

Does secure land tenure save forests?

A review of the relationship between land tenure and tropical deforestation

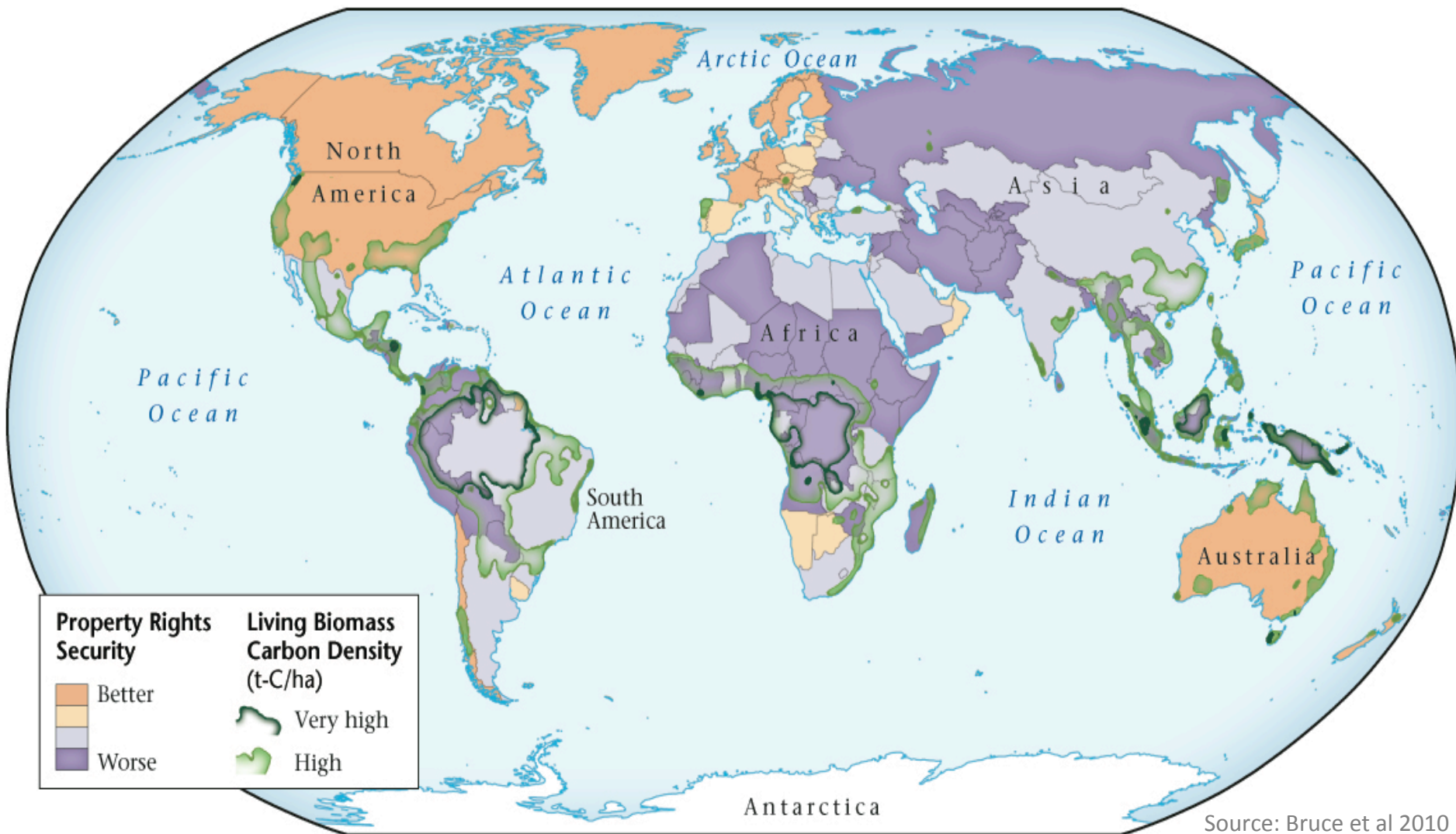
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Land Tenure Center

Tenure Security & Carbon Biomass Density



Source: Bruce et al 2010





Null hypotheses

- 1) There is no association between the *form* of land tenure and the likelihood of deforestation.
- 2) There is no association between the *security* of land tenure and the likelihood of deforestation.

Tenure Terminology



Land tenure^{*}

The set of institutions and policies that determine how the land and its resources are accessed, who can hold and use these resources, for how long and under what conditions.

The form of land tenure:

the rules and norms associated with any number of entities (individual, a common-property arrangement, etc)

The security of land tenure:

the assurance that land-based property rights will be upheld by society.

^{*} USAID 2008; Bruce et al. 2010

Theoretical economic literature



1. Use maximization framework
2. Insecurity = probability of eviction

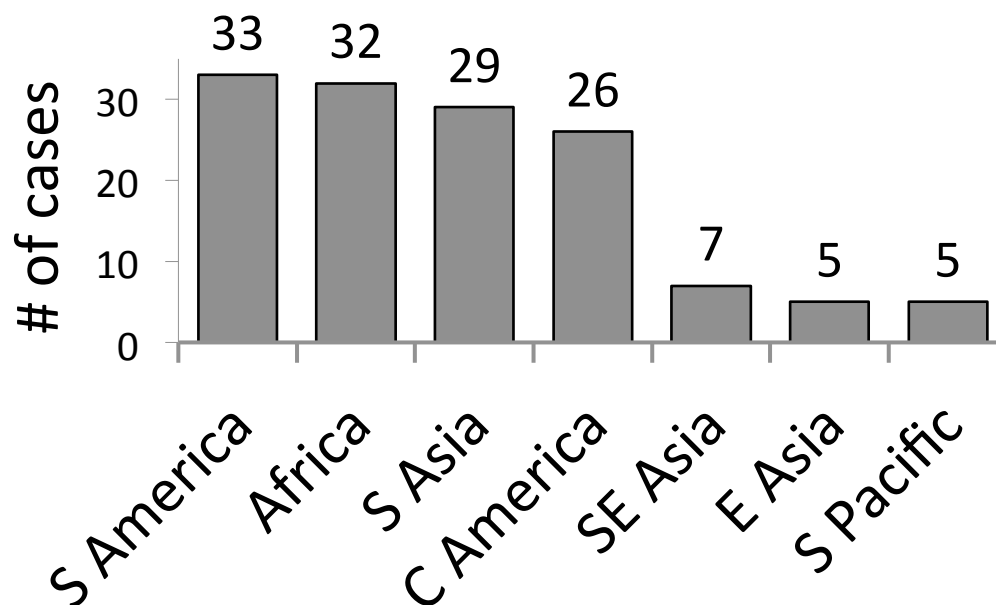
Broad lesson → context determines best use of land

But these models are quite stylized

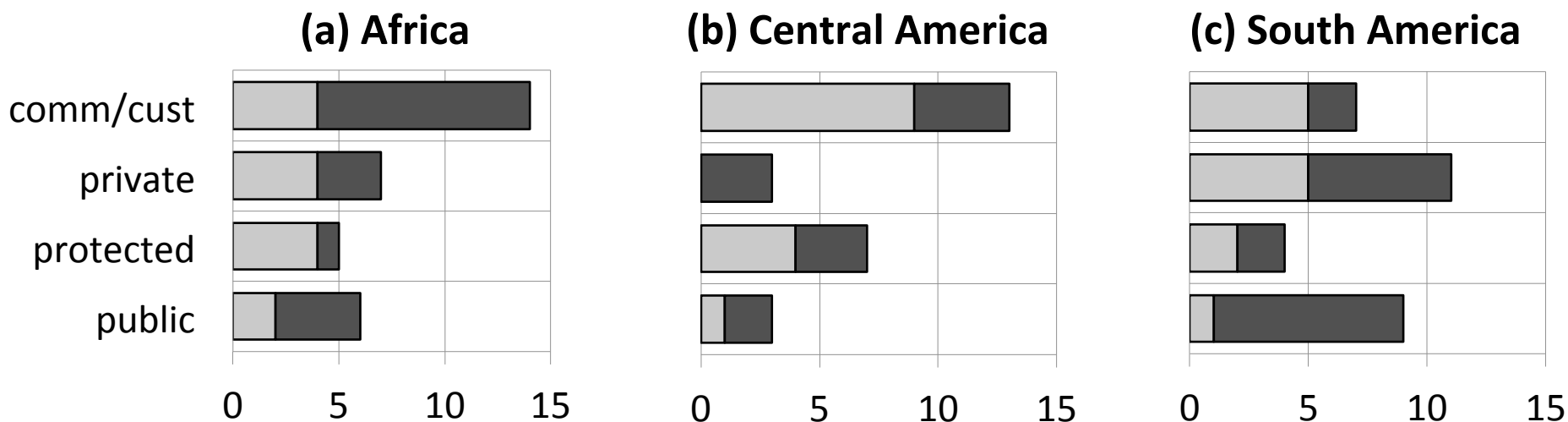
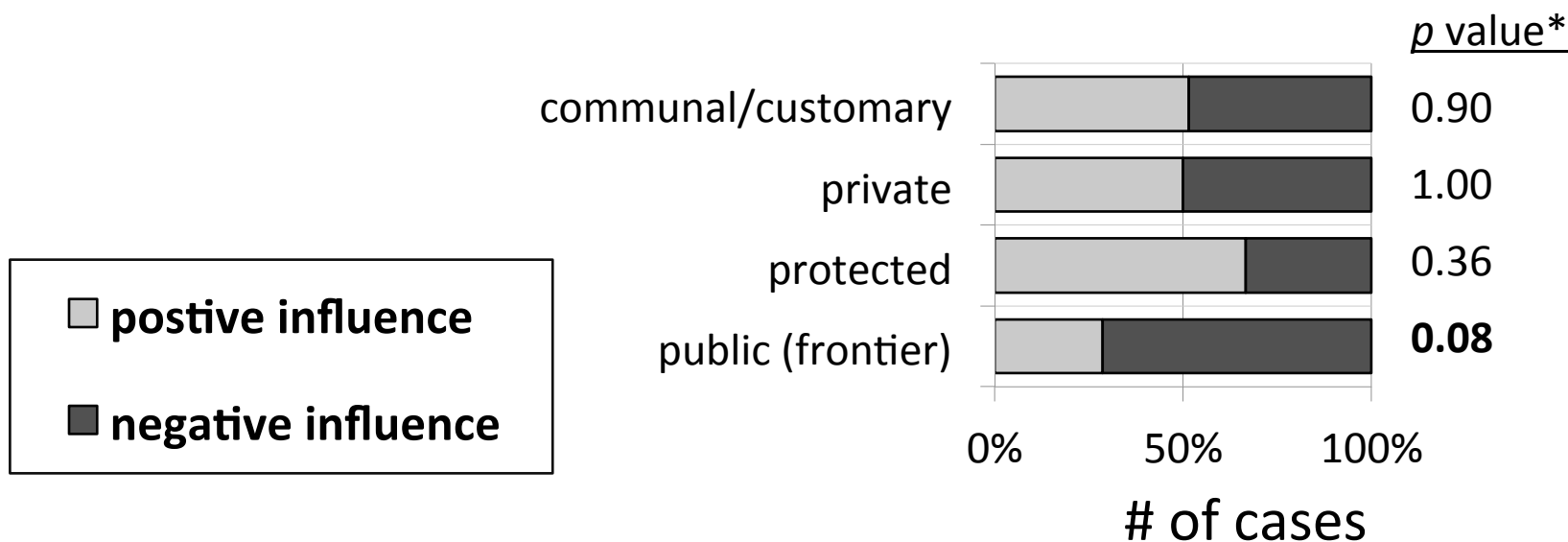
Meta-analysis of empirical literature



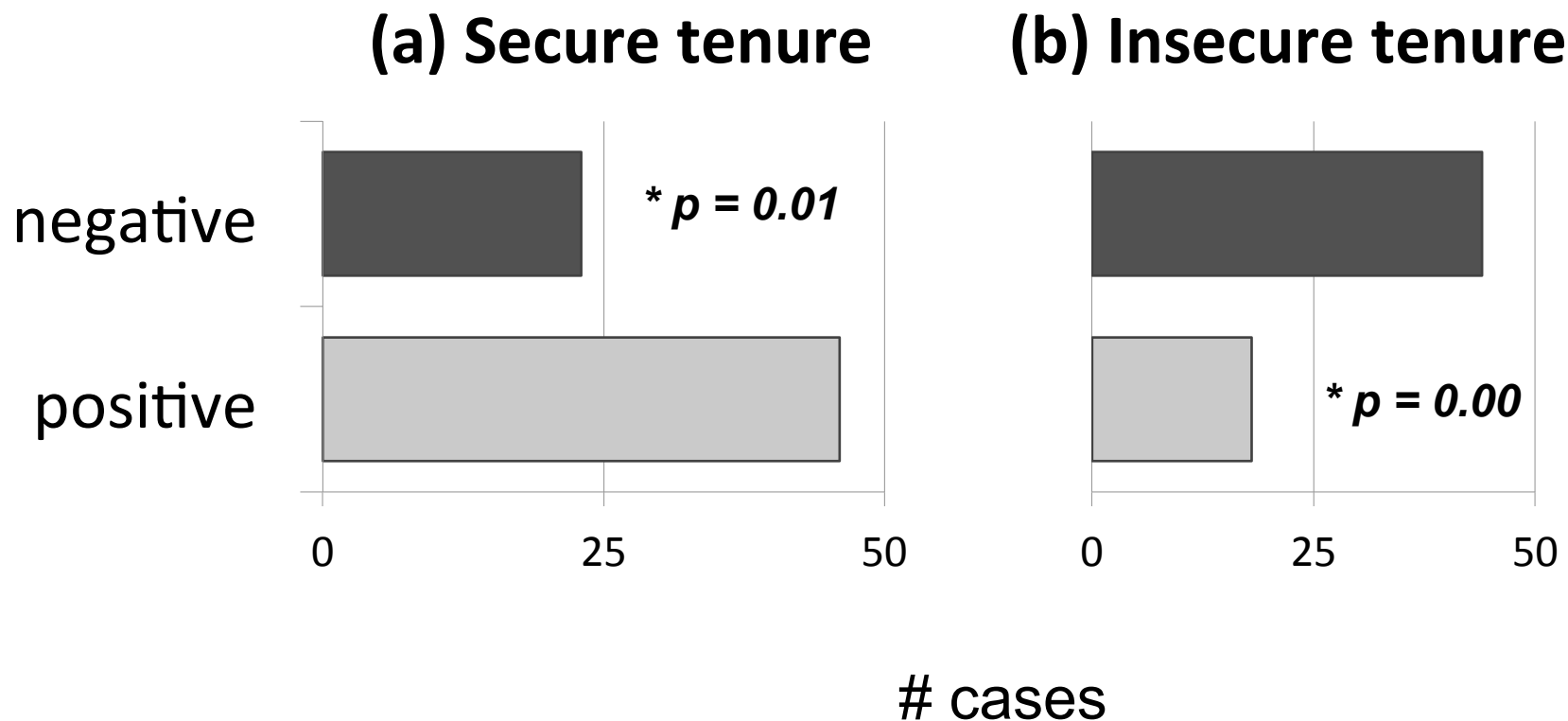
- Explicit link between land tenure form/security and forest conditions (preference for RS studies)
- Challenge of spatially-explicit data on land tenure
- 41 publications selected (100+ original)
- 85 independent sites, 137 cases



Meta-analysis: tenure form



Meta-analysis: tenure security



Meta-analysis: regression



Probit results (marginal effects) on positive forest outcome

	I	II	III
Tenure security	0.39 (0.09)***	0.40 (0.09)***	0.37 (0.10)***
Protected	0.38 (0.17)**	0.34 (0.18)*	0.38 (0.17)**
Communal	0.13 (0.12)	0.09 (0.14)	0.22 (0.14)
Public	0.15 (0.17)	0.16 (0.17)	0.25 (0.18)
Private (<i>reference</i>)			
Communal land in Africa (<i>interaction</i>)			-0.52 (0.27)**
Public land in S America (<i>interaction</i>)			-0.27 (0.25)
Duration of analysis (yrs)			0.00 (0.00)
Regional controls	no	yes	yes
<i>n</i>	135	135	125
log psuedolikelihood	-82.0	-81.4	-69.8
% correctly predicted	67%	68%	72%

* $p < 0.10$; ** $p < 0.05$, *** $p < 0.01$

Robust standard errors in parentheses, clustered by publication.

Meta-analysis: regression



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Meta-analysis: tenure security



- Tenure security is positively associated with forest (increase probability by 40%, average effects)
- Protection indicates higher likelihood of positive outcomes (35-40%, relative to private lands)
- Average effect of public vs. private vs. communal land not significant (except in Africa)
- Increased likelihood of negative outcomes for forests on communal lands in Africa

Security is paramount



Null hypotheses

1) There is no association between the form of land tenure and the likelihood of forest conservation.

2) There is no association between the security of land tenure and the likelihood of deforestation.

Results

Mixed results:

- Protected areas have positive effect
- Public, private & communal are indistinguishable

Reject the null hypothesis:

- Greater tenure security → improved forest conditions



Meta-analysis Limitations

(or: what future studies should avoid doing)

1. Conflation of communal and customary tenure
2. Endogeneity between location characteristics and chosen form of tenure
3. Little dynamic analysis (so time-varying characteristics are not often controlled for)
4. Contextual issues, especially factors that determine the security of tenure, are often murky



Key lessons for land & poverty

1. The form of tenure does not imply security
2. Clarifying tenure *security* seems more important than addressing any specific bundle of rights
3. Studies must be clear about their use of tenure terms, definitions and context
4. Tenure plays a role, but land use decision-making is embedded in larger social, political and economic systems

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