



# Ideal type theories and concrete cases in land science: A multi-step appraisal of the evolutionary theory of land rights in Madre de Dios, Peru



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## ABSTRACT

The relationships of regional integration, land tenure and land use have all received substantial previous attention. Nonetheless, existing theoretical frameworks tend to presume ideal types of land tenure in understanding the impacts of regional integration on change in institutions and land use. We therefore evaluate the evolutionary theory of land rights (ETLR) for the case of Madre de Dios, Peru. This is a useful case since tenure for agricultural lands is private individual as the ETLR theorizes, but other characteristics, such as the presence of forest extractivism, depart from the assumptions of the ETLR. We pursue a multi-step analysis of key relationships of the ETLR, focusing particularly on the linkages between highway paving as an indicator of regional integration, titling as a measure of tenure formality, multiple indicators of land market engagement, and land uses with diverse ramifications for ecological sustainability. Findings for the different steps partially support the ETLR for the case of Madre de Dios. Disconfirmation however sometimes occurs due to geographic accidents rather than due to truly contrasting findings. We conclude by discussing the need to identify characteristics of empirical cases that do and do not fit the expectations of theories in order to better evaluate the applicability of theory for analysis and policy.

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## 1. Introduction

Theoretical frameworks for the evaluation of land tenure models are based on ideal types, notably private individual tenure in the property rights school (Demsetz 1967; Alchian and Demsetz 1973) and community lands in the common pool resources literature (Berkes 1989; Ostrom 1990). A key issue in using such frameworks is to evaluate how well they fit concrete empirical cases. While land tenure models do come with boundary conditions, there remains a need to manage tensions pertaining to scope of applicability between universalism and context-specificity. In that endeavor, analysis should identify factors that explain where

general frameworks do and do not fit, in order to better delineate boundary conditions.

Theories of land tenure are increasingly theories of change (Feder and Feeny, 1991; Sjaastad and Cousins, 2008). In such work, population growth, structural changes in regional economies, and market integration are frequently enumerated as key factors that impel shifts in land tenure arrangements. At the same time, work on development has increasingly centered on processes of regional integration into global commodity networks (Bourguignon and Pleskovic, 2008; Bulmer-Thomas, 2001). Integration initiatives to facilitate cross-border exchange constitute significant drivers of change in land tenure (Barnes 2009; Perz et al., 2014a). However, there remains a need for systematic analysis of the ramifications of regional integration for land tenure change and its consequences.

In this paper, we take up a pre-eminent theoretical framework for the analysis of land tenure change, the evolutionary theory of land rights (ETLR; Feder et al., 1988; Feder and Feeny, 1991;

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Deininger and Feder, 2001). The ETLR stemmed from the property rights school and highlights the advantages of formalizing property rights in terms of private individual tenure. We apply the ETLR to Madre de Dios, Peru, which is a useful case since it is the site of a major infrastructure project for regional integration, and private individual tenure prevails. Madre de Dios thus offers as study case where the ETLR ought to apply. At the same time, other characteristics of land tenure in Madre de Dios depart from the assumptions of the ETLR.

We draw on data from a survey of roadside farms, conducted when highway paving was partially complete. This permits comparisons of farms in areas with and without highway paving as a proxy for regional integration. Our analysis encompasses a systematic evaluation of three key assertions of the ETLR. The first concerns the importance of highway paving as a determinant of tenure formalization, a focal element of the evolution of land rights. The second takes up the consequences of integration and formalization in terms of institutional advantages such as market transactions (notably access to credit) and avoidance of agrarian conflicts. The third concerns the effect of integration, formalization and institutional advantages for the sustainability of natural resource management.

### 1.1. The evolutionary theory of land rights (ETLR)

According to the ETLR, as resources become scarcer and thus more valuable, it becomes more worthwhile to gain formal property rights. Such rights come in bundles and refer to rights of access, rights of use, and rights of transfer. Whereas rights of access ensure control over a resource and thereby avoid overexploitation, rights of use motivate investments to make the resource more productive, and rights of transfer permit sales to realize gains.

The property rights argument drove theoretical elaboration on land titling and related policy proposals falling under the banner of tenure security (Feder et al., 1988). Tenure security is a crucial precondition for reaping the benefits of property rights. Whether by formal land titling or other means, tenure security provides the basis for investing in resource productivity. Also crucial is that in many countries, titles are necessary to substantiate property rights to land as collateral for obtaining credit from banks in order to make investments in productivity.

Work on tenure security and titling in developing regions motivated articulations of the ETLR in the context of regional economic development (Feder and Feeny, 1991; Deininger and Feder, 2001). Fig. 1 outlines the key expectations of the ETLR, in terms of a series of relationships among change processes entrained by regional integration, resulting in the evolution of land tenure. Exogenous factors such as new infrastructure can stimulate regional population growth, the emergence of markets, and the introduction of new technologies, which tend to raise land values. Where property rights are not precisely defined, rising land values motivate formalization of property rights for tenure security, as via demarcation of clear property boundaries, clarification of access and use rights, and titling of land. Consequently, property values appreciate, land markets emerge, and land sales and other market transactions become more viable. At the same time, formal sources of credit emerge in the form of banks, and formalization of property rights becomes more important for securing credit. Synergistically, the state finds it increasingly worthwhile to make public investments in the recognition and enforcement of property rights, which reduce agrarian conflicts. Formalization, tenure security and credit in turn motivate greater investments in long-term resource productivity, contributing not only to increased yields but also sustainable land use and thus regional development.

This synergistic dynamic is the “evolution” to which the ETLR refers: during the course of regional development, property rights

change by shifting from traditional rights shared by communities toward formalized private individual rights (Platteau 1996; Deininger and Feder, 2001). There have been similar arguments to formalize property rights in urban areas to encourage investments and liquidity for economic growth and poverty alleviation (De Soto 2000). The property rights school, ETLR and formalization arguments have supportive empirical research in various countries (e.g., Feder et al., 1988; Otsuka et al., 2001; Alston et al., 1999; Sills and Caviglia-Harris, 2008).

Nonetheless, empirical testing has also prompted criticisms. There has been dispute about several key arguments in the ETLR (e.g., Platteau, 1996; Sjaastad and Cousins, 2008). Two noteworthy criticisms for present purposes are: (1) whether credit is necessarily available, and (2) whether resource use among titled properties is ecologically sustainable. With regard to the first, the ETLR recognizes that if informal credit is available, the benefits of titling for productivity may be reduced. Concerning the second, there are questions concerning the content of the term “sustainable” in resource use. While sustainability is often invoked with regard to ecological sustainability, the ETLR’s emphasis on economic efficiency leads to a focus on investments in resource productivity. Hence it becomes important to specify the forms of natural resource management, including particular types of land use, as to their implications for sustainability.

### 1.2. Trans-boundary integration in Latin America: the case of the Inter-Oceanic Highway

The ETLR account highlights regional integration as a key catalyst for tenure formalization and its consequences. Integration initiatives include trade agreements and trans-boundary infrastructure projects. We focus on Latin America, which has no shortage of both types of initiatives. In this paper, our inquiry centers on the latter. In Latin America, no infrastructure program is more significant than the Initiative for the Integration of Regional Infrastructure in South America (IIRSA).

IIRSA was constituted by a meeting of presidents from 12 South American countries in 2000 (IIRSA, 2008). IIRSA was conceptualized as an explicitly spatial strategy organized around “axes of integration” targeted for infrastructure investments. Such axes constitute strategic growth corridors for international commerce. Subsequent IIRSA meetings included multilateral development banks and led to agreements to fund 350 projects at a total projected cost of \$38 billion (CEPEI, 2002; IIRSA, 2008).

During the first 5-year implementation phase of IIRSA, in 2006–2010, a pre-eminent project was to pave the Inter-Oceanic Highway (IOH) through Madre de Dios, Peru (Dourojeanni et al., 2010). As the name suggests, the strategic purpose of the IOH was to link Atlantic ports in southern Brazil to Pacific ports in Peru.

Madre de Dios is located in the southwestern Amazon, where the rainy season from November to May hampers overland transit on unpaved roads. Paving the IOH was thus a longstanding dream realized, upgrading the main road through the department to a year-round highway for cross-border commerce. What began as a horse path in the 1930s and was widened with government investments in colonization after the 1960s had finally by 2010 permitted regional integration between Brazil and Peru.

### 1.3. Madre de Dios, Peru

As a part of the Amazonian lowlands, Madre de Dios was historically somewhat isolated from the rest of Peru. Peruvian public policies have on the whole historically tended toward centralism, with some notable exceptions (Chavez Michaelsen and Perz, 2012). Under the Garcia administration of the 1980s, the Government of Peru supported Amazonian colonization, opened an Agrarian Bank

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