The Long-Run Effects of Land Reform in West Bengal: Evidence from State Borders

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Abstract

Land remains the central productive asset for poor rural households in India, so persistent differences in who owns land are first-order for inequality, political voice, and structural change. This paper studies whether West Bengal's land reform program, especially post-1977 tenancy registration (Operation Barga) and ceiling-surplus redistribution, left durable effects on landholding patterns visible decades later. Using full-count 2012 SECC microdata aggregated to villages and a spatial border regression discontinuity at the West Bengal–Jharkhand boundary, I estimate a 15.0 percentage point lower household land-ownership rate on the West Bengal side, relative to a 52.2% Jharkhand-side mean. Effects on mean land among owners and concentration of land in holdings above 2 hectares are imprecise and close to zero. The estimates do not support a persistent pro-West-Bengal extensive-margin effect at this border.

1 Introduction

Land reform is central in development economics because it links distribution, productivity, and political power in a single institution: rights over agricultural land. In rural India, who owns land shapes investment incentives, access to credit, exposure to shocks, and participation in local politics. West Bengal is a canonical case because reform implementation after 1977 combined tenancy registration and redistribution at meaningful scale (Besley and Burgess, 2000; Banerjee et al., 2002; Bardhan and Mookherjee, 2010; Ghatak and Roy, 2007). That setting has generated influential evidence on productivity, tenancy relations, and distributive politics, but the long-run ownership distribution remains an open empirical question.

Recent work has sharpened that question. The long village panel assembled by Bardhan et al. (2014, 2011) shows that over 1967–2004 in West Bengal, reform-related equalizing channels coexisted with demographic and land-market dynamics that increased landlessness and could offset aggregate equalization. Boundary-based evidence on tenancy regulation in South India also points to long-run distributional tradeoffs across inequality and landlessness margins

*This is an experimental paper produced and written almost entirely with AI. The RD results are likely accurate, but should not be interpreted as the effect of land reform for various reasons, including that they depend heavily on which state is used as a control group. Read more here: https://x.com/paulnovosad/status/2021638738376323171.

(Besley et al., 2016). Together, this literature suggests that long-run incidence cannot be inferred from reform intent alone.

This paper contributes a transparent local border design. I compare villages just inside West Bengal to nearby villages just across the Jharkhand border, where geography is similar but institutional history differs discretely at the state line. In this border comparison, the estimated ownership discontinuity goes in the opposite direction from a simple persistence narrative. The result is therefore informative not only about long-run reform effects, but also about heterogeneity across state borders and the limits of single-border inference.

2 Historical Context and Prior Work

West Bengal's reform trajectory combined post-independence legal change with a later implementation surge under the Left Front. Operation Barga expanded registration and security of sharecroppers, while ceiling-surplus policies redistributed land to poorer rural households (Banerjee et al., 2002; Besley and Burgess, 2000; Bardhan and Mookherjee, 2010). Political competition and local institutions were central in determining where implementation was stronger (Bardhan and Mookherjee, 2010). Broader political-economy histories emphasize the same point: institutional design mattered, but realized distribution depended on administrative capacity and local power structures (Herring, 1983; Frankel, 2005; Herring, 1980).

The long-run empirical literature now indicates a more complex dynamic than a one-time equalization narrative. In West Bengal, Bardhan et al. (2014) document that inequality-reducing channels from reform interacted with rising landlessness and demographic pressures over time. Other work shows persistent distributional effects along additional dimensions, including gender (Bhalotra et al., 2019). This paper builds on that literature by focusing on a direct cross-border ownership comparison in contemporary census-linked microdata, rather than relying on within-state temporal variation alone.

3 Data

The analysis uses full-count rural household records from the 2012 Socio Economic and Caste Census (SECC), aggregated to the village level and linked to Population Census 2011 village polygons. Village identifiers are harmonized across sources to produce a consistent village key for aggregation and spatial merges.

I use three village-level measures of landholding structure. The first is the share of households that own land, defined as owner households divided by total households in the village. The second is mean land among owner households, measured in hectares. The third is the share of village land held by households with holdings above 2 hectares, which captures concentration in the upper tail. Land quantities are constructed from SECC acreage components and converted to hectares; cleaning is limited to standard consistency checks and harmonization so that

treatment and control villages are processed symmetrically.

The estimation sample contains villages within 20 km of the West Bengal–Jharkhand border on either side. For each village, I compute signed shortest distance to the border, positive on the West Bengal side and negative on the Jharkhand side.

4 Empirical Strategy

I estimate a spatial regression discontinuity around the state border. For village v,

$$Y_v = \alpha + \tau WB_v + \beta_1 d_v + \beta_2 (WB_v \times d_v) + \varepsilon_v, \tag{1}$$

where WB_v indicates the West Bengal side and d_v is signed distance to the border in kilometers. Regressions are weighted by village household count, estimated within $|d_v| \leq 20$, with side-specific linear trends and HC1 robust standard errors. The parameter of interest is τ, the discontinuity at the border.

The identifying assumption is local continuity in potential outcomes with respect to distance absent the policy regime difference across states. The border design is therefore interpreted as a local institutional contrast, not a statewide average treatment effect.

5 Results

Figure 1 shows village ownership prevalence in the West Bengal–Jharkhand border band. Figure 2 plots weighted 0.5 km bins of ownership prevalence against border distance, with separate smooth trends on each side. The visual evidence indicates a negative jump at the state boundary.

Table 1 reports formal RD estimates for all three outcomes. The ownership-share discontinuity is -0.150 (s.e. 0.028), relative to a Jharkhand-side weighted mean of 0.522, implying about a 29% lower ownership prevalence at the border on the West Bengal side. Mean land among owners is imprecisely estimated, and the concentration outcome is close to zero. The pattern indicates that this border does not show a persistent pro-West-Bengal extensive-margin ownership effect.

This interpretation is consistent with the broader long-run literature's emphasis on heterogeneity and competing long-run forces (Bardhan et al., 2014; Besley et al., 2016). The evidence here is local, but precisely because the sign differs from the Odisha border, it underscores why external validity requires multi-border evidence rather than a single frontier.

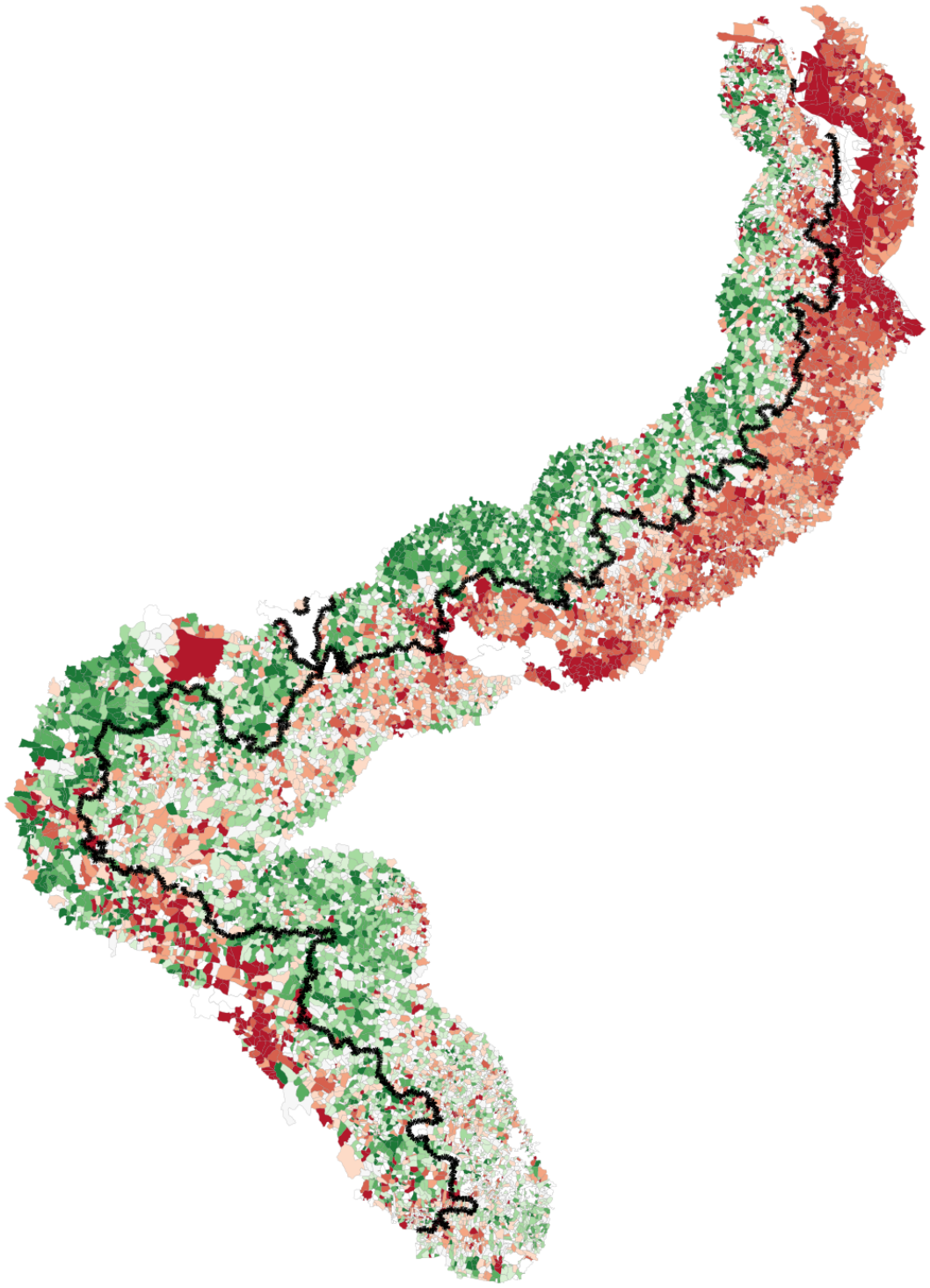
6 Conclusion

At the West Bengal–Jharkhand border, villages on the West Bengal side exhibit lower household land ownership prevalence decades after the major reform period. Differences in average owner holding size and upper-tail concentration are imprecise, indicating that the strongest signal at this border is the negative extensive-margin ownership discontinuity.

Framed in the larger literature, this result reinforces that long-run land-reform incidence is border-specific and shaped by multiple confounding historical and demographic processes.

Figure 1

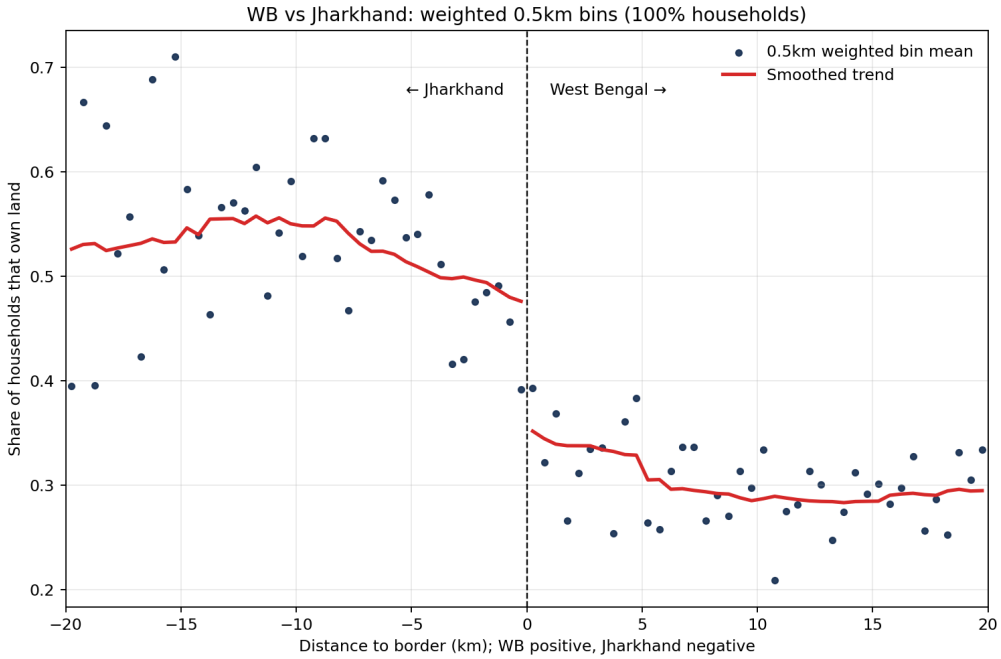
West Bengal–Jharkhand Border Villages: Land-Ownership Share Map



Notes: Village polygons are shaded by percentile bins of village-level land-ownership share (share of households with positive land ownership), computed jointly across both sides of the border.

Figure 2

RD Plot: Land-Ownership Share at the West Bengal–Jharkhand Border



Notes: Points are weighted 0.5 km bin means. Smooth trends are estimated separately on each side of the border and are shown for visualization only.

Table 1

Regression Discontinuity Estimates at the West Bengal–Jharkhand Border

	Mean land among owners (ha)	Owner share	Share land held by >2ha households
WB side indicator (τ)	2.886	-0.150***	-0.020
	(6.998)	(0.028)	(0.027)
Jharkhand-side weighted mean	3.063	0.522	0.397
Dep var weighted mean	4.718	0.381	0.389
Observations (villages)	10,859	11,336	10,853
Bandwidth	20 km each side		
Weights	Village household count		
Specification	Local linear, side-specific slopes		

Notes: Each column reports a weighted local-linear RD estimate using villages within 20 km of the WB–Jharkhand border. Regressions include an indicator for the WB side, the running variable (distance to border), and an interaction between WB side and running variable. Standard errors are heteroskedasticity-robust (HC1). Significance: * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Extending the same framework to additional state borders is essential for establishing external validity.

References

Banerjee, Abhijit V., Paul J. Gertler, and Maitreesh Ghatak, "Empowerment and Efficiency: Tenancy Reform in West Bengal," *Journal of Political Economy*, 2002, *110* (2), 239–280.

Bardhan, Pranab and Dilip Mookherjee, "Determinants of Redistributive Politics: An Empirical Analysis of Land Reforms in West Bengal, India," *American Economic Review*, 2010, *100* (4), 1572–1600.

Bardhan, Pranab K., Michael Luca, Dilip Mookherjee, and Francisco J. Pino, "Evolution of Land Distribution in West Bengal 1967–2004: Role of Land Reform," WIDER Working Paper 2011/31, UNU-WIDER 2011.

Bardhan, Pranab, Michael Luca, Dilip Mookherjee, and Francisco Pino, "Evolution of land distribution in West Bengal 1967–2004: Role of land reform and demographic changes," *Journal of Development Economics*, 2014, *110*, 171–190.

Besley, Timothy and Robin Burgess, "Land Reform, Poverty Reduction, and Growth: Evidence from India," *The Quarterly Journal of Economics*, 2000, *115* (2), 389–430.

_ , Jessica Leight, Rohini Pande, and Vijayendra Rao, "Long-run impacts of land regulation: Evidence from tenancy reform in India," *Journal of Development Economics*, 2016, *118*, 72–87.

Bhalotra, Sonia, Abhishek Chakravarty, Dilip Mookherjee, and Francisco J. Pino, "Property Rights and Gender Bias: Evidence from Land Reform in West Bengal," *American Economic Journal: Applied Economics*, 2019, *11* (2), 205–237.

Frankel, Francine R., *India's Political Economy, 1947–2004: The Gradual Revolution*, 2 ed., New Delhi: Oxford University Press, 2005.

Ghatak, Maitreesh and Sanchari Roy, "Land reform and agricultural productivity in India: a review of the evidence," *Oxford Review of Economic Policy*, 2007, *23* (2), 251–269.

Herring, Ronald J., "Abolition of Landlordism in Kerala: A Redistribution of Privilege," *Economic and Political Weekly*, 1980, *15* (26), A59–A69.

_ , *Land to the Tiller: The Political Economy of Agrarian Reform in South Asia*, New Haven: Yale University Press, 1983.