



**Property Rights Reform in Mexico: Impact on Politics,
Migration, and Land Use**

Elisabeth Sadoulet

with Alain de Janvry, Kyle Emerick, Marco Gonzalez-Navarro, and Daley Kutzman

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Motivation

Conventional wisdom

- Sufficiently complete property rights are key for development
- Land reform providing smallholder farmers with access to land and sufficiently complete property rights can be a source of agricultural growth, and poverty reduction.

Yet,

- Most land reform have granted excessively incomplete property rights and obtained uncertain results, constituting the “puzzle of land reform.”

Mexico’s huge recent land reform provides a unique opportunity to observe the outcomes of a substantial strengthening of land rights.

We present here the results of rigorous impact evaluations of this reform.

Outline

1. Mexico's experience with land reform
2. Empirical strategy for impact analysis and data
3. Labor reallocation and migration
4. Land use
5. Political consequences
6. Conclusion

Mexico's experience with land reform

Mexico's first land reform, 1917-1992

Created 32,000 agrarian communities (ejidos and indigenous communities), with ultimately 3.5 million households, and more than half the rural population and territory of Mexico

- There are two types of ejido land uses (excluding housing):
 - Individual agricultural plots held in usufruct
 - Pastures and forests held in common property

Mexico's experience with land reform

- The reform gave very incomplete property rights to beneficiaries as an instrument of political control.

- Individual plots of land in usufruct:

- Requirement of direct cultivation of agricultural land: No rental of land, no hiring of workers.

- Requirement of continuous cultivation: "Use it or lose it."

- Land can only be inherited by one child, limiting incorporation of new members.

- Land in common property:

- No formal sharing of benefits.

- Extensive over-extraction and under-provision of services, frequently converging toward tragedy of the commons

Mexico's experience with land reform

Consequences of first land reform

- The ejido was effective for political control
 - Votes delivered to party bosses
 - Helped the PRI remain in power for 71 years with wins in nine presidential elections until 2000
- But political control was achieved at high efficiency and welfare costs
 - Excess labor in agriculture trapped by insecurity of property rights: a delayed structural transformation
 - Municipalities with more ejidos are lagging more in industrialization (Dell)
 - “Curse of visible clientelism” limited transfer benefits as can punish instead of reward (Larreguy)
 - Extensive poverty in the ejido sector (de Janvry et al.)

Mexico's experience with land reform

Mexico's second land reform, 1993-2006

- In 1992, Salinas attempts at completing the reform toward full property rights in context of upcoming NAFTA, OECD membership.
- Procede: Program of certification of land plots (agriculture) and assignment of corporate shares over Common Property Resources (pastures and forestry)
- Certificates for individual plots:
 - Owners can freely use/not use the land, hire labor, rent out. Can sell certificate to other community members with assembly approval, or obtain full title (Dominio Pleno, DP) for unrestricted sale and use as collateral.
- CPR: decisions (distribution, conversion of use, etc.) is at the ejido level, limited only by forestry law.

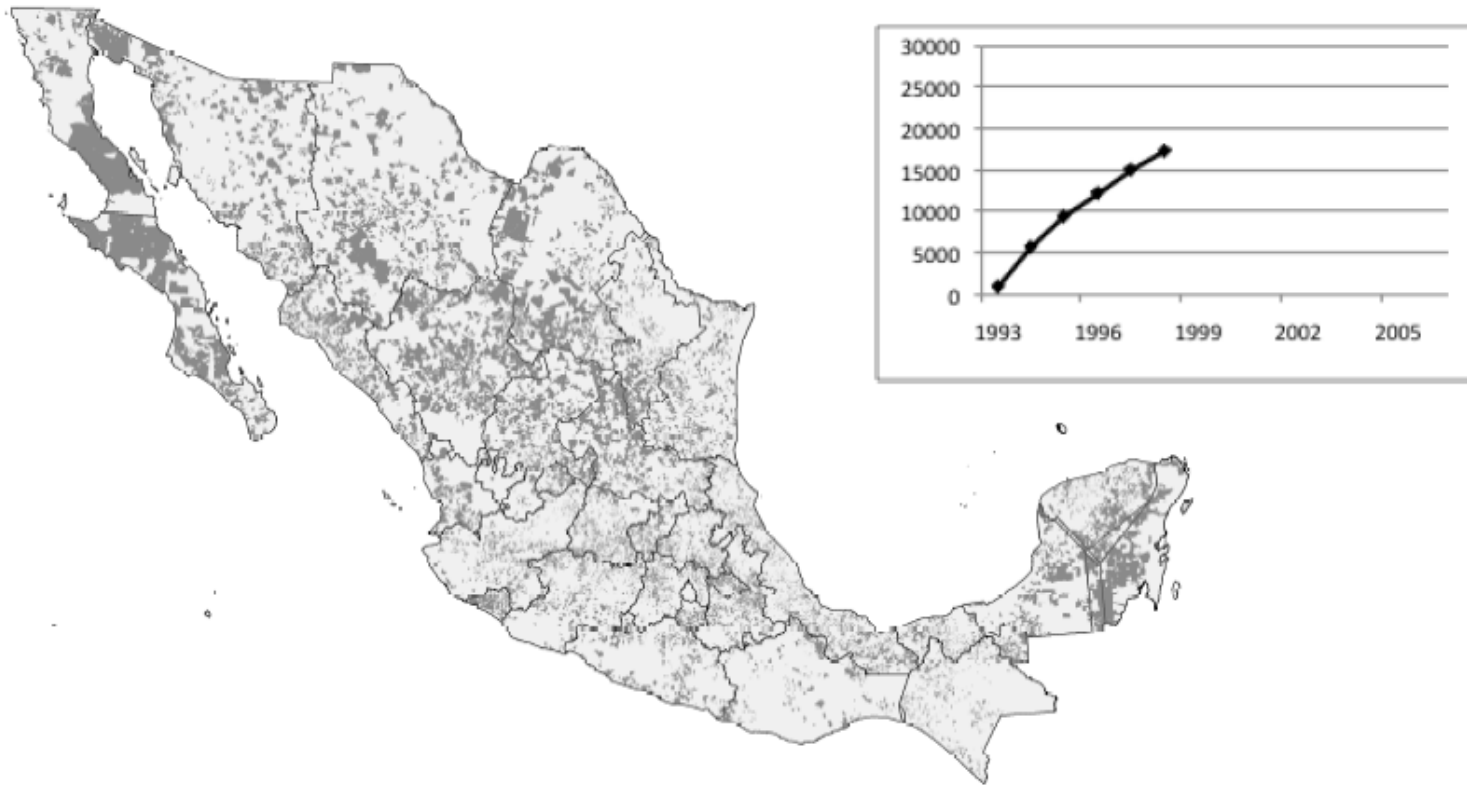
Mexico's experience with land reform

Rollout of Procede, 1993-2006: fast, huge, and orderly



Mexico's experience with land reform

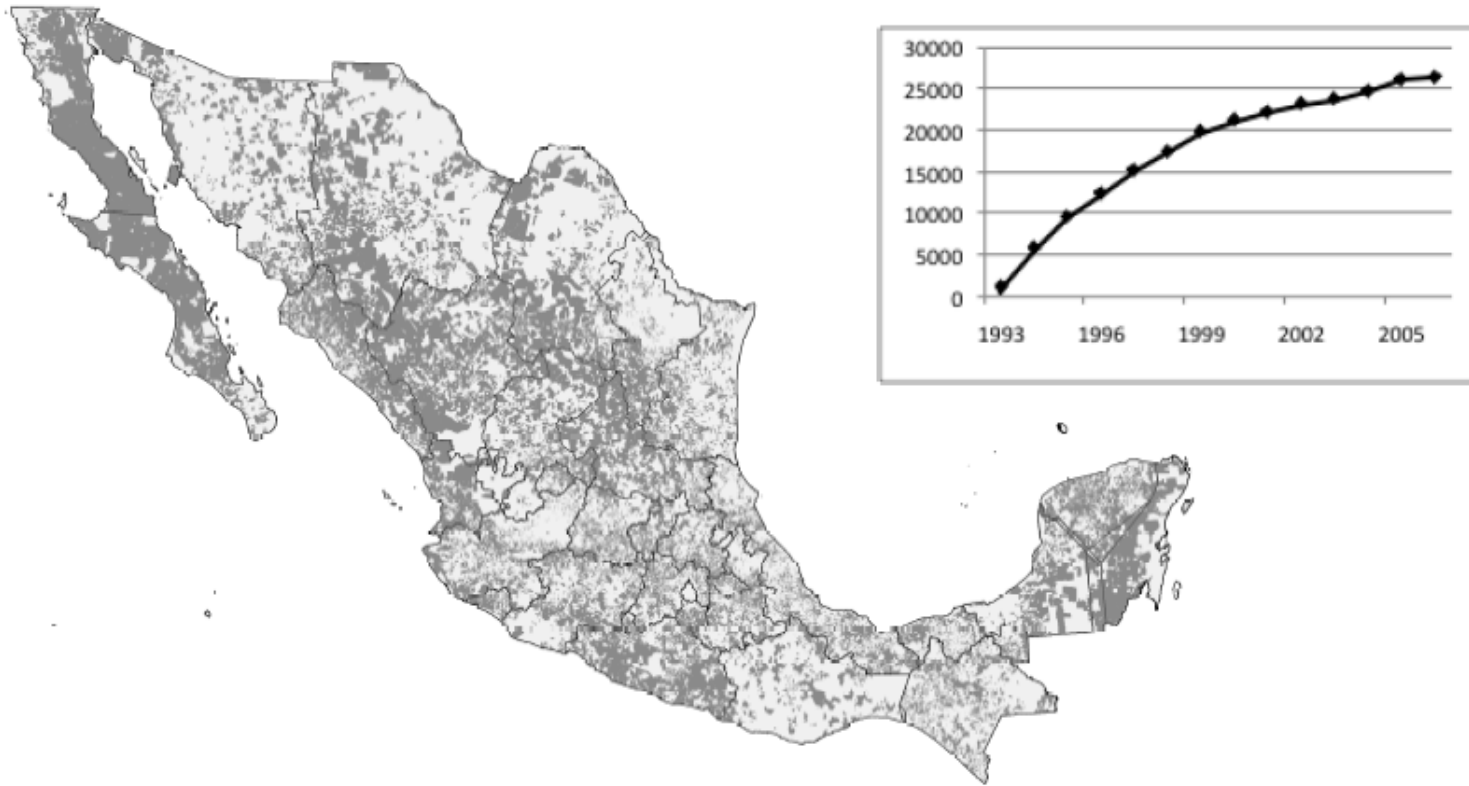
Rollout of Procede, 1993-2006: fast, huge, and orderly



Procede ejido land certifications
(Certified lands shaded on map, number of ejidos in graph)

Mexico's experience with land reform

Rollout of Procede, 1993-2006: fast, huge, and orderly



Procede ejido land certifications
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Empirical strategy for impact analysis and data

Identification strategy

- Rollout across 27,189 ejidos over the period 1993-2006
- Observations are panels of localities for population and electoral sections for electoral results, matched to ejidos, and land use maps overlaid with ejidos for land use
- Validation of approach: parallel trends pre-certification

Data

- Cadaster (RAN) for land certification
- Household migration: Progresa household surveys 1997 to 2000 (7,600 households in 127 ejidos)
- Population at locality level: Population Censuses 1990 and 2000.
- Land use: Landsat data for 1993, 2002, 2007
- Number of cultivators and area cultivated: Procampo
- Electoral results in congressional elections (300 districts) in 1994, 1997, 2000, 2003

Labor reallocation and migration

- **Certification leads to substantial outmigration:**
 - Using the Progresa household-level panel data: 30% increase in probability that an ejido household has a new migrant (over a mean of 5.3 pp)
 - Using the locality-level Population Census data, increase in the decline in locality population by 4% against a background population decline of 21% between 1990 and 2000

(Similar results to Fields (2007) that showed that acquiring property rights over housing reduces the need for defensive labor and increases labor market participation in slums in Lima.)

Labor reallocation and migration

- **Heterogeneity:** Household more likely to have a migration response to certification if:
 - a. **Weaker property rights**
Higher migration response in ejidos with boundary problems
 - b. **Lower land quality, smaller holding**
Higher migration response from municipality with lower land quality
Higher migration in households with less land/adult
 - c. **Better off-farm wage opportunities**
Higher migration response for households with members having higher potential (predicted) wage

Land use

What can we expect to happen with cultivated land?

- Leaving land idle (fallow) now an option – can induce a **decrease** in cultivated land
- Land rental /sales market - possibly **no change** in cultivated area
- Security and functioning land markets - can induce an **increase** in investment/cultivated land

Use LANDSAT data for 1993, 2002, 2007 on agricultural land use with ejido fixed effects

- No change in total cultivated land
- Increase in cultivated land in high agricultural productivity areas
→ Suggests efficiency gains in land use through land selection

Using Procampo and Progres data

- Some consolidation of land in larger farms
- Households with more/better land migrate less
→ Also suggests efficiency gains through farmer selection

Land use

Current work:

Reconstruct the land use annually from LANDSAT images, since mid 1980s (using machine learning techniques for interpreting them), and compare the evolution in ejido land and non-ejido land.

Very preliminary results suggest a convergence in ejido land use toward private sector land use on land with comparable agro-ecological and economic suitability.

If confirmed, this would be evidence of distortions in land use induced by the incomplete property rights.

→ Suggests efficiency gains in land use through land reallocation.

Political consequences: Electoral results

PRI (Salinas 1988-94) initiated the reforms.

Who benefited politically?

Election results for Federal Legislators every 3 years:
(1991) -- 1994, 1997, 2000, 2003 -- (2006 – 2009)

Match electoral sections to localities and to ejidos.

19,088 electoral sections, with information on 19,416 ejidos.

We analyze the relation between:

- Share of adult population in electoral section associated with a titled ejido
- and electoral outcome for section over time.

Political consequences: Electoral results

- There is a trending increase in vote share for the right (PAN)
- Ejidos just certified have 1.2–2.9 percentage points more votes in favor of the right (PAN). This is on average a 7% increase. (Investor class theory)

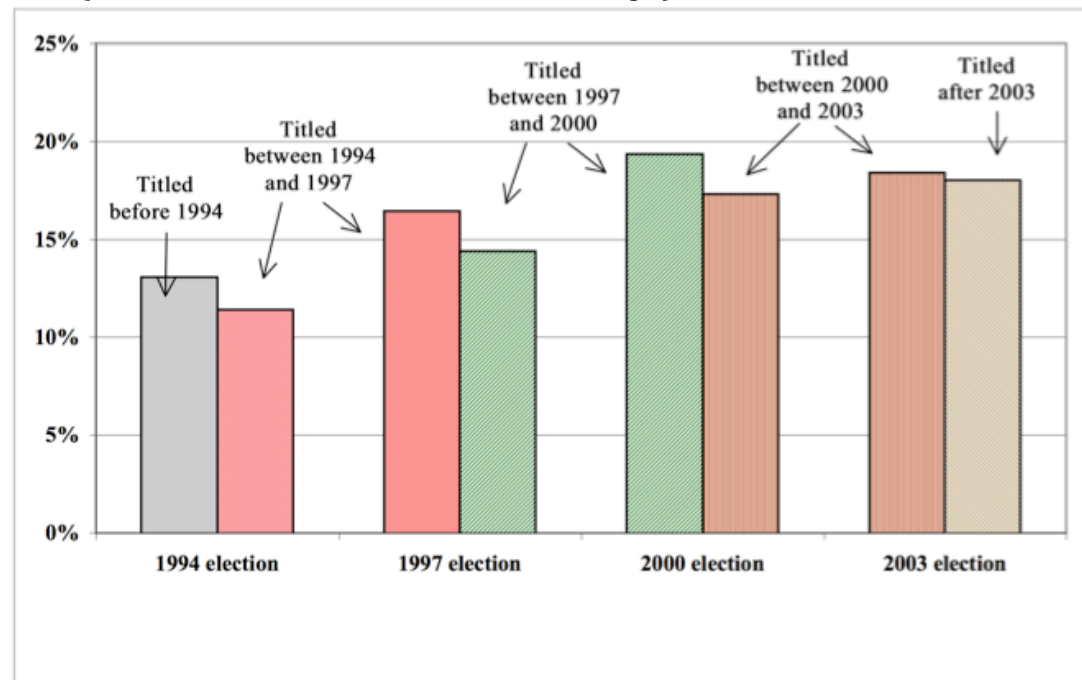


Figure 1. Vote shares in support of the pro-market political party (PAN) in four Mexican congressional elections in electoral sections with ejidos titled three years before/after the election

Political consequences: Electoral results

- Stronger electoral shift where land more valuable and more market-oriented (Vested interests theory)
 - Higher land quality (measured by average corn yield 2002-2008)
 - Closer to city with market opportunity (distance to city of at least 25,000 inhabitants)
- No necessary clientelistic reward to the PRI as one-time irreversible wealth transfers (vs. recurrent transfers) (Distributive politics theory)

Conclude: Difficult for the autocratic regime (that was able to expropriate, and imposed incomplete property rights for political control) to subsequently complete the reform as it could not capture the political gain

Political consequences: Electoral results

Discussion: why did political gains for the PRI not happen (Gordillo)?

- Salinas intended to reform the ejido's property rights regime with Procede at the same time as transforming the PRI into a modern pro-market party
- Procede went ahead but the PRI reform failed due to victory of the PRI's old guard at the 1991 congressional mid-term elections that opposed the reforms.

Thus, of the two reforms--Procede and PRI--, only the first went ahead, contributing to the political defeat of the PRI in 2000 after 71 years in power

Conclusion

The reform from use-based to rights-based property rights in Mexico has induced:

- Large out-migration of labor and population
- Concentration of agriculture on the better lands
- Concentration of production in the larger farms

→ Delinking land use from land rights can create **efficiency** gains in agriculture through labor and land reallocation effects.

- This was also a large transfer of wealth to poor households

→ Hence likely also with **equity** gains

Conclusion

But land reform giving property rights can be risky:

- The reform can be **politically costly** for the ruling party.

→ Suggests that assigning property rights to smallholders needs be accompanied by political change to accommodate beneficiary demands for more liberal/pro-market policies

- Also, the reform can create **unemployment** as it releases large amounts of labor from agriculture.

→ Achieving efficiency and welfare gains requires having employment opportunities in modernizing agriculture (Ag Transformation), in the rural non-farm economy (Rural Transformation), or in the urban context (Structural Transformation).

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