Entitled to work: urban property rights and labor supply in Peru

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Introduction

- 1996-2003 Peru-wide program to grant property rights to urban squatters

Why demonstrate the labor market effect of entitling?
- Property rights as an institutional factor of growth
- Exploring microeconomic foundations for this
  - Opportunity cost of employment
  - Time cost of own property protection
- Original contribution of addressing urban property rights
- … and never miss out on a chance at a natural experiment
A natural experiment: opportunities…

- Rare possibility of overcoming the endogeneity of land rights
  - All household in targeted areas: no selection… as long as there is no bias in timing
  - Free program
  - Equivalent to a phase-in design -> diff in diff (cf infra)

- Low cost

- Avoid some experimental bias
  - Hawthorne effect type manipulation
...and risks

- Not randomized!

- Data collection issues
  - No supervision by the researcher
    - No details on collection and collectors in the article
  - Mismeasurement, attrition

- Analysis bias
  - Omitted variables: risk of not detecting an effect because relevant variables were not collected

- External validity
  - Natural conditions are not necessarily replicable
The model

- **Agricultural household model**
  - Time allocation between work at home, work outside and leisure
  - Household utility

- **Household utility**
  - How are individual utilities aggregated?
  - Comparative advantage of larger households
  - Adult-child labor allocation
    - Assuming comparative advantage of adults in security (and work)
    - Schooling effect?
The model (continued)

- Tenure security factors: informal property rights
  - Measured in years of community membership
  - Decrease gain to formal property rights

- Fixed wage model
  - Intuition of equilibrium wage effect
  - More widely, general equilibrium effect on the labor market
  - Downward bias to Field’s estimate
Identification strategy

- Use variation in implementation of the program
  - Survey realized in 2000, halfway through the titling program: 980 “treated”, 1770 “untreated” (yet).
  - Comparing groups that were both selected for treatment: no program placement bias
  - But possible issue = program timing bias, equivalent to selection on unobservables

- Any systematic difference in outcomes of interest between early and late regions could cause a major bias, hence the need to reject timing bias:
  - Only guideline from the WB = choose according to ease of entry
  - No apparent path determined according to factors others than geographic continuity inside cities
  - Early and late neighbourhoods are evenly distributed across districts
  - Summary statistics: differences small and non-significant for socioeconomic and political leaning indicators (census data); confirmed by LSMS dataset.
  - Program timing bias seems improbable, but cannot reject it for sure: use Diff-in-diff.

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Identification strategy (continued)

- **Difference-in-difference estimation:**
  - Allows to control for some selection on unobservables when the differences in labour supply between squatters (S) and non-squatters (NS) are constant across treated (t) and control (u) areas before the treatment.
  
  -> Check through diff-in-diff on summary statistics: no significant difference in independent variables between squatters and non-squatters in program and non-program areas
  -> Add controls, to reduce the risk of omitted variable bias
  -> Use two variables strongly correlated with poverty, but in opposite directions (HH size and level of informal property rights), and observe their interaction with titling. Because titling effects should decrease in both, eliminate the possibility that there would be some unobservable selection correlated with poverty.

- **Potential issue:** Anticipatory responses to the promise of titling among squatters of control group.
  -> But little trust in the government at the time
  -> Performs same regression than for the main analysis but for future beneficiaries, and finds no significant anticipatory effect of program on labour supply
Identification strategy (continued)

- Illustration of strategy:

![Graph showing labor supply and treatment effect](image)

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Estimation and results

- **1st stage: Effect of titling on security**
  - 98% of HH report an improvement in tenure security after titling.

- **Main regression model: effect of titling on labour supply**
  \[
  L_{ijk} = \beta_0 + \beta_1(N_{ijk}) + \beta_2(N_{ijk})_i + \beta_3(squatter_{ijk}) + \beta_4(program_{jk}) + \beta_5(program_{jk} \cdot squatter_{ijk}) + \Pi X_{ijk} - \Omega' Z_{ik} + \phi(C_k) - \gamma(C_k \cdot squatter_{ijk}) + \phi(C_k \cdot program_{jk}) - e_{ijk},
  \]
  - Dependent variable = total worked hours/HH/week
  - Parameter of interest: $\beta_1$
  - X demographic controls; Z neighbourhood controls; city fixed-effects; interactions between cities, program status and tenure status
  - => overcontrolling? Apparently not...
  - Will later on include interactions between program, squatter, number of years since program entry, size of household, and number of years of tenure (proxy for informal rights), to try and identify the different effects of titling.
  - Panel data analysis uses the same type of equation, but plugging differences in stead of levels as dependent and independent variables.
Estimation and results: effect of titling on...

- **Labour supply:**
  - Main result: + 13.5 worked hours/week/HH for median HH
  - Interact with time in the program: + 12.2 worked h/week/HH for median HH with 2 years in the program
  - Interact with length of tenure and number of HH members: More constrained HH (fewer informal rights, fewer working members) increase more their worked hours following titling.
  - IV estimates, assuming (1) that program effect is concentrated on HH who received a title, or (2) on HH that received a title + reported an improvement in security: Higher bound of treatment effect: + 23.3 hours/week/HH
  - Panel estimates confirm the results and validity of identification strategy

- **Work from home**
  - Probability of working from home reduced by 11pp after titling.

- **Allocation of labour among household members**
  - Male hours account for 11.4 of the total effect of 13.8 additional hours
  - Reduction in child labour in families with few working members, but not very satisfactory results

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Seems to confirm predictions of the model:
- Greater formal security
- Greater labour supply
- Lower probability of working from home
- Reduced child labor

But alternative channels might participate in program impact on labour supply:
- Increased credit access
- Fertility decreases
- Increases in investment in residential infrastructure (hard to rule out)
Conclusions

- Great opportunity of the natural experiment,
- Does not rely on a very complicated model, yet studying households and not individuals brings about sophisticated labour market predictions.
- Thoroughly designed and justified identification strategy,
- Allows for these predictions to be estimated: they are mostly verified, and the estimated impact of treatment on labour supply is of great magnitude (approx. 1 extra day of work per HH/week)
- Policy implications can be important, notably due to the very favourable cost/efficiency ratio of this program (cheap + one-shot program that nevertheless lasts in time)
- BUT: general equilibrium effects, alternative channels through which titling programs might have an impact, and external validity remain issues of this study, that should be investigated before any scale-up takes place.