Data Talk
How Changes in Property Taxes Shape Communities: Two Case Studies

#LiveAtUrban
Housekeeping

• Event is being recorded and the recording will be posted online afterward.
• The slides are available online.
• All participants are muted.
• Type your *questions* or *comments* into the Q&A box at any time.
Data Talk
How Changes in Property Taxes Shape Communities: Two Case Studies

#LiveAtUrban
Housing and Land Use Implications of Proposed Split Roll Tax Reform

Sarah Strochak | August 2020

Joint work with Solomon Greene, Dan Teles, Patrick Spauster, and Laurie Goodman
Housing Finance Policy Center and Metropolitan Housing and Communities Policy Center
Proposition 13

- Limits property tax increases
- Locks in assessed value at purchase price or 1975 property value
- Apportions property tax revenue among local governments
- Lowered the tax burden for long-time property owners and increased the tax burden for new homebuyers and commercial owners
- Made local governments more reliant on state aid and other taxes
Proposed Split Roll Reform

- Continues to assess and tax residential and agricultural properties under the rules of Proposition 13
- Reassesses commercial and industrial properties based on market value
- Redistributes new tax revenue between the state, local governments, special districts, schools, and community colleges (60% to local governments 40% to schools)
- Exempts properties valued at under $3M, unless the property owner has greater than $3M in property statewide
Housing Implications of Split Roll

- Increases revenue for local governments and can help balance tax rolls. Additional revenue could be allocated to support affordable housing development.

- May also alter the incentives for both zoning and development. Critics argue that split roll will worsen “economic zoning” while defenders argue that it can incentivize multifamily development and reduce the need for local governments to chase sales tax.

- We examine the split roll proposal in the context of California’s housing crisis, which is defined by a shortage of new multifamily housing and a lack of access to affordable housing.
Our Model

- By combining property records with land use and zoning data, we estimate the financial incentives...
  - For municipalities to rezone from residential to commercial or industrial uses (at risk parcels)
  - For private owners and developers to shift from a commercial or industrial to residential use (opportunity parcels)
- We then compare the relative strength of these incentives and discuss how they might influence future land use and residential development if the split roll proposal is passed
Data Sources

1. Interviewed with state and local stakeholders to help design the model.
2. Collected apportionment ratios for each case study city to determine how much additional revenue a municipality keeps for each dollar it collects.
3. Determine at risk and opportunity parcels using First American property records data for information on ownership, location, surrounding land use, current assessed values, and zoning.
4. Identified base rates of appreciation from Moody’s commercial price index to create a wedge between new commercial or industrial and new residential over time.
Selecting Case Study Cities

- Viable, quality data
- Diversity of:
  - Region
  - Urban/suburban places
  - Population
  - Apportionment schedules
  - Home values
- After selecting cities, we interviewed statewide and local stakeholders
Identifying At-Risk Properties

Properties at risk of being rezoned from residential to commercial or industrial use*:

- Vacant land OR improved land with aging residential structure
- Land currently zoned to allow residential use
- Land within 0.25 miles of a commercial or industrial area*
- Properties with estimated current market value of greater than $3M

* Whether we include commercial and/or industrial uses in at-risk analysis depends on use restrictions in local zoning code.
Identifying At-Risk Parcels: Los Angeles

- Vacant
- Aging residential structure
  - Proximity to industrial parcels
  - Zoning allows multifamily
  - Predicted market value > $3M

Parcels remaining:

177,420
40,899
29,309

Final at risk parcels: 3,830

Source: First American property records data
Quantifying Municipal Incentives to Rezone At-Risk Properties to Exclude Residential Use

- Estimate the market value of improved land using a model based on similar sales in the area.
- Estimate the short-term incentive as the additional revenue from reassessment of all at-risk vacant properties in year one.
- Estimate the long-term incentive as the “wedge” in tax revenue between original (residential) and converted (industrial or commercial) use for all at-risk properties over time, based on assumptions about market strength.
Identifying Opportunity Properties

Properties for which split roll may increase incentives for owner or developers to convert from commercial or industrial to residential use:

- Privately owned land
- Vacant land OR improved land with an aging commercial or industrial structure
- Land currently zoned to allow commercial or industrial and residential use
- Properties with estimated current market value of greater than $3M
Identifying Opportunity Parcels: Los Angeles

- **Vacant**
- Aging commercial/Industrial structure
  - Privately owned
  - Zoning allows commercial
    - Predicted market value > $3M

<table>
<thead>
<tr>
<th>Parcels remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>27,526</td>
</tr>
<tr>
<td>26,356</td>
</tr>
<tr>
<td>21,232</td>
</tr>
</tbody>
</table>

**Final opportunity parcels:** 8,104

Source: First American property records data
Quantifying Owner/Developer Incentives to Convert Commercial or Industrial Properties to Residential Use

- Estimate the market value of improved land that using a model based on similar sales in the area
- Estimate the “wedge” in owners’ property tax liability between the converted use (residential) and the unconverted but redeveloped use (commercial/industrial) over time, based on assumptions about market strength
Limitations of Model

- In our at-risk analysis, we only estimate potential changes to zoning and permitted uses, not what will be entitled and built. But the strength or weakness of the incentive may apply more broadly to municipal decisions re entitlements.

- We do not assess potential legal challenges to rezoning to exclude multifamily solely in order to generate tax revenue (for at-risk analysis) nor can we quantify countervailing political pressures related to zoning changes and entitlements (such as community opposition or developer lobbying).
## Parcel Counts for All Four Case Study Cities

<table>
<thead>
<tr>
<th>City</th>
<th>At risk parcels</th>
<th>Opportunity parcels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vacant</td>
<td>Aging residential</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>3,679</td>
<td>151</td>
</tr>
<tr>
<td>Fresno</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Chula Vista</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Berkeley</td>
<td>21</td>
<td>2</td>
</tr>
</tbody>
</table>
Key Assumptions

TIMING
- No properties convert (change use or zoning) until after split roll is implemented
- For any given year (1, 5, 10, or 20) we calculate long-run incentives by comparing a world in which every property has converted since split roll was implemented.

APPORPTIONMENT
- New tax revenue generated when residential properties are re-assessed upon a sale or because of improvements are apportioned at current (2019) apportionment rates
- New tax revenue generated when commercial properties are re-assessed at market value is apportioned with 40% going to schools and 60% going to local governments (“split roll revenue”). Local government then divide that 60% proportionally based on current apportionment rents.

APPRECIATION
- Low annual commercial price growth: 2.0%
- Medium annual commercial price appreciation: 3.5%
- High annual commercial price appreciation: 5.7%
Revenue Gain from Reassessment of Vacant At-Risk Parcels: Los Angeles

<table>
<thead>
<tr>
<th></th>
<th>Total Value</th>
<th>Total Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual revenue on Vacant At Risk Parcels</td>
<td>$364,199,617</td>
<td>$964,226</td>
</tr>
<tr>
<td>Potential Revenue if Reassessed</td>
<td>$1,851,708,224</td>
<td>$3,790,956</td>
</tr>
<tr>
<td>Additional Revenue (difference)</td>
<td></td>
<td>$2,826,720</td>
</tr>
</tbody>
</table>

For context:

Los Angeles Total Property Tax Revenue $1,612,148,631
Percent of Total Property Tax Revenue 0.18%

Note: The apportionment rate for assessed properties without Prop 15 in place is 0.265%. With Prop 15 in place, it decreases to 0.205%.
## Long-Term Incentive to Rezone At-Risk Parcels: Los Angeles

Revenue to the city in year since split roll was enacted

<table>
<thead>
<tr>
<th>Year</th>
<th>Low growth</th>
<th>Medium growth</th>
<th>High growth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Property remains residential</td>
<td>Property converted to commercial</td>
<td>Property remains residential</td>
</tr>
<tr>
<td>1</td>
<td>61,633,654</td>
<td>49,089,516</td>
<td>61,633,654</td>
</tr>
<tr>
<td>5</td>
<td>66,714,249</td>
<td>53,136,070</td>
<td>66,714,249</td>
</tr>
<tr>
<td>10</td>
<td>73,657,922</td>
<td>58,666,515</td>
<td>73,657,922</td>
</tr>
<tr>
<td>20</td>
<td>89,788,595</td>
<td>71,514,155</td>
<td>89,788,595</td>
</tr>
</tbody>
</table>
Long-Term Incentive to Rezone At-Risk Parcels: Los Angeles

Revenue to the city in year since split roll was enacted

Note: Under a low growth scenario, revenue will decline, because commercial development will be subject to a lower apportionment ratio- 0.205%, as opposed to 0.265% before split roll.
Long-Term Incentive to Rezone At-Risk Parcels: Los Angeles

Increased revenue as a share of city’s total property tax revenue
Opportunity Parcels: Los Angeles

Over 20 years, taxes paid on a residential structure will be 25-50% less than taxes paid on a commercial structure of the same value, under medium-high price appreciation.
Opportunity Parcels: Los Angeles

Tax savings if parcels are sold, converted to residential use, and reassessed

<table>
<thead>
<tr>
<th>Year</th>
<th>Low growth</th>
<th>Medium growth</th>
<th>High growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>11,831,071</td>
<td>29,106,905</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>51,341,749</td>
<td>130,435,526</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
<td>132,368,803</td>
<td>355,408,462</td>
</tr>
<tr>
<td>20</td>
<td>0</td>
<td>367,402,037</td>
<td>1,109,052,388</td>
</tr>
</tbody>
</table>
Comparing incentives
Long run, under moderate price appreciation

<table>
<thead>
<tr>
<th>Year</th>
<th>Los Angeles</th>
<th>Opportunity benefits</th>
<th>Fresno</th>
<th>Opportunity benefits</th>
<th>Berkeley</th>
<th>Opportunity benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short term</td>
<td>At risk benefits</td>
<td>$2,826,730</td>
<td>n/a</td>
<td>At risk benefits</td>
<td>$140,814</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>-$12,544,138</td>
<td>$0</td>
<td>-$15,808</td>
<td>0</td>
<td>-$106,449</td>
<td>$0</td>
</tr>
<tr>
<td>2</td>
<td>-$12,057,293</td>
<td>$11,831,071</td>
<td>-$5,107</td>
<td>$1,055,032</td>
<td>-$101,468</td>
<td>$40,687</td>
</tr>
<tr>
<td>5</td>
<td>-$10,376,759</td>
<td>$51,341,749</td>
<td>$30,696</td>
<td>$4,578,385</td>
<td>-$84,368</td>
<td>$176,565</td>
</tr>
<tr>
<td>10</td>
<td>-$6,737,538</td>
<td>$132,368,803</td>
<td>$104,363</td>
<td>$11,803,948</td>
<td>-$47,665</td>
<td>$455,219</td>
</tr>
<tr>
<td>20</td>
<td>$4,634,945</td>
<td>$367,402,037</td>
<td>$319,075</td>
<td>$32,762,964</td>
<td>$65,726</td>
<td>$1,263,502</td>
</tr>
</tbody>
</table>

**Note:** At risk benefits = new revenue to the city. Opportunity benefits = tax savings to private owners, if properties trade and convert. Results are not presented for Chula Vista due to small number of at risk parcels.
Key Takeaways

- Across cities, very few parcels are viable for conversion from residential use to industrial or commercial under existing land uses and zoning codes. Across cities, there are more parcels eligible to be converted from commercial or industrial use to residential use.
- Short-term incentives for cities to rezone vacant residential properties are limited and only a small fraction of total property tax revenue.
- Long-term incentives for owners and developers to build/convert to residential uses are much stronger than for municipalities to rezone under medium and high price appreciation scenarios.
- Additional revenue from sales or redevelopment are larger than potential revenue from split roll reassessment.
How Changes in Property Taxes Shape Communities: Two Case Studies

#LiveAtUrban
Effects of Gentrification on Homeowners: Evidence from a Natural Experiment

Lei Ding

Federal Reserve Bank of Philadelphia
August 6, 2020
The views expressed here are those of the authors and do not necessarily reflect the views of the Federal Reserve Bank of Philadelphia or the Federal Reserve System.
Overview of the Study

Two research questions
• What are the causal effects of gentrification on homeowners?
• What have been the effects of gentrification-relief programs?
Motivation: Effects of Gentrification on Homeowners

- Growing concern about gentrification before COVID-19; particularly on displacement of low-income renters and long-term homeowners living on fixed incomes.
  - Gentrification: increased investment and influx of middle- and upper-class residents in low-income neighborhoods
  - Implies residential displacement of preexisting residents
Motivation: Effects of Gentrification on Homeowners

- Gentrification shock is often concurrent with outcomes
  - Gentrification is an ongoing, evolving process that often occurs simultaneously with increases in property taxes

- Challenges in decouple property tax effects from housing wealth effect
  - Gentrification could increases both housing wealth and property tax payments
  - Moves can be induced by wealth effects or property tax increases (forced moves)

Philadelphia: housing wealth accrues with gentrification; but property tax effects was not manifest until 2014

**Notes:** Properties in gentrifying and nongentrifying neighborhoods are within a half-mile radius of the boundary of a gentrifying tract. House price index is for single-family units only.
Source: Authors’ calculations using data from the City of Philadelphia and CoreLogic Solutions.
Philadelphia’s Actual Value Initiative (AVI)

Property taxes in Philadelphia before 2013
- Low assessments of properties: no comprehensive market value reassessment since 1980s
- Extremely high rates of tax delinquency (about 20%)
- Lesser reliance on property taxes compared with other jurisdictions

Property taxation system overhaul in 2013
- Comprehensive reassessment of property market values
- Revenue-neutral: had both positive & negative effects on property taxes

www.philadelphiafed.org
Identification: Effects of Gentrification on Homeowners

Property-level analysis:

\[ Y_{it} = \beta_0 + \beta_1 \times GENDRIFY_i + \beta_2 \times AVI_t + \beta_3 \times GENDRIFY_i \times AVI_t + \gamma \times X_i + \text{TRACT}_i + \text{YEAR}_t + \epsilon_{it} \]

- \( Y_{it} \) represents the value of the outcome measure \( Y \) for property \( i \) in year \( t \)
- \( X_i \) represents a set of property characteristics
- \( N_i \) represents the fixed effect of the tract in which property \( i \) is located
- \( GENDRIFY_i \) is the dummy variable which represents whether tract \( i \) had been gentrifying during the 2000-2013 period
- \( AVI_t \) is the time dummy (1 for the post-2014 period)
- \( GENDRIFY_i \times AVI_t \) is the two-way interaction of the time and treatment dummies.

Treatment:

- Treatment is the AVI itself: how AVI impacts gentrifying and nongentrifying neighborhoods differently
- Treatment can also be considered as gentrification (coupled with several tax relief programs) on tax delinquency/displacement outcomes

Control group:

- Potentially affected tracts: low-income (below city median)
- Control group limited to non-gentrifying tracts within 0.5 miles of gentrifying tracts
Identification: Effects of Gentrification on Homeowners

- Help unpack “black box” of displacement
  - Renters: evictions, landlord harassment, rent increases
  - Homeowners: property tax increase poses a liquidity problem for vulnerable homeowners, leading to residential displacement
Identification: Effects of Gentrification on Homeowners

- Help unpack “black box” of displacement
  - Renters: evictions, landlord harassment, rent increases
  - Homeowners: property tax increase poses a liquidity problem for vulnerable homeowners, leading to residential displacement
Effects of Gentrification-relief Programs

- **Homestead Exemption**
  - Benefits: exemption of up to $30,000 of assessed value from taxation (later $45,000)
  - Eligibility: owner-occupied primary residences

- **Longtime Owner Occupants Program (LOOP)**
  - Benefits: property’s taxable value capped for 10 years (later as long as homeowners remain eligible)
  - Eligibility
    - Low or moderate-income: below 150 percent of the area median income
    - Long-term homeowners: have lived in their homes for at least 10 years
    - Assessed values increase by 300 percent in one year (later an increase by 50 percent or more)
    - Current on property taxes

- Identification: a three-way DID regression to evaluate the effects of the tax exemption and abatement programs
## An Illustration

<table>
<thead>
<tr>
<th></th>
<th>2013 (Pre-AVI)</th>
<th>2014 (Post-AVI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Property 1</strong></td>
<td>Property 1</td>
<td>Property 1</td>
</tr>
<tr>
<td><strong>Tax rate</strong></td>
<td>0.09771</td>
<td>0.0134</td>
</tr>
<tr>
<td><strong>Predetermined ratio</strong></td>
<td>32%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Assessed market value</strong></td>
<td><strong>$100,000</strong></td>
<td><strong>$100,000</strong></td>
</tr>
<tr>
<td><strong>Property tax</strong></td>
<td>$3,127 ($100,000 \times 0.32 \times 0.09771)</td>
<td>$1,340 ($100,000 \times 0.0134)</td>
</tr>
<tr>
<td><strong>Percent change from 2013</strong></td>
<td></td>
<td>-57%</td>
</tr>
</tbody>
</table>
## An Illustration

<table>
<thead>
<tr>
<th></th>
<th>2013 (Pre-AVI)</th>
<th>2014 (Post-AVI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Property 1&amp;2</td>
<td>Property 1 (gentrifying)</td>
</tr>
<tr>
<td>Tax rate</td>
<td>0.09771</td>
<td>0.0134</td>
</tr>
<tr>
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<td>100%</td>
</tr>
<tr>
<td>Assessed market value</td>
<td>$100,000</td>
<td>$500,000</td>
</tr>
<tr>
<td>Property tax</td>
<td>$3,127</td>
<td>$6,700</td>
</tr>
<tr>
<td></td>
<td>($100,000 × 0.32 × 0.09771)</td>
<td>($500,000 × 0.0134)</td>
</tr>
<tr>
<td>Percent change from 2013</td>
<td>114%</td>
<td>29%</td>
</tr>
</tbody>
</table>
## An Illustration: Homestead

<table>
<thead>
<tr>
<th></th>
<th>2013 (Pre-AVI)</th>
<th>2014 (Post-AVI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Property 1 &amp; 2</td>
<td>Property 1 (gentrifying)</td>
</tr>
<tr>
<td>Tax rate</td>
<td>0.09771</td>
<td>0.0134</td>
</tr>
<tr>
<td>Predetermined ratio</td>
<td>32%</td>
<td>100%</td>
</tr>
<tr>
<td>Assessed market value</td>
<td>$100,000</td>
<td>$500,000</td>
</tr>
<tr>
<td>Homestead exemption</td>
<td></td>
<td>$30,000</td>
</tr>
<tr>
<td>Property tax</td>
<td>$3,127 ($100,000 \times 0.32 \times 0.09771)</td>
<td>$6,298 ($500,000-$30,000) \times 0.0134)</td>
</tr>
<tr>
<td>Tax saving</td>
<td></td>
<td>$402</td>
</tr>
<tr>
<td>Percent change from 2013</td>
<td></td>
<td>101%</td>
</tr>
</tbody>
</table>
## An Illustration: LOOP

<table>
<thead>
<tr>
<th></th>
<th>2013 (Pre-AVI)</th>
<th>2014 (Post-AVI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Property 1&amp;2</strong></td>
<td>Property 1 (gentrifying)</td>
<td>Property 2 (nongentrifying)</td>
</tr>
<tr>
<td><strong>Tax rate</strong></td>
<td>0.09771</td>
<td>0.0134</td>
</tr>
<tr>
<td><strong>Predetermined ratio</strong></td>
<td>32%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Assessed market value</strong></td>
<td>$100,000</td>
<td>$500,000</td>
</tr>
<tr>
<td><strong>Capped assessed value (with LOOP)</strong></td>
<td>$300,000 (300% of the assessed value in 2013)</td>
<td>$300,000 (300% of the assessed value in 2013)</td>
</tr>
<tr>
<td><strong>Property tax</strong></td>
<td>$3,127 ($100,000 $0.32 $0.09771)</td>
<td>$4,020 ($300,000 $0.0134)</td>
</tr>
<tr>
<td><strong>Tax saving</strong></td>
<td>$2,680</td>
<td>0</td>
</tr>
<tr>
<td><strong>Percent change from 2013</strong></td>
<td>29%</td>
<td>29%</td>
</tr>
</tbody>
</table>
Changes in Major Outcomes over Time

- Assessed Values
- Property Tax
- Property Tax Delinquency Rate
- Property Sales
- Mobility of Elderly Residents
- Mobility of Longer-term Residents

Federal Reserve Bank of Philadelphia

16
Neighborhood definition: Census Tract

Gentrifiable: Initial income was below the citywide median in 2000.

Gentrifying: Percent change in rent or home value during 2000–2013 is above median increase among city tracts AND Percent change in college-educated residents is above median increase
Data

Tax assessment and tax delinquencies
- Philadelphia Dept. of Revenue (DOR)
  - Property-level tax assessment and tax amount (2010-2018)
  - Tax payment behavior (2010-2018)
  - No information on race/ethnicity, income, age
- CoreLogic Real Estate Data
  - Property characteristics
  - Census tract location of property
  - Deed transactions

Residential mobility
- Federal Reserve Bank of New York/Equifax Consumer Credit Panel (CCP)
  - Anonymized 5 percent, nationally representative random sample of individuals in the U.S. with an SSN and a credit report
  - Reports the updated census geography each quarter for the same individuals over time
  - Reports individuals’ credit use, updated risk score (credit score), mortgage, age
  - Does NOT include information on race/ethnicity, income, tenure
# Gentrification’s Effects on Property Assessments and Tax Amounts

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessed value ($)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gentrification dummy</td>
<td>71,673.0***</td>
<td>334.1</td>
</tr>
<tr>
<td>Categorical gentrification variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak/moderate</td>
<td>43,957.4***</td>
<td>375.9</td>
</tr>
<tr>
<td>Intense</td>
<td>175,921.1***</td>
<td>1,510.0</td>
</tr>
<tr>
<td>Continued</td>
<td>109,081.1***</td>
<td>454.9</td>
</tr>
<tr>
<td><strong>Tax amount ($)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gentrification dummy</td>
<td>539.6***</td>
<td>4.4</td>
</tr>
<tr>
<td>Categorical gentrification variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak/moderate</td>
<td>360.6***</td>
<td>5.2</td>
</tr>
<tr>
<td>Intense</td>
<td>1,044.6***</td>
<td>20.8</td>
</tr>
<tr>
<td>Continued</td>
<td>793.9***</td>
<td>6.3</td>
</tr>
</tbody>
</table>

Notes: ***, **, * represent significance at the 0.001, 0.01, or 0.05 level respectively; $p < .10$. Sources: Authors’ calculations using data on property assessments and tax payment history from the Department of Revenue of the City of Philadelphia and CoreLogic Solutions.
## Gentrification’s Effect on Tax Delinquency

<table>
<thead>
<tr>
<th>Tax delinquencies</th>
<th>Coefficient</th>
<th>Standard Error</th>
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</thead>
<tbody>
<tr>
<td>Gentrifying</td>
<td>0.041***</td>
<td>0.002</td>
</tr>
<tr>
<td>Categorical gentrification variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak/moderate</td>
<td>0.042***</td>
<td>0.002</td>
</tr>
<tr>
<td>Intense</td>
<td>0.061***</td>
<td>0.009</td>
</tr>
<tr>
<td>Continued</td>
<td>0.038***</td>
<td>0.003</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>New delinquencies</th>
<th>Coefficient</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gentrifying</td>
<td>0.009***</td>
<td>0.001</td>
</tr>
<tr>
<td>Categorical gentrification variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak/moderate</td>
<td>0.006***</td>
<td>0.001</td>
</tr>
<tr>
<td>Intense</td>
<td>0.016***</td>
<td>0.005</td>
</tr>
<tr>
<td>Continued</td>
<td>0.010***</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Notes: ***, **, * represent significance at the 0.001, 0.01, or 0.05 level respectively; fpc<10. Sources: Authors’ calculations using data on property assessment and tax payment history from Revenue Department of the city of Philadelphia and CoreLogic Solutions.
## Effect on Mobility of Elderly and Long-term Homeowners

<table>
<thead>
<tr>
<th>Residential mobility</th>
<th>Coefficient</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elderly residents (ages 55–84)</td>
<td>-0.004</td>
<td>0.005</td>
</tr>
<tr>
<td>Elderly homeowners (ages 55–84)</td>
<td>-0.010</td>
<td>0.013</td>
</tr>
<tr>
<td>Longer-term residents (5+ years)</td>
<td>0.006</td>
<td>0.004</td>
</tr>
<tr>
<td>Longer-term homeowners (5+ years)</td>
<td>0.013</td>
<td>0.010</td>
</tr>
</tbody>
</table>

Notes: ***, **, * represent significance at the 0.001, 0.01, or 0.05 level respectively; †p<0.10. Sources: Authors’ calculations using data on property assessments and tax payment history from the Department of Revenue of the City of Philadelphia and CoreLogic Solutions, and data from the FRBNY/Equifax Consumer Credit Panel.
Why No Significant Increase in Mobility of Vulnerable Population?

Appeals for reassessments

- Homeowners in gentrifying neighborhoods may stop paying the full amount of property taxes while filing appeals for reassessments; not necessarily liquidity constraints.

- Our evaluation suggests the delinquency rates were somewhat inflated by appeals; but unable to determine the extent of their contribution to the observed delinquency rates.

Fewer transactions (and resulting moves) due to increased property taxes
Why No Significant Increase in Mobility of Vulnerable Population?

- Adoption of gentrification-relief programs
  - The more well-targeted LOOP program is more effective in reducing tax delinquencies in gentrifying neighborhoods

<table>
<thead>
<tr>
<th>Likely LOOP Exemption</th>
<th>Homestead Exemption</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coefficient</strong></td>
<td><strong>Coefficient</strong></td>
</tr>
<tr>
<td><strong>Standard Error</strong></td>
<td><strong>Standard Error</strong></td>
</tr>
<tr>
<td>Assessment ($)</td>
<td>-3,214.6***</td>
</tr>
<tr>
<td>-462.0***</td>
<td>258.6***</td>
</tr>
<tr>
<td>Tax amount ($)</td>
<td>0.040***</td>
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<tr>
<td>-0.021***</td>
<td>0.006***</td>
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<tr>
<td>Tax delinquencies</td>
<td>0.008**</td>
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<tr>
<td>-0.008**</td>
<td>0.003***</td>
</tr>
<tr>
<td>New tax delinquencies</td>
<td>0.006***</td>
</tr>
</tbody>
</table>

Notes: ***, **, and * represent significance at the 0.001, 0.01, and 0.05 level, respectively. Sources: Authors’ calculations using data on property assessments and tax payment history from the Department of Revenue of the City of Philadelphia and CoreLogic Solutions.
Robustness Check

- Results are robust using
  - A shorter (2 years) post-treatment period
  - Alternative gentrification measures (Freeman, 2005; Ellen and O’Regan, 2011)
  - Different control groups (all nongentrifying neighborhoods)
  - Neighborhood (tract) as unit of analysis
Summary and Discussion

- Gentrification increases property values, property taxes, and the delinquency risk on property tax bills
  - Larger increase in intensely gentrifying neighborhoods
  - Somewhat inflated by nonpayment during appeals for reassessment
- No sign of higher-level of departure of elderly or financially disadvantaged homeowners in gentrifying neighborhoods
  - Property tax relief programs were offered to mitigate effects of sudden & sharp rise in property taxes on vulnerable households
  - Historical lack of strong enforcement of tax foreclosure
  - Gentrification not necessarily leads to displacement?
Summary and Discussion

• Tax abatement/exemption programs mitigate the delinquency risk of homeowners
  ▪ Well-targeted tax relief programs, like LOOP, are more effective in lowering delinquency risk and displacement of homeowners

• Homestead exemption results are mixed
  ▪ Relatively smaller relief for homeowners in gentrifying tracts

• Longer-term effects on tax foreclosure, displacement and housing market still need to be monitored
Thanks!

The working paper can be downloaded at:
https://doi.org/10.21799/frbp.wp.2020.16
Data Talk

How Changes in Property Taxes Shape Communities: Two Case Studies

#LiveAtUrban
Gentrification, Split Roll Taxes and The Dodger?

August, 2020
Effects of Gentrification on Homeowners: Evidence from an Natural Experiment- Lei Deng and Jackelyn Hwang

• **Using an Exogenous Shock**- Philadelphia’s property tax overhaul in 2013 (Actual Value Initiative or AVI) provides a great opportunity to test two key aspects of gentrification: the housing wealth effect caused by gentrification and the liquidity constraint effect.

• **Testing Policies**- Because of the concern that the liquidity constraint effect could impact existing homeowners and force involuntary sales, the tax overhaul included programs (LOOP) to mitigate the risk. The effectiveness is also “testable.”

• **Identifying the Owner Occupier**- It’s important to understand that the owner occupier identification process is “backward looking”. At the time of sale the available tax assessment is reflecting the seller’s occupying status. In other words, from the public record we know whether the seller was a homeowner or occupier, but we don’t know what the intent of the buyer is. That comes with the subsequent tax assessment update.

• **Proxy for renter versus owner**- Understanding the difficulty of understanding occupancy intent is challenging, the existence of a mortgage may not be a good proxy for homeownership. Many landlords rent AND have a mortgage on the rental property.
Effects of Gentrification on Homeowners: Evidence from an Natural Experiment- Lei Deng and Jackelyn Hwang

- Gentrification and Education
  - Census tracts are identified as gentrifying if the base period median household income was below the city median AND it subsequently experienced above city-median rent OR home price growth.
  - Additionally, the share of college educated residents has to rise faster than the city-median increase.
  - Income is not used as the argument is that “gentrifiers” tend to be younger and incomes tend to be lower for younger people (true), but these in-migrating gentrifiers are affording to live there, and aren’t they are the ones driving the rents and prices up?
  - Educational attainment is proxy for income

- Gentrification Endogeneity
  - Regressions show that the Gentrification neighborhood effect is strongly and positively correlated with assessed values and taxes.
  - But there is an endogeneity concern.
Tax Dodging Gentrification

The authors find that “the sharply increased property taxes for properties in gentrifying neighborhoods have suppressed... demand...” and find a reduction in the volume of transactions.

They also note that there was an increase in the volume prior to the tax increase.

In English- Gentrifiers are tax dodgers!

Prior to AVI the user cost of buying and renovating (new construction forces a reassessment) would be below market value because the home continues to be assessed and taxed based on it’s original value.

Post AVI the user cost benefit is gone and the home is effectively more “expensive”. Or more correctly, prior to AVI the tax structure was incenting gentrification by under-taxing and reducing the user cost.
Housing and Land Use Implications of Proposed Split Roll Tax Reform - Sarah Strochak

• An exercise in the struggle with public records data! Sarah should be commended for all of the data preparation that went into this research. Land use and zoning data is notoriously inconsistent and zoning codes in particular are very unstandardized.

• But first I had to take a history lesson
  • The first zoning ordinance? 1908 in Los Angeles. Clearly separating districts of residential and industrial use.
  • Dangerous businesses and odorous land uses (slaughterhouses and tanneries) banned from residential areas.
  • Prohibition of laundries (dominantly owned by Chinese residents and citizens)

• Race based zoning ordinances were passed in multiple cities in the nineteen-teens. Although struck down by the courts, the reality took time to catch up with the law.

• What’s Euclidian zoning? Characterized by the segregation of land uses into specified districts- residential single and multifamily, commercial and industrial. This typifies the zoning in most cities in the 20th century.

• But this limits the ability to ”mix uses” which is becoming more popular with “Hierarchical” Euclidian zoning or Smart Zoning.

• Name one city with no formal zoning regulation? Houston!
Housing and Land Use Implications of Proposed Split Roll Tax Reform- Sarah Strochak

- Split Roll Reform
  - Assess Commercial and Industrial properties based on market value
  - Redistribute tax revenues between local government and schools

- Zoned Use is not the same as Land Use
  - In fact, with hierarchical zoning the allowable uses are “backwards intensity” compatible.
  - Therefore, just because the zoning says you can, it doesn’t mean the market will.

- Hence Sarah’s study of the incentives
  - **At Risk Properties** - those that could be “up-zoned” from residential to commercial with the hope of commercial use and higher tax revenue.
  - **Opportunity Parcels** - Revert underutilized commercial parcels to residential (most likely multifamily) to avoid higher taxes.

- Findings (in English)
  - The Opportunity Value is MANY MANY times more beneficial than the At Risk benefit.
  - Are we to conclude that Tax Dodging the Split Roll will rule the day?
  - And what do we get from that? More housing units you say?!
Keeping Up With Increasing Demand- The Big Building Short

New Housing Units and Households (Year-Over-Year, Millions)

Source: Census Bureau, HUD (obsolescence rate of 0.31% of existing stock), 2018
The Almanac Singers
State Of Arkansas
Data Talk

How Changes in Property Taxes Shape Communities: Two Case Studies

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