Housing Investments and Well-being in Slums: Observational Evidence from Colombia

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What the paper does?

- Even in consolidated slums with access to basic services, interior housing quality varies widely.
- The paper addresses an underexplored dimension: how the physical and psychosocial quality of slum interiors relates to household well-being.
- Contribution:
  - Novel data collection in 1,000+ informal dwellings in Medellín, Cali, and Barranquilla:
    - Engineering-based assessments of interior deficits
    - AI-based (LLM/GPT-4) quality ratings from interior/exterior photos
    - Detailed household survey on health, well-being, violence, and surroundings
    - Moves the focus from infrastructure access to everyday experience and psychosocial dimensions of housing
- Key findings:
  - Objective quality predicts rent and housing satisfaction, but not general well-being
  - Subjective housing satisfaction is strongly correlated with health and family outcomes
  - Perceived neighborhood insecurity is a powerful and consistent predictor of distress

Some initial thoughts

- Is investment a signal of aspirations or status? What matters more: aesthetics or functionality?
- Policy implications: Should housing programs prioritize satisfaction over square meters?
- Scalability of the AI+image approach: Could slum residents self-report housing quality via photos?

What is the AI really measuring?

- GPT-4 is used to rate housing quality from interior and exterior photos.
- But what counts as ”quality”? AI is trained on online images, often from middle-class or Global North settings.
- Risk: the model may reward what looks modern, not what is functionally adequate in slums.
- Example: tiled floors may get higher scores than well-maintained cement ones.
- These biases could distort future decisions if used for targeting or funding.

Scalability vs. ethics

- Using AI for large-scale housing diagnostics is promising.
- But uploading data to commercial LLMs (like OpenAI) raises some concerns:
  - Where are images stored? Who has access?
  - Are they deleted? Could they train future models?
- Ethical deployment requires:
  - Clear data governance and local control
  - Transparency with communities
  - Alternatives to centralized, foreign AI pipelines