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How Institutions Shape Land Deals: The Role of Corruption*

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Abstract: Large-scale land acquisitions, or "land grabs", concentrate in developing countries which are also known for their corruption-friendly setting caused by a weak institutional framework. We argue that corrupt elites exploit this given institutional set-up to strike deals with international investors at the expense of the local population. Using panel data for 157 countries from 2000-2011, we provide evidence that these land deals indeed occur more often in countries with higher levels of corruption.

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1. Introduction

In recent years, large-scale land acquisitions (often called "land grabbing" by their critics) have become a significant worldwide phenomenon which encompasses transnational commercial land deals with the goal to produce and export food and biofuel crops to the investors' home countries on a large scale (Borras & Franco, 2012). Often, the ultimate goal of these exports is to secure food safety or energy supply (Shepard & Anuradha, 2009) in, e.g., the Middle East and emerging economies like China and Brazil.

The main destination regions of the land investments are developing countries in the Global South, especially Sub-Saharan Africa (Merlet & Jamart, 2009). According to estimates based on the *Land Matrix Database*, these land acquisitions (concluded and intended contracts) amount to 83 million hectares of purchased or leased land all over the world between 2000 and 2010, with numbers still growing (Anseeuw et al., 2012). Standard theory on foreign direct investments (*FDI*) would suggest that land investments ought to have positive effects on the target countries because the inflow of *FDI* will help to overcome any lack of real capital which would otherwise lead to an under-utilization of agricultural land. This in turn is also expected to foster economic growth and thereby improve people's quality of living. Indeed, reports by the *World Bank* (e.g., Deininger et al., 2011) find such positive effects arising from investments in farmland. Yet, other reports point to the opposite direction (e.g., Cotula, 2013). That is, instead of having welfare-enhancing and pacifying effects, these very land deals may lead to economic stagnation (or even economic slump) and internal conflict.

One important trigger of this development is the problem that land deals involve power asymmetries between different parties involved in these deals. More specifically, Borras & Franco (2012) argue that these deals are typically initiated through, on the one hand, international investors (multinational companies, sovereign wealth fund, state-owned enterprises) and, on the other hand, destination countries' central or local governments. One group that is typically left out here (and rarely demands land deals) is the local population which often claims—usually to no avail—customary land use rights. Since these rights are only customary, governments and investors tend to ignore them all too often while referring to formal land rights (which might even be implemented for sales purposes only).

This is even truer in institutionally weak countries where property rights are neither honored nor well protected and where governments are often represented by corrupt elites consisting of, inter alia, local politicians and land lords. This is in line with recent arguments that problematic land grabbing activities originate from weakly protected land titles emerging from weak institutional frameworks (Borras et al., 2011; Cotula et al, 2009; Deininger et al., 2011; Mehlum et al., 2006, discuss a related problem, the "resource curse").

Arguably, governments in corruption-friendly institutional settings should enter into land deals more easily than non-corrupt public officials. Authorities on the central (and, partly, on the local) level are assumed to act opportunistically, i.e., to the best of their own (economic) advantage. For instance, selling off land which has so far been used by the local population or even nomadic people might leave the affected groups in despair, but yield the (urban) elites gratifications from the investors (Kenney-Lazar, 2012; Lavers, 2012). These benefits might also come in the form of improvements in urban (or, rather, the capital city's) infrastructure, while

likely producing little positive effects for rural areas where most land deals can be expected to take place. Even more likely, these land deals may produce negative effects for rural areas (e.g., environmental damage, economic losses). From the (international) investor's perspective, approaching corrupt government officials appears advantageous as well because bribing them might facilitate the acquisitions and help to realize a price level (and other attractive conditions) below that on efficient markets. Hence, we hypothesize that more corrupt governments facilitate land grabbing activities. That is, empirically we expect to see (comparatively) high levels of corruption to coincide with (comparatively) high levels of land acquisitions.

In the next section, we introduce our methodology and data. Section 3 provides our empirical results, while section 4 concludes.

2. Data and Methodology

Data on land deals is drawn from the *Land Matrix Dataset* (Land Matrix Global Observatory, 2014). This dataset is produced by a global, independent land monitoring initiative. For a land deal (i.e., an intended, concluded or failed attempt to acquire land through purchase, lease or concession) to be recorded by the dataset, the deal must entail a transfer of rights to use, control or ownership of land through sale, lease or concession; have been initiated since the year 2000; cover an area of 200 hectares or more; and imply the potential conversion of land from smallholder production, local community use or important ecosystem service provision to commercial use (Land Matrix Global Observatory, 2014). Here, land deals may be made for agricultural production, timber extraction, carbon trading, industry, renewable energy production, conservation, and tourism in low- and middle-income countries. In our study, we concentrate on concluded (by oral agreement or signed contract) land acquisitions only, as this category is the most reliable than, e.g., intended land deals.

From the *Land Matrix Dataset* we construct two dependent variables. The first dependent variable is the *total size of land deal contracts* (in hectares) for a specific country-year observation. As shown in Table 1, the variance of this variable is larger than its mean (overdispersion). What is more, the variable is a (non-negative) count. Thus, when we consider this dependent variable we use *a negative binomial maximum-likelihood estimation model* to examine the effect of corruption on land deal size. The creators of the *Land Matrix Dataset* acknowledge that their dataset is inherently unreliable, mostly because land deals (especially in less developed economies) tend to be non-transparent.[1] Given that the *Land Matrix Dataset* draws information on land deals (in addition to information from NGOs and academic reports) from official government records, company websites, and media reports, the over- or under-reporting may be an issue. Thus, we also construct a second *dichotomous variable* that is coded 1 if any land deal is reported to take place for a specific country-year observation and 0 otherwise. While this variable does not reflect contract size but only the mere occurrence of land deals, it may still be helpful to also consider it as it is less likely to be

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1 The issue of data quality is discussed in more detail on the *Land Matrix* website (http://www.landmatrix.org/en/about/).

affected by any reporting bias. Given the dichotomous nature of this second dependent variable, we use a (binary) *logit regression model* to estimate the effect of corruption on the occurrence of land deals.

—Table 1 here—

Our main hypothesis is that more corrupt countries are expected to be likelier targets of land deals. To operationalize corruption, we use a *corruption control index* drawn from the *World Governance Indicators* of the *World Bank*.[2] The index measures the perception of corruption within a country, e.g., with respect to transparency, accountability and corruption in the public sector, irregular payments to public officials (e.g., politicians, judges), and the existence of anti-corruption and transparency programs. A higher value of the index corresponds to a higher level of corruption control. Consistent with our main hypothesis, we expect a negative relationship between corruption control and "land grabbing". Given that anecdotal evidence suggests that too high levels of corruption may make the institutional environment so unpleasant that even hardboiled investors shy away from investing in those countries, we also test for a non-linear effect of corruption on land deals in one model specification.

To add to the robustness of our findings, we also replace the corruption control index in some specifications for variables measuring *regulatory quality* and the *rule of law*.[3] The operationalization of these variables is given in Table 1. Similar to corruption control, we also expect land deals to become less likely with increasing levels of regulatory quality and a better rule of law, given that such improvements can also be anticipated to reduce the power asymmetries between different parties involved in land deals, especially with respect to the local (rural and poor) population.

We control for further economic, demographic, geographic and politico-institutional factors to avoid detecting only spurious effects of corruption on land deals. The variables, their data sources and operationalization are presented in Table 1. Here, we expect land deals to become more likely with a higher level of globalization (indicating a higher economic openness that facilitates *FDI*), more available fertile land and higher agricultural productivity (both of which ought to make especially agricultural land deals more likely), and political instability (which is expected to increase the risk for *FDI*). By contrast, land deals ought to become less probable with higher levels of economic development (which accounts for the stylized facts that land deals mainly concern the Global South) and institutional improvements beside corruption control, such as better democratic institutions (which make it less likely that parts of the population are ignored when land deals are considered).

In total, we collect panel data on land deals, corruption and the other control variables for a maximum of 157 countries for the period of 2000 to 2011.

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2 See http://info.worldbank.org/governance/wgi/index.aspx#home.

3 The correlation between corruption control and regulatory quality (*r=0.87*) and corruption control and the rule of law (*r=0.94*) is very high. To avoid multicollinearity, we therefore only consider these variables in separate model specifications.

3. Empirical Results

The negative binomial regression results are reported in Table 2. Considering our main variable of interest, we consistently—in line with our main hypothesis—find that higher levels of corruption control are associated with a smaller size of land deals. We, however, find no evidence of a non-linear relationship between corruption and "land grabbing". Replacing corruption control with variables for regulatory quality (i.e., property rights protection) and the rule of law yields similar findings. Better legal-economic institutions are associated with a smaller size of land deal contracts.

—Table 2 here—

The logit regression results are shown in Table 3. Similar to the findings reported above, we find that corruption tends to be negatively and statistically significantly correlated with the likelihood of land deals materializing. However, the same is not true for regulatory quality and the rule of law. Taken together with the negative binomial regression results, this tentatively suggests that the level of corruption is a very strong and consistent predictor of land deal activity.

—Table 3 here—

Briefly discussion the controls for both the negative binomial and logit regressions, our findings are largely in line with our expectations. First, land deals are more likely when economies are economically integrated and offer incentives for agricultural investment (land availability and productivity). Second, land deals are less likely when countries are rich and densely populated. Third, while democratic institutions tend to make land deals less likely, there is—somewhat surprisingly—little evidence that political stability promotes land deals. In any event, it seems to be the case that corruption control trumps other dimensions of legal and political institutional quality when it comes to determining the occurrence and extent of land deals.

4. Conclusion

In this contribution we analyze the role of corruption (and other institutional quality variables) in "land grabbing", a phenomenon which mainly affects less developed economies. Our findings for 157 countries for the 2000-2011 period suggests that corruption control is consistently associated with occurrence and size of land deals. This suggests that land deals—in the popular discourse oftentimes linked to backroom deals between international firms and venal local elites—can indeed be reined in by institutional improvements that reduce corruption (e.g., transparency legislation). Such reforms can be expected to make public officials less susceptible to bribery and more accountable to the petitions of rural communities which are often affected the most by the phenomenon of "land grabbing".

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Variable	N*T	Mean	SD	Min.	Max.	Operationalization
Incidence of Land Deals (Binary)	2040	0.106	0.308	0	1	
Contract Size of Land Deals (Count)	2040	12423	100517	0	2880964	
Corruption Control	2037	-0.074	1.019	-1.924	2.586	
Globalization Index (b)	2004	56.307	17-273	21.920	92.503	Index capturing the economic, political and social dimensions of globalization (e.g., FDI flows, number of international treaties, tourism)
Per Capita Income (c)	1942	8.684	1.314	5.570	11.212	Real income per capita, logged
Arable Land (c)	1992	41.389	21.986	0.449	91.160	Ratio of land suitable for agriculture to total country size
Cereal Yield (c)	1938	3055	3708	110	74205	Cereal yield (white, rice, maize etc.), as kilograms per hectare of harvested land, logged
Population Density (c)	2028	4.129	1.489	0.434	9.879	Population size to geographical country size, logged
Voice and Accountability (a)	2040	-0.139	1.005	-2.284	1.826	Index capturing the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression and association, and a free media
Political Stability (a)	2034	-0.160	0.968	-3.324	1.668	Index measuring the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means
Regulatory Quality (a)	2035	-0.128	1.005	-2.669	2.120	Index capturing the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development
Rule of Law (a)	2037	-0.128	1.005	-2.669	1.999	Index measuring perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence

Data Sources: (a) *World Governance Indicators* (http://info.worldbank.org/governance/wgi/index.aspx#home); (b) *KOF Index of Globalization* (http://globalization.kof.ethz.ch/); (c) *World Development Indicators* (http://data.worldbank.org/data-catalog/world-development-indicators).

Table 1: Summary Statistics and Variable Operationalization

	(1)	(2)	(3)	(4)	(5)	(6)
Corruption Control $_{t-1}$	-3.319	-3.328	-2.710	-3.657		
	(0.777)***	(0.576)***	(0.620)***	(0.880)***		
Corruption Control (squared) $_{t-1}$		-1.905				
		(0.356)***				
Regulatory Quality $_{t-1}$					-2.488	
					(0.913)***	
Rule of Law $_{t-1}$						-3.291
						(0.922)***
Globalization $_{t-1}$	0.169	0.178	0.195	0.178	0.153	0.179
	(0.036)***	(0.035)***	(0.036)***	(0.039)***	(0.041)***	(0.041)***
GDP p.c. $_{t-1}$	-2.731	-3.294	-3.142	-2.879	-2.516	-2.609
	(0.438)***	(0.526)***	(0.429)***	(0.461)***	(0.552)***	(0.514)***
Arable Land $_{t-1}$	0.048	0.068	0.066	0.051	0.016	0.009
	(0.020)**	(0.017)***	(0.015)***	(0.019)***	(0.018)	(0.015)
Agricultural Productivity $_{t-1}$	1.350	2.215	2.015	1.346	0.864	0.778
	(0.534)***	(0.505)***	(0.489)***	(0.522)**	(0.579)	(0.504)
Population Density $_{t-1}$	-1.721	-2.394	-2.227	-1.751	-1.517	-1.385
	(0.303)***	(0.340)***	(0.277)***	(0.296)***	(0.366)***	(0.328)***
Voice and Accountability $_{t-1}$			-1.575			
			(0.417)***			
Political Stability $_{t-1}$				0.375		
				(0.338)		
No. of Observations	1695	1695	1695	1695	1695	1695
Wald χ^2	76.84	144.28	126.91	78.40	43.67	55.45
(Prob. > χ^2)	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Log-Pseudolikelihood	-3219.25	-3206.74	-3213.59	-3218.91	-3225.77	-3222.17

Notes: Constant not reported. Country-clustered robust standard errors in parentheses. *p<0.10, **p<0.05, ***p<0.01.

Table 2: Institutions and Land Deals (Negative Binomial Regression Results)

	(1)	(2)	(3)	(4)	(5)	(6)
Corruption Control $_{t-1}$	-0.511	-0.638	-0.586	-0.369		
	(0.260)**	(0.351)*	(0.289)**	(0.305)		
Corruption Control (squared) $_{t-1}$		-0.388				
		(0.258)				
Regulatory Quality $_{t-1}$					-0.205	
					(0.298)	
Rule of Law $_{t-1}$						-0.369
						(0.257)
Globalization $_{t-1}$	0.055	0.055	0.052	0.055	0.052	0.054
	(0.020)***	(0.020)***	(0.020)***	(0.020)***	(0.022)**	(0.021)***
GDP p.c. $_{t-1}$	-1.391	-1.370	-1.378	-1.376	-1.472	-1.431
	(0.292)***	(0.294)***	(0.292)***	(0.303)***	(0.285)***	(0.292)***
Arable Land $_{t-1}$	-0.007	-0.007	-0.007	-0.006	-0.007	-0.007
	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)	(0.008)
Agricultural Productivity $_{t-1}$	0.637	0.631	0.635	0.645	0.660	0.654
	(0.329)*	(0.343)*	(0.333)*	(0.326)**	(0.320)**	(0.323)**
Population Density $_{t-1}$	-0.212	-0.215	-0.209	-0.238	-0.206	-0.196
	(0.131)	(0.134)	(0.130)	(0.139)*	(0.124)*	(0.129)
Voice and Accountability $_{t-1}$				0.120		
				(0.264)		
Political Stability $_{t-1}$				-0.1889		
				(0.248)		
No. of Observations	1695	1695	1695	1695	1695	1695
Pseudo R^2	0.161	0.167	0.161	0.163	0.154	0.157
Wald χ^2	65.37	58.29	68.32	63.17	67.24	65.14
(Prob. > χ^2)	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Log-Pseudolikelihood	-527.902	-523.782	-527.608	-526.748	-532.455	-530.312

Notes: Constant not reported. Country-clustered robust standard errors in parentheses. *p<0.10, **p<0.05, ***p<0.01.

Table 3: Institutions and Land Deals (Binary Logit Regression Results)

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