

# Slums

## Urban Economics

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# Introduction to Urban Slums

- ▶ Recent research has shown that the neighborhood where people live has important implications for short-run, long-run and even intergenerational outcomes.

# Introduction to Urban Slums

- ▶ Recent research has shown that the neighborhood where people live has important implications for short-run, long-run and even intergenerational outcomes.
- ▶ Urban populations now exceed 50% of the global population.
- ▶ Slums are informal settlements with:
  - ▶ Inadequate living space and public services.
  - ▶ Poor-quality housing.
  - ▶ Insecure tenure for residents.
- ▶ Over 860 million people lived in slums (UN-Habitat, 2012a).
- ▶ In Sub-Saharan Africa, slum populations grow by 4.5% annually.

# Public Services

## Sin Acueducto

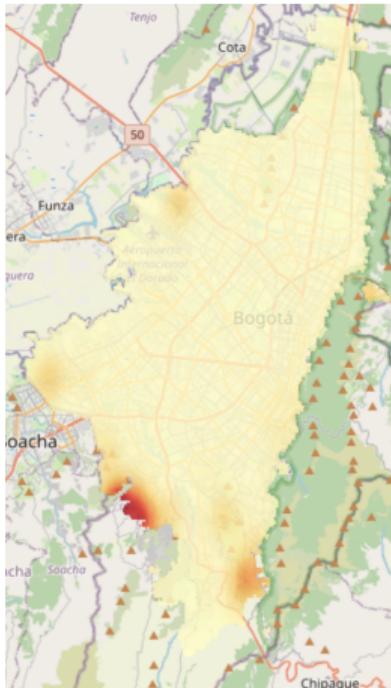


Figure 1: Bogotá

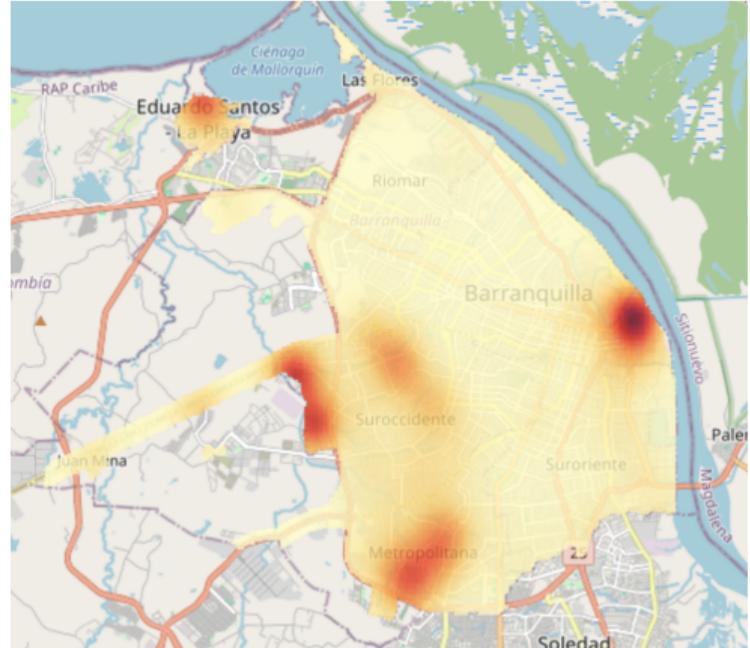


Figure 2: Barranquilla

# The Modernization View of Slums

- ▶ Slums are seen as transitory, part of economic modernization.
- ▶ Rural migrants move to slums before transitioning to formal housing.
- ▶ Economic growth is expected to improve living standards over time.

# Historical Perspective on Slums

- ▶ Slums have been a feature of cities since the Industrial Revolution.
- ▶ Examples:
  - ▶ Whitechapel in East London during the 18th–19th centuries.
  - ▶ Hell's Kitchen in New York City during the 19th century.
- ▶ Often located near economic opportunities such as factories, docks, or railroads.
- ▶ Policy responses ranged from urban renewal (e.g., Haussmann's Paris) to public housing schemes (e.g., Singapore in the 1960s).

# Modern Slums in the Developing World

- ▶ Large slum settlements have disappeared in advanced economies but persist in developing countries.
- ▶ Slum prevalence is highest in Sub-Saharan Africa:
  - ▶ ~62% of urban population live in slums (UN-Habitat, 2012).
  - ▶ Sierra Leone, Sudan, and the Central African Republic have the highest slum populations.
- ▶ But also a staple in Latin American Cities.
  - ▶ ~23% of urban population (CAF, 2022)
  - ▶ Haití, Jamaica, Bolivia, Belice y Nicaragua have the highest slum populations (UN-Habitat, 2015).
- ▶ Slum expansion often reflects "urbanization without growth."

# Largest Slums by Population

## Two Lists of the Developing World's Largest Slums

UN-Habitat (2003)			Davis (2006)		
Name of slum	City, Country	Population estimate	Name of slum	City, Country	Population estimate
Dharavi	Mumbai, India	Over 500,000	Neza/Chalco/Izta	Mexico City, Mexico	4 million
Orangi	Karachi, Pakistan	Over 500,000	Liberatador	Caracas, Venezuela	2.2 million
Kibera	Nairobi, Kenya	400,000	El Sur/Ciudad Bolivar	Bogota, Columbia	2.0 million
Villa el Salvador	Lima, Peru	300,000	San Juan de Lurigancho	Lima, Peru	1.5 million
Ashaiman	Tema, Ghana	150,000	Cono Sur	Lima, Peru	1.5 million
			Ajegunle	Lagos, Nigeria	1.5 million
			Sadr City	Baghdad, Iraq	1.5 million
			Soweto	Gauteng, South Africa	1.5 million
			Gaza	Palestine	1.3 million
			Orangi	Karachi, Pakistan	1.2 million

# Key Characteristics of Slums

- ▶ Lack of consistent terminology for slums (e.g., "slums" vs. "squatter settlements").
- ▶ Common attributes:
  - ▶ Poor access to improved water and sanitation.
  - ▶ Insufficient living area
  - ▶ Insecure tenure.
- ▶ Wide variation in slum sizes and population estimates across regions.

# Key Characteristics of Slums

UN-Habitat Definition

- ▶ The agreed definition classified a 'slum household' as one in which the inhabitants suffer **one or more** of the following 'household deprivations':
  - 1 Lack of access to improved water source,
  - 2 Lack of access to improved sanitation facilities,
  - 3 Lack of sufficient living area,
  - 4 Lack of housing durability and,
  - 5 Lack of security of tenure.

# Slums as Poverty Traps

- ▶ Slums are not temporary stops to better opportunities but may be poverty traps.
- ▶ Much of the literature has focused on spatial poverty traps, it primarily examines rural settings (e.g., Jalan and Ravallion, 2002; Golgher, 2012).
- ▶ Urban slums pose a distinct challenge to communities and governments.
- ▶ The very nature of life in slums complicates efforts to achieve meaningful improvements in living standards through marginal investments in housing, health, or infrastructure alone.

# Evidence of Poverty Traps in Slums

- ▶ Slums show features of spatial poverty traps:
  - ▶ Poor living conditions perpetuate low economic mobility.
  - ▶ Acute governance issues limit coordinated investments.
- ▶ Few studies document intergenerational social mobility among slum dwellers.

# Slums as Poverty Traps

- ▶ Slums are not temporary stops to better opportunities but may be poverty traps.
- ▶ Characteristics of poverty traps in slums:
  - ▶ Low human capital.
  - ▶ Investment inertia.
  - ▶ Policy failures and governance gaps.
- ▶ Marginal investments in housing, health, or infrastructure often fail to improve conditions.

# Human Capital in Slums

- ▶ Common issues across slums:
  - ▶ Overcrowding and insufficient living space.
  - ▶ Poor public goods provision and basic amenities.
- ▶ Health and education challenges hinder human capital accumulation.

# Human Capital in Slums

## Public Goods and Basic Amenities across Slums

	<i>No private latrine</i>	<i>Inferior latrine type</i>	<i>No private water source</i>	<i>No garbage collection</i>
Tongi (Dhaka)	70%	34%	81%	64%
Hyderabad	46%	43%	61%	NA
Kibera	NA	63%	92%	73%
Kolkata	75%	46%	57%	NA
Mumbai	78%	8%	12%	NA
All Indian slums NFSH-3	68%	49%	25%	NA

# Human Capital in Slums

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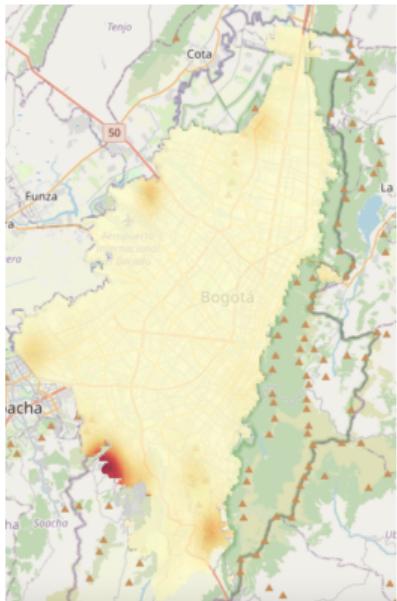


Figure 3: Bogotá

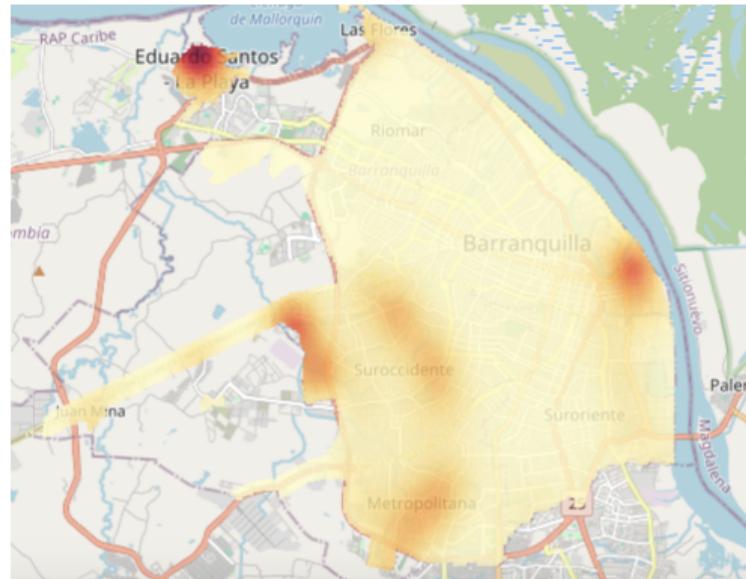


Figure 4: Barranquilla

# Sanitation and Health in Slums

- ▶ Lack of water and sanitation exacerbates health issues.
- ▶ Examples:
  - ▶ 83% of toilet sites in Delhi slums are contaminated with waste (Banerjee et al., 2011).
  - ▶ In Bangladesh slums, 82% of households reported illness in the past month.
- ▶ Poor health and malnutrition are widespread, limiting productivity and mobility.
- ▶ Human capital deficiencies perpetuate the poverty trap.

# Health and Living Conditions in Slums

- ▶ Poor health outcomes due to overcrowding and lack of basic amenities:
  - ▶ Inadequate water and sanitation access.
  - ▶ Chronic exposure to unsanitary environments.
- ▶ Examples:
  - ▶ In Kibera (Kenya), 16% of households reported chronic illness within 3 months.
  - ▶ Slums in Sierra Leone show higher child malnutrition rates than rural areas.
- ▶ Adverse health impacts reduce life expectancy and productivity.

# Human Capital in Slums

## Deficit Cuantitativo

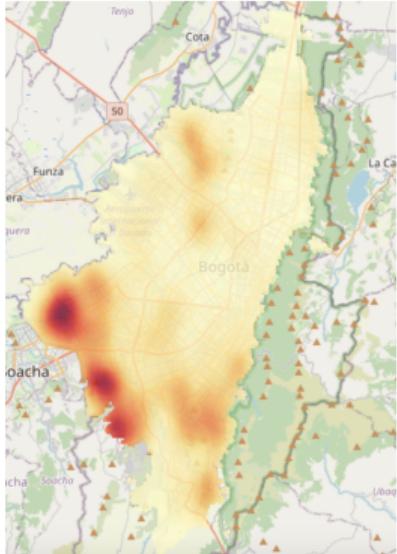


Figure 5: Bogotá

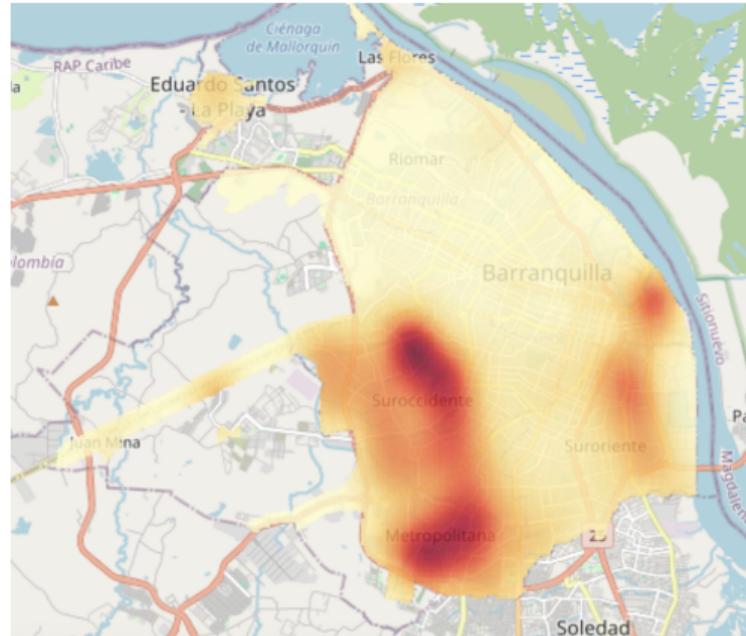


Figure 6: Barranquilla

# Education and Human Capital in Slums

- ▶ Universal primary education laws reduce rural-urban gaps in access.
- ▶ Challenges remain:
  - ▶ Quality of education varies significantly.
  - ▶ Difficulties in measuring disparities across regions.
- ▶ Limited opportunities for skill development reinforce the poverty trap.

# Consequences for Social Mobility

- ▶ Poor health and education hinder human capital accumulation.
- ▶ Lack of investment in human capital perpetuates poverty across generations.
- ▶ Evidence:
  - ▶ Health challenges impede workforce participation.
  - ▶ Families face barriers to escaping low-skill, low-income equilibria.
- ▶ Conclusion: Slums may represent critical thresholds that lock residents into poverty.

# Overview of Investment Inertia

- ▶ Slums exhibit low levels of public and private investment.
- ▶ Barriers to investment:
  - ▶ Dysfunctional institutions.
  - ▶ Lack of property rights.
  - ▶ High marginal costs for basic improvements.
- ▶ Result: Persistent underdevelopment and poor living conditions.

# Property Rights and Investment

- ▶ Informality of property rights limits incentives for improvement.
- ▶ Issues:
  - ▶ Slum dwellers often lack formal land titles.
  - ▶ Land ownership is often contested or illiquid.
- ▶ Evidence:
  - ▶ Only 19% of slum owners in Dakar and 34% in Nairobi found transactions easy (Gulyani et al., 2012).
  - ▶ Formal titling can encourage investments (e.g., Field, 2005, Galiani, 2010).

# Property Rights

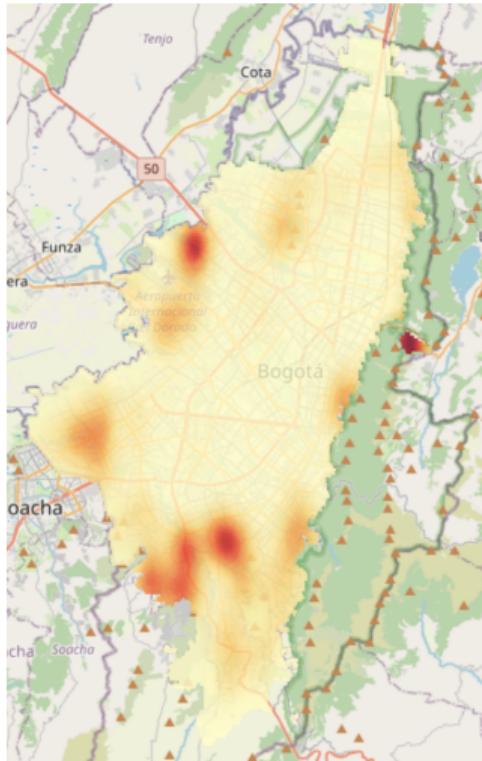


Figure 7: Bogotá

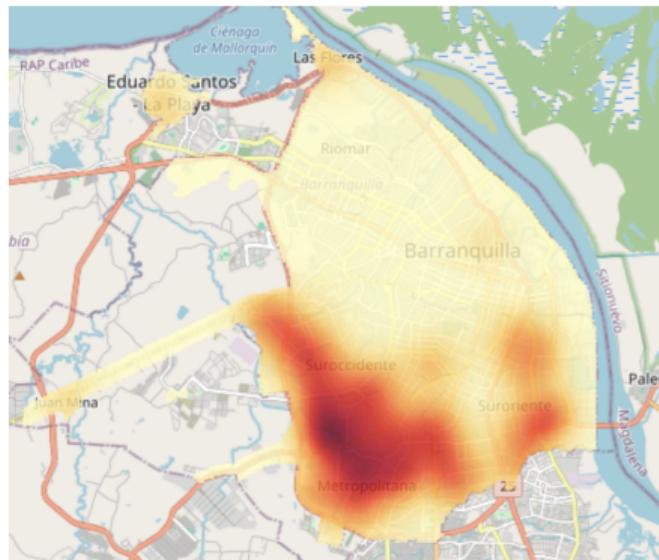


Figure 8: Barranquilla

# Property rights for the poor: Effects of land titling. Galiani & Schargrodsky, 2010 (JPubE)

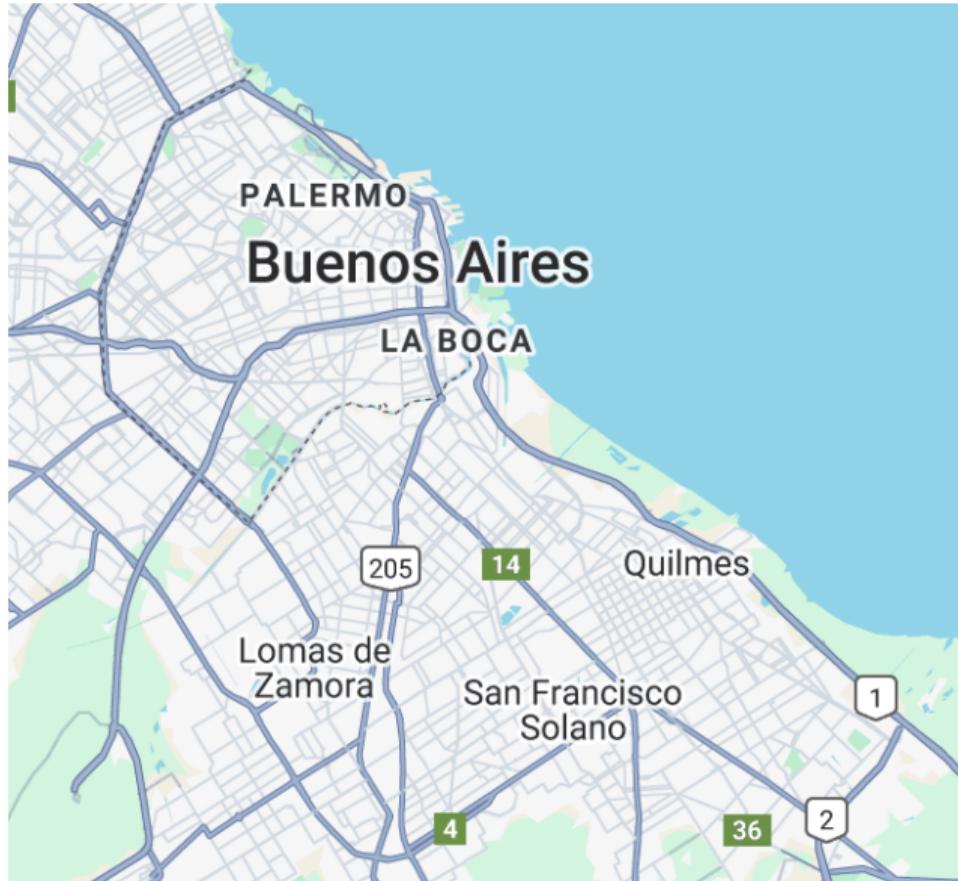
## Natural Experiment: Overview

- ▶ Evaluation of land titling effects faces methodological challenges.
- ▶ Allocation of property rights is typically non-random:
  - ▶ Based on wealth, effort, or prior investments.
- ▶ Correlation between characteristics and outcomes creates selection bias.
- ▶ Natural experiments offer a method to overcome selection problems.
- ▶ Buenos Aires case: exogenous allocation of property rights among squatters.

# The Case Study

- ▶ 1981: 1,800 families occupied wasteland in San Francisco Solano, Buenos Aires.
- ▶ Families partitioned land into small, urban-shaped parcels.
- ▶ Land was privately owned; squatters resisted evictions during military rule.
- ▶ 1984: Expropriation Law No. 10.239 passed:
  - ▶ Transfer land to squatters.
  - ▶ Compensation for landowners.

# The Case Study



# Expropriation Process

- ▶ Requirements for squatters to receive titles:
  - ▶ Arrived at least one year before the law.
  - ▶ No other property ownership.
  - ▶ Use the parcel as a family home.
- ▶ Land transfer involved compensation offers:
  - ▶ Some owners accepted compensation.
  - ▶ Others initiated legal disputes for higher amounts.
- ▶ Result: Exogenous division of titled and untitled squatters.

# Overview of Data Collection

- ▶ Study area: 1839 parcels covered by Expropriation Law No. 10.239.
- ▶ Focus: 1082 contiguous parcels for comparability.
- ▶ Two main surveys conducted:
  - ▶ Socioeconomic survey (2003).
  - ▶ Education survey (2007).
- ▶ Collaboration with NGO for implementation.

## 2003 Survey Details

- ▶ Random selection of 590 parcels (from 1839 total).
- ▶ Surveyed 617 households from these parcels.
- ▶ Excluded non-contiguous San Martín neighborhood.
- ▶ Data collected:
  - ▶ Household structure.
  - ▶ Labor market outcomes.
  - ▶ Access to credit.
- ▶ Architecture team assessed housing conditions.

# 2007 Education Survey

- ▶ Target group:
  - ▶ 245 households with children aged 0–16 in 2003.
  - ▶ Children aged 4–20 by 2007.
- ▶ Focus:
  - ▶ School achievement and progression through education system.
- ▶ 217 households successfully re-interviewed.
- ▶ Total sample: 633 children across 217 households.

# The Case Study

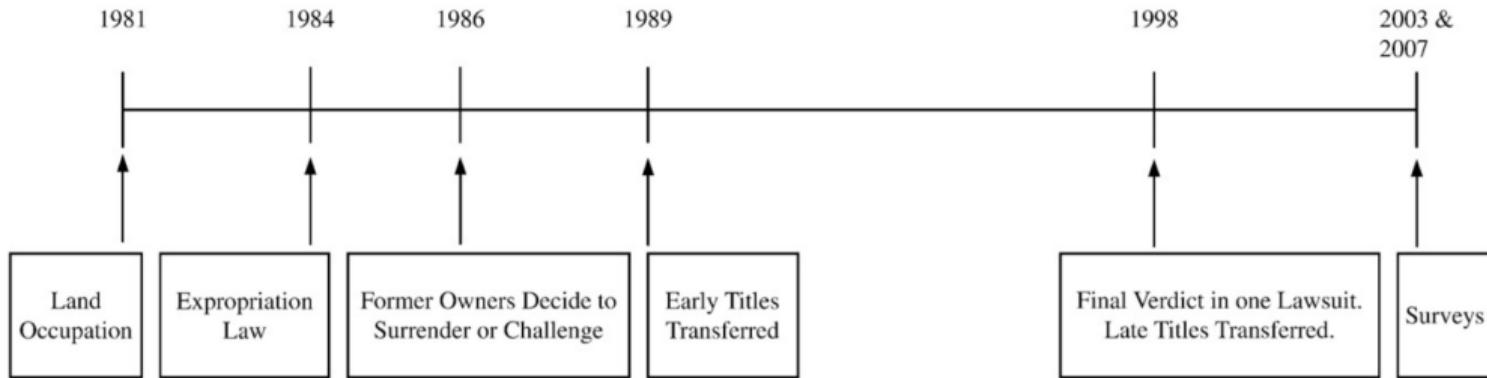


Fig. 1. Timeline of events.

# Regression Framework

- The causal effect is estimated using the following regression model:

$$Y_i = \alpha + \gamma \text{PropertyRight}_i + \beta X_i + \epsilon_i$$

- $Y_i$ : Outcome variable (e.g., housing investment, education).
- $\text{PropertyRight}_i$ : Dummy variable (1 if property titled, 0 otherwise).
- $X_i$ : Vector of pre-treatment characteristics.
- $\epsilon_i$ : Error term.
- $\gamma$ : Parameter of interest (causal effect of property rights).

# Ensuring Exogeneity

**Table 1**

Pre-treatment characteristics.

	Property right offer = 0	Property right offer = 1	Difference
<i>A. Characteristics of the parcel</i>			
Distance to creek (in blocks)	1.995 (0.061)	1.906 (0.034)	0.088 (0.070)
Distance to non-squatted area (in blocks)	1.731 (0.058)	1.767 (0.033)	-0.036 (0.067)
Parcel size (in squared meters)	287.219 (4.855)	277.662 (2.799)	9.556* (5.605)
Block Corner = 1	0.190 (0.019)	0.156 (0.014)	0.033 (0.023)
<i>B. Characteristics of the original squatter</i>			
Age	48.875 (0.938)	50.406 (0.761)	-1.532 (1.208)
Female = 1	0.407 (0.046)	0.353 (0.035)	0.054 (0.058)
Argentine = 1	0.903 (0.028)	0.904 (0.022)	-0.001 (0.035)
Years of education	6.071 (0.188)	5.995 (0.141)	0.076 (0.235)
Argentine father = 1	0.795 (0.038)	0.866 (0.025)	-0.072 (0.046)
Years of education of the father	4.655 (0.147)	4.417 (0.076)	0.237 (0.165)
Argentine mother = 1	0.804 (0.038)	0.856 (0.026)	-0.052 (0.046)
Years of education of the mother	4.509 (0.122)	4.548 (0.085)	-0.039 (0.149)

Notes: standard errors are in parentheses. \* Significant at 10%.

# Results

**Table 3**  
Housing investment.

	Good walls	Good roof	Constructed surface	Concrete sidewalk	Overall housing appearance
	(1)	(2)	(3)	(4)	(5)
Property right	0.20*** (3.47)	0.15** (2.49)	8.27** (2.34)	0.11** (2.18)	8.42*** (3.65)
Control group mean	0.50	0.32	67.63	0.67	22.71
%Δ	40.00%	46.87%	12.23%	16.42%	37.08%

# Results

**Table 5**

Household size.

	Number of household members	Household head spouse	Offspring of the HH ( $\geq 14$ years old)	Other relatives (no spouse or offspring of HH)
	(1)	(2)	(3)	(4)
Property right	−0.95*** (2.81)	−0.01 (0.27)	−0.01 (0.06)	−0.68*** (3.53)
Control group mean	6.06	0.74	1.69	1.25
%Δ property right	−15.68%	−1.35%	−0.59%	−54.40%
	Offspring of the HH (5–13 years old)		Offspring of the HH (0–4 years old)	
	(5)	(6)	(7)	(8)
Property right	−0.17 (1.18)		−0.07 (1.03)	
Property right 1989		−0.38* (1.88)		−0.08 (0.81)
Property right 1998		−0.06 (0.37)		−0.07 (0.86)
Control group mean	1.06	1.06	0.33	0.33
%Δ property right	−16.04%		−21.21%	
%Δ property right 1989		−35.85%		−24.24%
%Δ property right 1998		−5.66%		−21.21%

# Results

Education. Offspring of the household head.

	School achievement (6–20 years old)		Primary school completion (13–20 years old)	
	(1)	(2)	(3)	(4)
Property right	0.22 (1.15)		0.02 (0.45)	
Property right 1989		0.69** (2.29)		0.01 (0.12)
Property right 1998		0.03 (0.13)		0.02 (0.49)
Control group mean	−1.95	−1.95	0.82	0.82
Secondary school completion (18–20 years old)		Post-secondary education (18–20 years old)		
	(5)	(6)	(7)	(8)
Property right	0.06 (0.72)		0.11* (1.91)	
Property right 1989		0.27* (1.93)		0.20** (2.23)
Property right 1998		−0.01 (0.12)		0.07 (1.18)
Control group mean	0.26	0.26	0.05	0.05

# Results

Access to credit.

	Credit card and bank account (1)	Non-mortgage loan received (2)	Informal credit (3)	Grocery store credit (4)
Property right	−0.01 (0.71)	0.01 (0.19)	−0.06 (1.00)	0.01 (0.16)
Control group mean	0.05	0.09	0.41	0.27
Mortgage loan received				
	(5)		(6)	
Property right	0.02 (1.58)			
Property right 1989			0.04*** (3.19)	
Property right 1998			0.00 (0.06)	
Control group mean	0.00		0.00	

# Results

**Table 8**

Labor market.

	Household head income (1)	Total household income (2)	Total household income per capita (3)	Total household income per adult (4)	Employed household head (5)
Property right	-27.35 (1.10)	-43.56 (1.27)	1.04 (0.13)	-4.45 (0.38)	0.03 (0.63)
Control group mean	272.54	374.59	73.72	118.73	0.73

# Summary of Findings

- ▶ Land titling has significant impacts on household outcomes:
  - ▶ Increased housing investment.
  - ▶ Improved living conditions.
  - ▶ Positive effects on education.
- ▶ Titled households are better able to access credit markets.