Global Deforestation Revisited: The Role of Political and Institutional Factors

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Motivation

30 % of global land cover are forest *(World Bank, 2021)*
Approximatelly13 Mi hectares of natural forests are yearly lost *(FAO,2018)*

Research question

"Are institutional factors drives of global deforestation?"

Study

Dependent variable

European Space Agency (ESA) Climate Change Initiative Land Cover

Forest pixels 1992 → 2015

5% changed from forest to other land uses

Independent variables

Accessibility *Nelson (2008)*

Suitability to agricultural production - Global Agro-Ecological Zones model *(FAO, 2021)*

Corruption Perception Index *(Transparency International)*

The World Bank Government Effectiveness *(Kaufmann et al., 2008)*

Table 1. Descriptive statistics (N=5.858.880)

Variable Name	Variable description	Mean	Std. dev
Deforestation	=1 converted from forest to other LU classes, 0 otherwise	0,04	0,20
Biophysical Factors			
Accessibility	Higher values indicate increasing difficulty to land access	1073	1359
Suitability	1 (highly suitable), 9 (low suitability) to agricultural production	6,25	2,08
Institutional Factors			
Corruption Perception Index	Country level 0 (Highly corrupt), 10 (very clean)	4,17	2,49
Government Effectiveness	Country level -2,5 (low effectiveness), 2,5(high effectiveness)	0,09	1,02

Preliminary results

Areas with low accessibility → less likely to deforestation
Areas highly suitable to agricultural production → likely to experience land conversion
Political instability and government effectiveness are significantly related to higher deforestation.

Table 2. Logit regressions of deforestation (1992-2015) of the CPI and GE variables

Dependent Variable: Deforestation	(1) Logistic (CPI)	Marginal effect	(2) Logistic (GE)	Marginal effect
Accessibility	-0.000301*** (2.96e-06)	-0.00001	-0.000294*** (2.96e-06)	-0.00001
Suitability	-0.112*** (0.000909)	-0.00409	-0.114*** (0.000925)	-0.00415
CPI	-0.0237*** (0.000837)	-0.00086		-0.00037
GE			-0.0104*** (0.00183)	
Constant	-2.110*** (0.00603)		-2.204*** (0.00543)	
# of Observations	5,838,728		5,858,430	

*Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

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