, 7(5), 324–325. <http://dx.doi.org/10.1038/ngeo2153>.
- Dasgupta, P. (1995). *An inquiry into well-being and destitution*. New York: Oxford University Press.
- Davis, K., D’Odorico, P., & Rulli, M. (2014). Land grabbing: A preliminary quantification of economic impacts on rural livelihoods. *Population and Environment*. <http://dx.doi.org/10.1007/s11111-014-0215-2>.
- De Schutter, O. (2011a). Green Rush: The global race for farmland and the rights of land users. *Harvard International Law Journal*, 52, 503.
- De Schutter, O. (2011b). How not to think of land-grabbing: Three critiques of large-scale investments in farmland. *Journal of Peasant Studies*, 38(2), 249–279. <http://dx.doi.org/10.1080/03066150.2011.559008>.
- de Soto, H. (2000). *The mystery of capital: Why capitalism triumphs in the west and fails everywhere else*. New York: Basic Books.
- Deininger, K. (2003). *Land policies for growth and poverty reduction* World Bank Policy Research Report. Washington, DC: The World Bank.
- Dell’Angelo, J. (2013). The sedentarization of Tibetan Nomads: Conservation or coercion. In H. Healy, J. Martinez-Alier, L. Temper, M. Walter, & J. F. Gerber (Eds.), *Ecological economics from the ground up*. Oxon, UK: Routledge.
- Derman, B., Odgaard, R., & Sjaastad, E. (2007). *Conflicts over land & water in Africa*. East Lansing, MI: Michigan State University Press.
- Development and Change (2013). Special issue on “Governing the global land grab: The role of the state in the rush for land”. *Development and Change*, 44(2).
- Deveroux, S. (2001). Sen’s entitlement approach: Critiques and counter-critiques. *Oxford Development Studies*, 29(3), 245–263.
- Dietz, T., Ostrom, E., & Stern, P. (2003). The struggle to govern the commons. *Science*, 302(5652), 1907–1912. <http://dx.doi.org/10.1126/science.1091015>.
- Dusa, A., & Thiem, A. (2014). *Qualitative comparative analysis. R package version 1.1-4*, URL: <http://cran.r-project.org/package=QCA>.
- Edelman, M. (2013). Messy hectares: Questions about the epistemology of land grabbing data. *Journal of Peasant Studies*, 40(3), 485–501.
- Fairhead, J., Leach, M., & Scoones, I. (2012). Green grabbing: A new appropriation of nature?. *Journal of Peasant Studies*, 39(2), 237–261. <http://dx.doi.org/10.1080/03066150.2012.671770>.
- FAO (2012). *Voluntary guidelines on the responsible governance of tenure of land, fisheries and forests in the context of national food security*. Available at: <http://www.fao.org/docrep/016/i2801e/i2801e.pdf> (last visited Jul. 15, 2015)..
- FAO IIED & IFAD (2009). *Land grab of development opportunity? Agricultural investment and international land deals in Africa*. Rome: FAO.
- Fuys, A., Mwangi, E., & Dohrn, S. (2008). *Securing common property regimes in a globalizing world*. Rome: The International Land Coalition.
- German, L., Schoneveld, G., & Mwangi, E. (2013). Contemporary processes of large-scale land acquisition in Sub-Saharan Africa: Legal deficiency or elite capture of the rule of law?. *World Development*, 48, 118. <http://dx.doi.org/10.1016/j.worlddev.2013.03.006>.
- Globalisations (2013). Special Issue on “land grabbing and global governance”. *Globalisations*, 10(1).
- Godfray, C., Beddington, J., Crute, I., Haddad, L., Lawrence, D., Muir, J., et al. (2010). Food security: The challenge of feeding 9 billion people. *Science*, 327(5967), 812–818. <http://dx.doi.org/10.1126/science.1185383>.
- Graef, D. (2013). Negotiating environmental sovereignty in Costa Rica. *Development and Change*, 44, 285–307.
- GRAIN. (2012). *Land grab deals dataset*. (GRAIN 2012).
- Grandia, L. (2013). Road mapping: Megaprojects and land grabs in the northern Guatemalan lowlands. *Development and Change*, 44(2), 233–259. <http://dx.doi.org/10.1111/dech.12020>.
- Hanjra, M., Ferede, T., & Gemechu Gutta, D. (2009). Pathways to breaking the poverty trap in Ethiopia: Investments in agricultural

- water, education, and markets. *Agricultural Water Management*, 1596–1604.
- Hardin, G. (1968). The tragedy of the commons. *Science*, 162(3859), 1243–1248. <http://dx.doi.org/10.1126/science.162.3859.1243>.
- Harvey, D. (2005). *A brief history of neoliberalism*. Oxford: Oxford University Press.
- Holmén, H. (2015). Is land grabbing always what it is supposed to be? Large-scale land investments in sub-Saharan Africa. *Development Policy Review*, 33(4), 457–478.
- Humphrey, C., & Sneath, D. (1999). *The end of Nomadism?: Society, state, and the environment in Inner Asia*. Durham, NC: Duke University Press.
- Humphreys, M. (2005). Natural resources, conflict, and conflict resolution. *Journal of Conflict Resolution*, 49(4), 508–537.
- IAASTD (2009). *Agriculture at a crossroads. The global report of the International Assessment of Agricultural Knowledge, Science, and Technology*. Washington, DC: Island Press.
- International Land Coalition (2011). *Global assembly 2011, Tirana, Albania*. ILC.
- Kaag, M., & Zoomers, A. (Eds.) (2014). *The global land grab. Beyond the hype* (pp. 1–16). Zed Books.
- Kallis, G., & Zografos, C. (2013). Hydro-climatic change, conflict and security. *Climatic Change*. <http://dx.doi.org/10.1007/s10584-013-0893-2>.
- Kugelman, M. (2012). *The global farms race: Land grabs, agricultural investment, and the scramble for food security*. Washington, DC: Island Press.
- Lam, W. (1999). *Governing irrigation systems in Nepal: Institutions, infrastructure, and collective action*. Oakland, CA: ICS Press.
- Lambin, E., Turner, B., Geist, H., Agbola, S., Angelsen, A., Bruce, J., et al. (2001). The causes of land-use and land-cover change: Moving beyond the myths. *Global Environmental Change*, 11(4), 261–269. [http://dx.doi.org/10.1016/S0959-3780\(01\)00007-3](http://dx.doi.org/10.1016/S0959-3780(01)00007-3).
- Lavers, T. (2012a). Patterns of agrarian transformation in Ethiopia: State-mediated commercialisation and the “land grab”. *Journal of Peasant Studies*, 39, 795–822.
- Lavers, T. (2012b). ‘Land grab’ as development strategy? The political economy of agricultural investment in Ethiopia. *Journal of Peasant Studies*, 39(1), 105–113.
- Liao, C., Jung, S., Brown, D., & Agrawal, A. (2016). Insufficient research on land grabbing. *Science*, 353(6295), 131.
- Magliocca, N., Rudel, T., & Verburg, P. (2015). Synthesis in land change science: Methodological patterns, challenges, and guidelines. *Regional Environmental Change*, 15(2), 211–226.
- McGahey, D., Davies, J., Hagelberg, N., & Ouedraogo, R. (2014). *Pastoralism and the Green Economy – A natural nexus?*. Nairobi: IUCN and UNEP.
- Meinzen-Dick, R., & Pradhan, R. (2001). Implications of legal pluralism for natural resource management. *IDS Bulletin*, 32(4), 10–17.
- Messerli, P., Giger, M., Dwyer, M., Breu, T., & Eckert, S. (2014). The geography of large-scale land acquisitions: Analysing socio-ecological patterns of target contexts in the global South. *Applied Geography*, 53. <http://dx.doi.org/10.1016/j.apgeog.2014.07.00>.
- Meyer, D., Zeileis, A., & Hornik, K. (2014). *vcf: Visualizing Categorical Data. R package version 1.3-2*. .
- North, D., & Weingast, B. (1989). Constitutions and commitment: The evolution of institutions governing public choice in seventeenth century England. *Journal of Economic History*, 49, 803–832.
- Oberlack, C., & Eisenack, K. (2014). Alleviating barriers to urban climate change adaptation through international cooperation. *Global Environmental Change*, 24, 349–362. <http://dx.doi.org/10.1016/j.gloenvcha.2013.08.016>.
- Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge: Cambridge University Press.
- Ostrom, E., Dietz, T., Dolsak, N., Stern, P., Stovich, S., & Weber, E. (Eds.) (2002). *The drama of the commons*. Washington, DC: National Academy Press, National Research Council.
- Ostrom, E., Gardner, R., & Walker, J. (1994). *Rules, games, and common-pool resources*. Ann Arbor, MI: University of Michigan Press.
- Ostrom, E., Janssen, M., & Anderies, J. (2007). Going beyond panaceas. *Proceedings of the National Academy of Sciences*, 104(39), 15176–15178. <http://dx.doi.org/10.1073/pnas.0701886104>.
- Oya, C. (2013). Methodological reflections on ‘land grab’ databases and the ‘land grab’ literature ‘rush’. *Journal of Peasant Studies*, 40(3), 503–520.
- Pearce, F. (2012). Land grabbing: the new tragedy of the commons. *Just Conservation*. Retrieved: <http://www.justconservation.org/land-grabbing-the-new-tragedy-of-the-commons> (last accessed on July 1st 2016).
- Polanyi, K. (1944). *The great transformation: The political and economic origins of our time*. Boston, MA: Beacon Press.
- Poteete, A., Janssen, M., & Ostrom, E. (2010). *Working together: Collective action, the commons, and multiple methods in practice*. Princeton, NJ: Princeton University Press.
- R Core Team (2015). *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing, URL: <http://www.R-project.org/>.
- Ragin, C. (1987). *The comparative method: Moving beyond qualitative and quantitative strategies*. Berkeley: University of California Press.
- Ratner, B., Meinzen-Dick, R., May, C., & Haglund, E. (2013). Resource conflict, collective action, and resilience: An analytical framework. *International Journal of the Commons*, 7(1), 183–208.
- Ribot, J., & Peluso, N. (2003). A theory of access. *Rural Sociology*, 68(2), 153–181. <http://dx.doi.org/10.1111/j.1549-0831.2003.tb00133.x>.
- Rihoux, B., & Ragin, C. (2009). *Configurational comparative methods: Qualitative comparative analysis (QCA) and related techniques*. London: Sage.
- Robertson, B., & Pinstrup-Andersen, P. (2010). Global land acquisition: Neo-colonialism or development opportunity?. *Food Security*, 2(3), 271–283.
- Rudel, T. (2008). Meta-analyses of case studies: A method for studying regional and global environmental change. *Global Environmental Change*, 18, 18–25.
- Rulli, M., & D’Odorico, P. (2014). Food appropriation through large-scale land acquisitions. *Environmental Research Letters*, 9(6), 064030. <http://dx.doi.org/10.1088/1748-9326/9/6/064030>.
- Rulli, M., & D’Odorico, P. (2013). The science of evidence: The value of global studies on land rush. *Journal of Peasant Studies*, 40(5), 907–909.
- Rulli, M., Saviore, A., & D’Odorico, P. (2013). Global land and water grabbing. *Proceedings of the National Academy of Sciences*, 110, 892–897.
- Scheidel, A., & Sorman, A. (2012). Energy transitions and the global land rush: Ultimate drivers and persistent consequences. *Global Environmental Change*, 22(3), 588–595. <http://dx.doi.org/10.1016/j.gloenvcha.2011.12.005>.
- Scoones, I., Hall, R., Borrás, S., Jr., White, B., & Wolford, W. (2013). The politics of evidence: Methodologies for understanding the global land rush. *Journal of Peasant Studies*, 40(3), 469–483. <http://dx.doi.org/10.1080/03066150.2013.801341>.
- Scott, J. (1998). *Seeing like a state: How certain schemes to improve the human condition have failed*. New Heaven: Yale University Press.
- Sequist Johansson, E., & Nicholas, K. (2014). Architecture of the global land acquisition system: Applying the tools of network science to identify key vulnerabilities. *Environmental Research Letters*, 9(11), 114006. <http://dx.doi.org/10.1088/1748-9326/9/11/114006>.
- Sikor, T., Auld, G., Bebbington, A., Benjaminsen, T., Gentry, B., Hunsberger, C., ... Upton, C. (2013). Global land governance: From territory to flow?. *Current Opinion in Environmental Sustainability*, 5(5), 522–527. <http://dx.doi.org/10.1016/j.cosust.2013.06.006>.
- The Journal of Peasant Studies (2012). Special issue on “green grabbing”. *The Journal of Peasant Studies*, 39(2).
- The Land matrix (2015). *The land matrix database*. (Land Matrix 2015).
- The Land matrix (2016). The land matrix database Retrieved from: <http://www.landmatrix.org/en/>.
- The World Bank, et al. (2011). *Principles for Responsible Agricultural Development (RAI) that respect rights, livelihoods and resources, knowledge exchange platform for Responsible Agro-Investment (RAI)*. Available at: <http://www.responsibleagroinvestment.org/rai/node/256> (last visited Jul. 15, 2015).
- Third World Quarterly (2013). Special issue on “global land grabs”. *Third World Quarterly*, 34(9).
- Turner, B., Lambin, E., & Reenberg, A. (2007). The emergence of land change science for global environmental change and sustainability. *Proceedings of the National Academy of Sciences*, 104(52), 20666–20671.
- Von Braun, J., & Meinzen-Dick, R. S. (2009). *Land grabbing by foreign investors in developing countries: Risks and opportunities*. Washington, DC: International Food Policy Research Institute.
- White, B., Borrás, S., Jr., Hall, R., Scoones, I., & Wolford, W. (2012). The new enclosures: Critical perspectives on corporate land deals. *Journal of Peasant Studies*, 39(3–4), 619–647. <http://dx.doi.org/10.1080/03066150.2012.691879>.

- Wily, L. (2011a). "The law is to blame": The vulnerable status of common property rights in sub-Saharan Africa. *Development and Change*, 42, 733–757.
- Wily, L. (2011b). *The tragedy of public lands: The fate of the commons under global commercial pressure*. Rome: The International Land Coalition.
- Wily, L. (2012). Looking back to see forward: The legal niceties of land theft in land rushes. *Journal of Peasant Studies*, 39(3–4), 751–775.
- Wily, L. (2013). The global land grab: The new enclosures. In D. Bollier, & S. Helfrich (Eds.), *The wealth of the commons: A world beyond market & state*. Amherst and Florence, MA: Levellers Press.
- Wolf, A. (2007). Shared waters: Conflict and cooperation. *Environment and Resources*, 32(1), 241–269. <http://dx.doi.org/10.1146/annurev.energy.32.041006.101434>.
- Wolford, W., Borras, S., Hall, R., Scoones, I., & White, B. (2013). Governing global land deals: The role of the state in the rush for land. *Development and Change*, 44(2), 189–210. <http://dx.doi.org/10.1111/dech.12017>.
- World Bank (1989). *Sub-Saharan Africa: From crisis to sustainable growth*. Washington, DC: World Bank.
- Zoomers, A., Gekker, A., & Schäfer, M. T. (2016). Between two hypes: Will "big data" help unravel blind spots in understanding the "global land rush?". *Geoforum*, 69, 147–159.

APPENDIX A. SUPPLEMENTARY DATA

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.worlddev.2016.11.005>.

Available online at www.sciencedirect.com

ScienceDirect