

# EDI Research Link Up Research Presentation



Center for Effective Global Action

Bringing property owners into the tax net: avenues  
of fiscal capacity (*Senegal*)  
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ECONOMIC  
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## Problem Statement/Motivation

- Tax revenues are (too) low in developing countries
- Property taxes have many virtues (in theory) and great potential
- In Senegal municipalities face increasing responsibilities and must raise revenues locally (Second Decentralization Act, 2013)
- Yet, property tax system is malfunctioning:
  - Too few properties in the tax net. Coverage of tax register: 35% of all plots. Admin and Cadastral data.
  - Lack of institutional memory. 19% of known taxpayers paid in current year. Pilot survey.
  - Challenges in valuation procedure
- ➔ This project: Intensive property tax fiscal census using a new application



## Research Question/Hypotheses

- Does the new property tax management system - including technological upgrades - help improve tax assessment and collection? Through which channels?
- Does a rule-based system to assess tax liability perform better than a system in which tax officials have more discretion?
- Does an increase in property tax pressure have effects on local governance dynamics - on citizen demand for public goods and better accountability?



## Research Design / Methods

### 1. An intensive property tax fiscal census in region of Dakar

Property tax surveyors will be sent in the field to comprehensively survey targeted cadastral sections

### 2. A new application (Android and Desktop) allowing automatic synchronization of field data into a centralized system

### 3. Integration of modernized cadastral and address information (GIS)

### 4. Rule-based valuation method

The tax official only enters objective characteristics of the property

A formula then estimates rental value based on these characteristics + location + property area

The formula is calibrated to mimic market rental values (Points Based Valuation)

>> Linkages: African Property Tax Initiative (APTI, ICTD)



## 200 Eligible Cadastral Sections

100 Sections in Treatment  
- Field visits with exhaustive census of tax payers  
- New interface and tablets

**T1: Discretion**  
Current valuation method

**T2: Rule**  
Formula based valuation

Tax notices edited from the new system

Tax notices edited from the new system

100 Sections in Control  
- No field visits  
- Interface and tablets not working  
- No new valuations

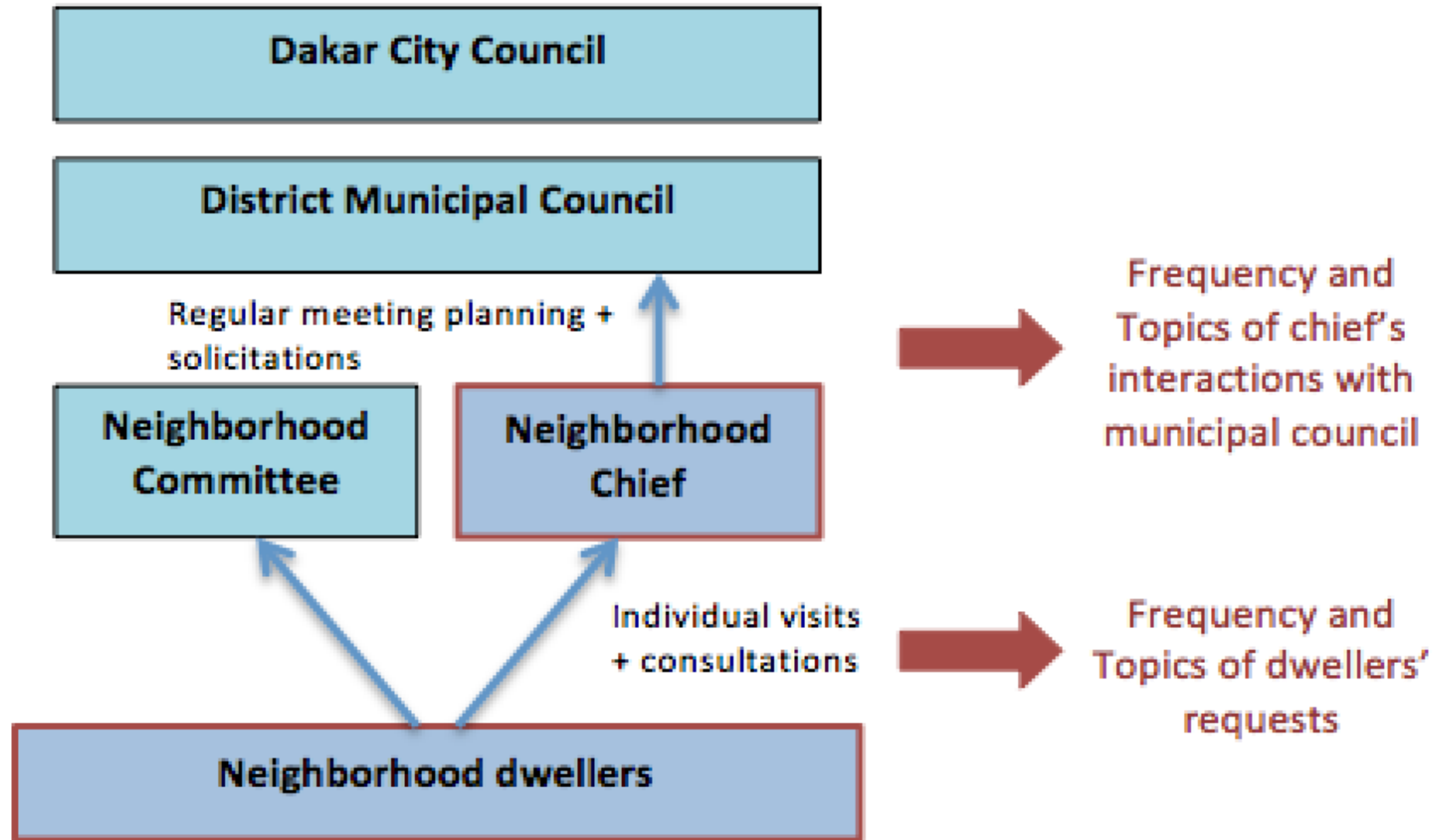
Tax notices edited from old system

## Data Collection / Measurement Strategy (1)

- **Data sources:**
  1. Admin Data (Assessment, Collection).
  2. Baseline and Endline Taxpayer and Neighborhood Chief survey. Within 200 sections of the sample: 4,000 properties in baseline; 9,000 properties in endline, all associated chiefs
  3. High resolution satellite images
- Outcomes from admin data: number of properties in the tax net; number of tax notices emitted; total amounts of revenue (assessed; collected). Composition of pool of taxpayers
- Accuracy of property valuation for the rule versus discretion comparison, based on comparison of value assessed by tax official and value assessed during backchecks.
- Outcomes from survey data: knowledge about property tax; perception of tax administration capacity, of risk of detection and of enforcement measures; perception of tax official behavior and corruption; willingness and motives of tax compliance; perception of fairness of property tax. Interactions between tax officials and taxpayers. These help investigating mechanisms.



## Data collection / Measurement strategy (2)



## Early Results/ Challenges/ Next Steps

- Current status: Baseline Survey to be conducted in September; Program implementation to be started in October
- Challenges:
  - Cleaning and processing of cadaster/GIS data (lengthy, work intensive)
  - Complexities in development of the technology which is at the center of the intervention
  - (Anticipated): accessing property owners





## Early Results/ Challenges/ Next Steps

- Points for feedback:
  - Theoretical underpinnings of rules vs discretion of state institutions in tax matters, for property tax in particular. Making sure the “rules” system (Points based valuation) is relevant and credible.
  - Measuring corruption (intensive margin): usual questions tested during pilot did not work out in Senegalese context.
  - Suggestions on dimensions to measure regarding local governance dynamics. Chiefs might be asked to help for the sensitization before program starts. How does this affect the way we are thinking about capturing these effects?
  - What else than property area can we learn from the satellite images, to characterize cadastral sections and properties?
  - Most efficient way to associate to current tax register precise localization of properties.



## Relevant Literature

- Means to strengthen fiscal capacity in developing countries:

Existing research shows impact of investing in administrative capacity: Pomeranz (2015). Okunogbe and Pouliquen (2018) on technological upgrade (e-filing). But papers on property tax focus mainly on nudges to taxpayers: Castro and Scartascini (2015); Del Carpio (2014)

- Rules vs discretion in the role of tax officials:

Role of tax officials: Khan et al (2016); Olken and Singhal (2011). Respective advantages of rules vs discretion. Rules limit arbitrariness, errors and informal arrangements, but also reduce role of tax officials' private information. Aghion and Tirole (1997); Duflo et al (2013). But lack of evidence in the context of taxation (Gordon 2017)

## Relevant Literature

- Tax bargaining and local accountability:

Increased local taxation can i. lead taxpayers to demand more from authorities, Weigel (2017); ii. lead local authorities to deliver better public goods: Gadenne (2017). Opening the black box: bridging gap between taxpayers and local administrations by studying role of neighborhood chiefs (intermediaries).



## Future Questions

- Efficiency gains and other effects of switching to mobile money payments?
- Testing impact of establishing stronger links between these fiscal revenues and local public services? (information campaigns; monitoring of municipal activity)
- Trying different human resource management strategies at the level of field agents





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