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TITLE: The Long-Run Effects of Protected Land Rights on Economic Development: Evidence from India

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EXTENDED ABSTRACT

Introduction

This paper investigates the long-run effects of protected land rights on economic development. Globally, 400 million Indigenous people hold about 25% of land resources under place-based protected land rights, yet they comprise 50% of the world's extreme poor. By combining archival administrative data with frontier geospatial econometric methods in causal inference, this paper advances our understanding of the impact of protected land rights on barriers to entrepreneurship, structural transformations, and place-based poverty alleviation programs.

Background

I examine the long-run impacts of protected land rights using a quasi-natural experiment of Scheduled Areas (SAs) in India. Originating as a military response to Indigenous rebellions in the 19th century and formalized through the Scheduled Districts Act of 1874, the SAs are specially administered tracts that guarantee constitutional protection of the land rights to Indigenous communities. Instituted through state-specific Land Alienation Prohibition (LAP) legislations, SAs are a colonial-era legacy institution encompassing approximately 20% of the nation's landmass and home to about 150 million people. LAP regulations restrict land transfers between Indigenous and non-Indigenous communities, place spatial limitations on transfers among Indigenous members, and in some extreme cases, even prohibit mortgaging land to institutional creditors.

Theoretical Puzzle

The SA policy presents a theoretical and empirical puzzle. While secure property rights support entrepreneurship development by incentivizing productive investments in the land economy, restricted land transactions adversely affect the efficient use of land resources and diminish agglomeration gains. Further, the limitation on land transfers under asymmetric information can incentivize grey markets, collusion, and rent-seeking, hindering the economic development of intended beneficiaries. Investigating the long-run impacts of protected land rights is crucial to understanding the complex interplay of historical legacies, property rights institutions, and economic geography, and to shed light on the drivers of the long-run underdevelopment of Indigenous protected areas.

Methodology

I use a village-level spatial Regression Discontinuity Design (RDD) to assess the causal impact of LAP regulations on the persistent economic underdevelopment of protected areas in India. To implement large-scale RDD, I collected, combined, and geocoded various archival and administrative data sources. As the first step, I geocoded SA boundaries from text-based administrative records. Next, I mapped the SA boundaries with different Census databases including Population Census, Economic Census, Socio-Economic Caste Census, and SHRUG databases. Lastly, to test the mechanisms driving the main outcomes, I web-scraped and geocoded village-level land prices and collected high-resolution spatial data on built-up density. Additionally, I collected and digitized the historical 1872 Census using Natural Language Processing to validate baseline local continuity assumption.

Results

In my main specification, I run a non-parametric RDD with a 25 km optimal bandwidth and 900 boundary fixed effects, including a triangular weighting kernel and a range of geographic, topographic, and baseline socio-economic controls. I cluster my standard errors and use Conley standard errors to account for spatial correlation as a robustness check. My main findings show that 150 years after the policy was first instituted, SAs on average had 12% higher poverty rates, 16% higher reliance on agriculture as a source of income, and 18% fewer private firms' density in higher value-added secondary and tertiary sectors compared to outside areas. Furthermore, a larger share of private firms was informal and smaller in size in protected areas compared to the adjoining non-protected areas.

Mechanisms

To identify the drivers of underdevelopment in protected areas, I test for competing hypotheses of "long-term isolation", "cultural differences", and "land misallocation". Using detailed analysis of high-resolution data on built-up density, employment shares in land-based sectors, and land prices, I argue that long-run poverty and the lesser private sector dynamism are primarily attributed to lower agricultural productivity and poorer agglomerations due to land transaction restrictions. I reject other competing hypotheses as I do not find discontinuity in access to core public goods (including primary schools, medical facilities, public banks, rural roads, police stations, and post offices), land ownership structure or technology adoption, and quality of land governance (including access to digitized land records and rent seeking behavior). Lastly, I find larger effects in tracts that witnessed robust economic growth, were historically under colonial rule, and where violent internal conflicts persist. Additionally, I find that in tracts where LAP regulations remain more stringent and ban land leasing and mortgaging, the incidence of poverty is even higher, lending further credence to the land misallocation hypothesis as a potential driver of long-run stagnation.

Conclusion

With poverty rates above 50%, SAs count among the most backward regions globally, yet the policy of land alienation prohibition persists. These results emphasize the need to reassess the policy framework and institutional mechanisms governing protected land rights to realize the economic potential of SAs and the human freedom and individual liberties of 150 million people living within them. Existing literature has commonly attributed the underperformance of Indigenous communities to their self-selection into non-market economic activities. However, my findings fundamentally challenge these theories. I argue that the economic backwardness of Indigenous populations is rooted in the historical persistence of land alienation prohibition regulations, which adversely impact the broader structural and spatial transformation of protected Indigenous areas.