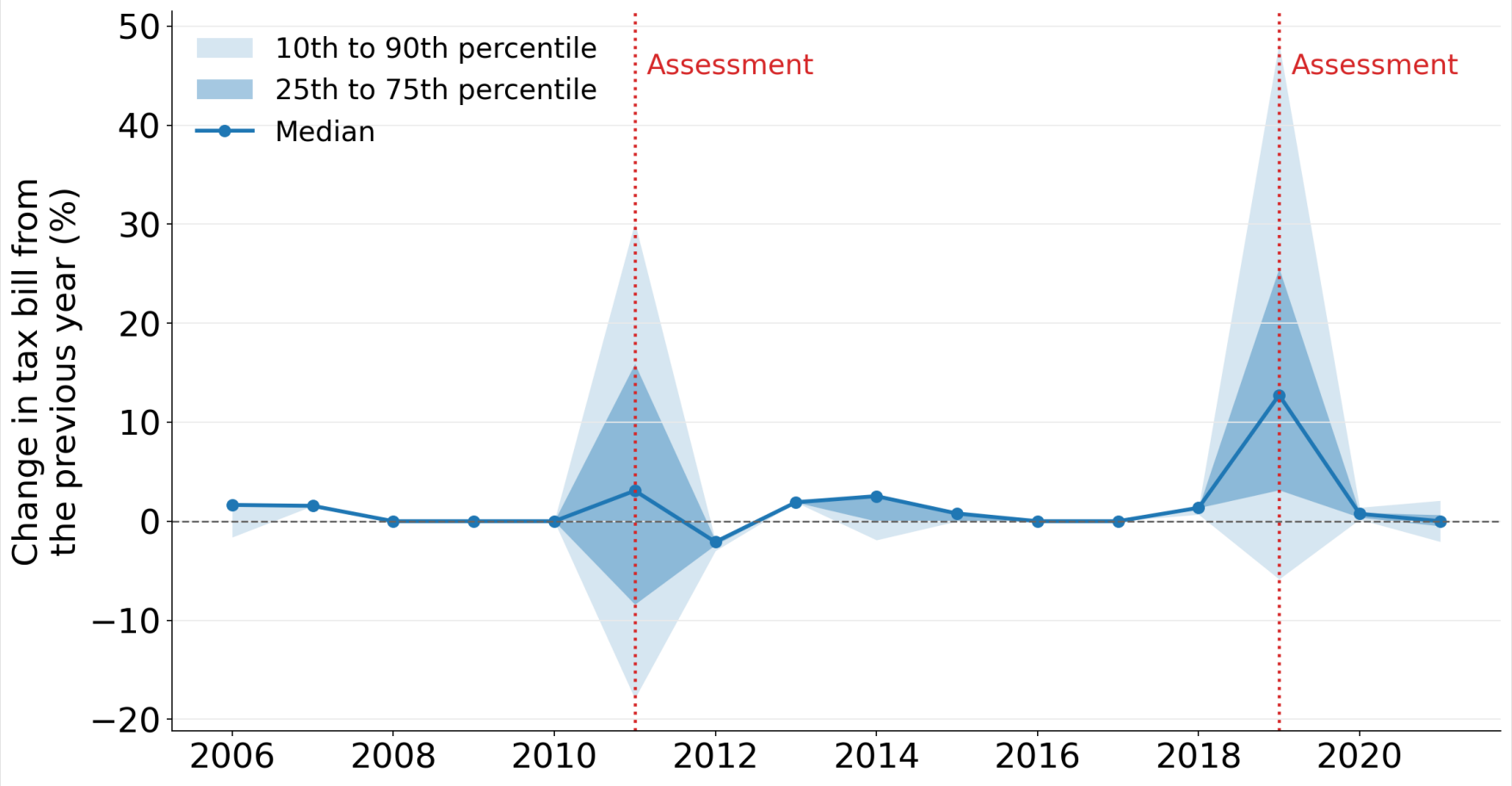
Reassessed & Repossessed: Who Bears an Assessment Shock?

Roxana Gonzalez

University of South Carolina

October 16, 2026

Tax Bills Jump in Assessment Years



Change in each home's bill from the previous year. Mecklenburg County, NC, owner-occupied homes.

Long Cycles Turn Appreciation Into a Jump

- Annual assessment: bills track market values in small yearly steps
- But most US homes are assessed on mandated cycles of 3+ years
- Between assessments, appreciation goes untaxed
- At assessment, the accumulated appreciation enters the bill

The Jump Reaches Owners as a Payment Shock

- Most homeowners have a mortgage and see the bill increase in their monthly payment
- Over a full cycle, long-cycle owners pay *less* tax
  - An owner who could save or borrow would absorb the jump
  - An owner who cannot may experience default
- Rates roll back to hold revenue, so the jump falls on homes that appreciated faster than the county

Cheap Homes Are Least Able to Absorb It

- Low-income households hold less liquid savings and have less access to credit (Jappelli, 1990)
- They may also see the jump coming less clearly
  - Escrow already obscures the property tax (Cabral and Hoxby, 2012)
  - Misperception of tax liabilities is greatest among low-income households (Gindelsky et al., 2023)

Research Questions

1. Does an assessment raise foreclosure filings, and the completed foreclosures and distressed exits that follow?

2. Is the rise largest among the cheapest homes?

3. Is it larger where the bill rises more?

Methods Overview

Approach: compare long-cycle counties with counties that assess every year

- 5 largest NC counties, cycles of 4–8 years
- 8 countywide assessments, 2011–2019
- Comparison: 90–109 annually assessing counties per event
- Outcomes per 100 owner-occupied homes a quarter
  - Foreclosure filings, completed foreclosures, distressed exits
- Synthetic difference in differences, one fit per event
- Four events re-estimated against Florida to scale by the tax bill

Results Preview

1. An assessment raises foreclosure filings by 31%
   - 0.52 more filings per 100 homes over two years, ≈610 in the median county
2. Additional filings decline with home value
   - 0.70 per 100 in the cheapest quartile, 0.37 in the most expensive
3. Completed foreclosures +20% and distressed exits +18%, imprecise
4. A 10% larger bill increase roughly doubles filings in the cheapest quartile and leaves the most expensive unchanged

Governing
For the people making government work.

Policy Management Finance More News Topics | Papers Podcasts Webinars Magazine Newsletters

FINANCE

Voters in Several States Can Cut — or Abolish — Property Taxes This Fall

Voters in at least seven states will decide property tax measures in November. Most would limit what homeowners have to pay, but two would eliminate the tax completely.

MICHIGAN HOUSE REPUBLICANS



Rep. Martin votes to eliminate state property taxes for Michigan families

SOUTH FLORIDA LOCAL WEATHER VIDEO ON YOUR SIDE INVESTIGATES RESPONDS NEWSLETTE... 84° Watch 24/7

FLORIDA

Florida property tax cut summary rewrite underway, DeSantis says

The measure will go on the ballot as Amendment 3.

By News Service of Florida • Published August 7, 2026 • Updated on August 7, 2026 at 5:15 pm

FLORIDA POLICY INSTITUTE

Research & Policy Outreach & Advocacy Press & Events Donate About Blog English | Español

Health Care Tax Policy Tax Code Amendment 3 (2026) local governments

By Erica Monet Li, MPH, CHES® | August 27, 2026

Property Tax Cuts Under Amendment 3 Would Lead to Reductions in Services for Some Florida Hospitals

Latest News

HOUSING AND URBAN ISS

Reno's Boom Is Colliding

Aug. 27, 2026

In some states, a push to end all property taxes for homeowners



Follow Us

This Paper's Contribution

1. Assessment cycle length and vertical inequity (Berry and Wang, 2024; Kim and Hou, 2025)
    - Long intervals let assessed values drift from market values
    - **My paper:** follows the correction to mortgage distress
2. Payment size and mortgage default (Anderson and Dokko, 2016; Fuster and Willen, 2017; Ganong and Noel, 2020)
    - Payment changes from rate resets, due dates, program rules
    - **My paper:** a payment change dated by statute, sized differently across the value distribution
3. New data: parcel tax bills from NC and FL rolls linked to deeds and foreclosure filings

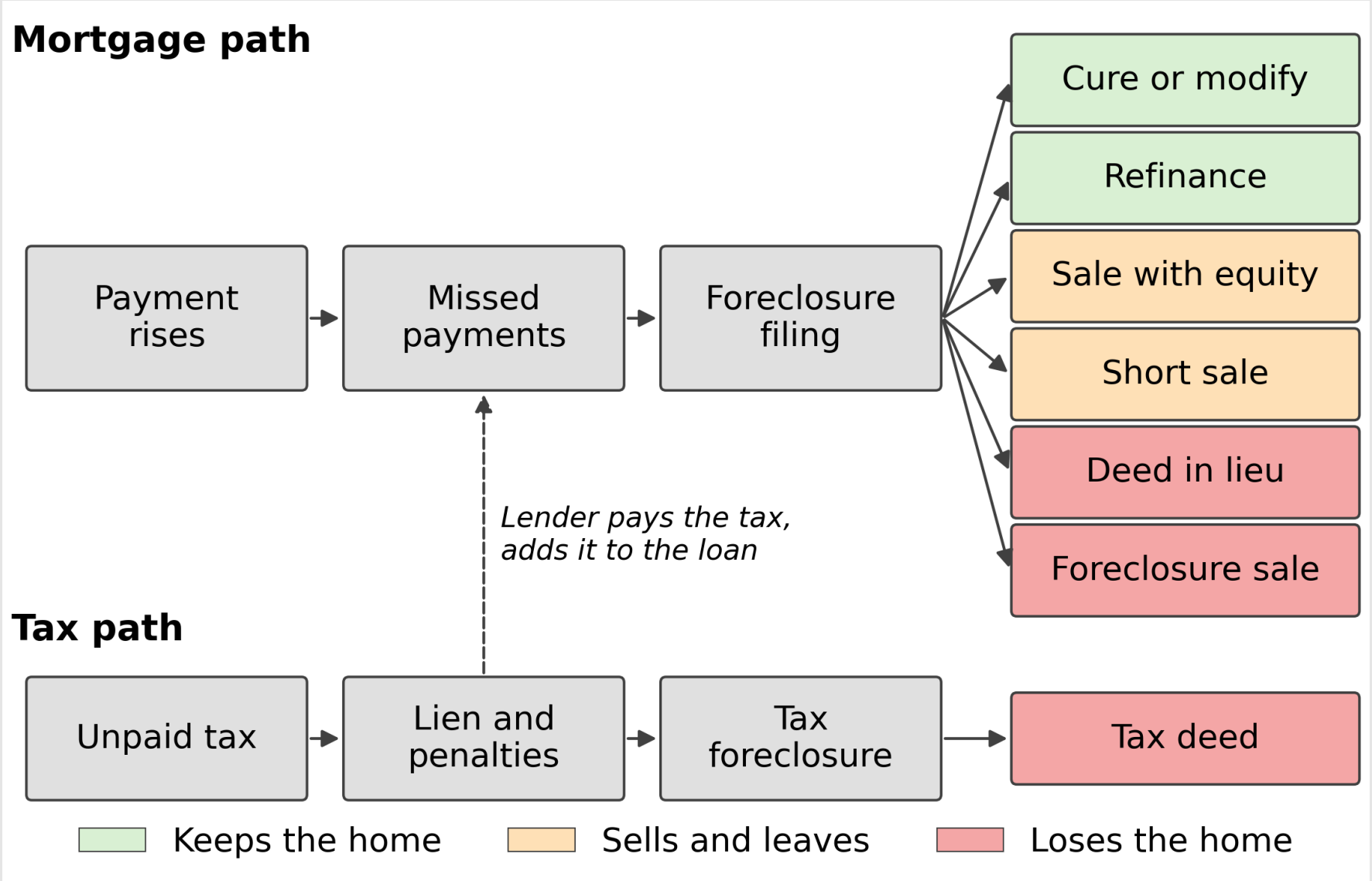
How Assessments Reach Tax Bills

How Property Tax Bills Are Set

$$\text{Bill}_i = \underbrace{\textstyle\sum_g \tau_g}_{\text{rates}} \times \Big(\underbrace{r \times \widehat{AV}_i}_{\text{assessed value}} - \underbrace{E_i}_{\text{exemptions}} \Big)$$

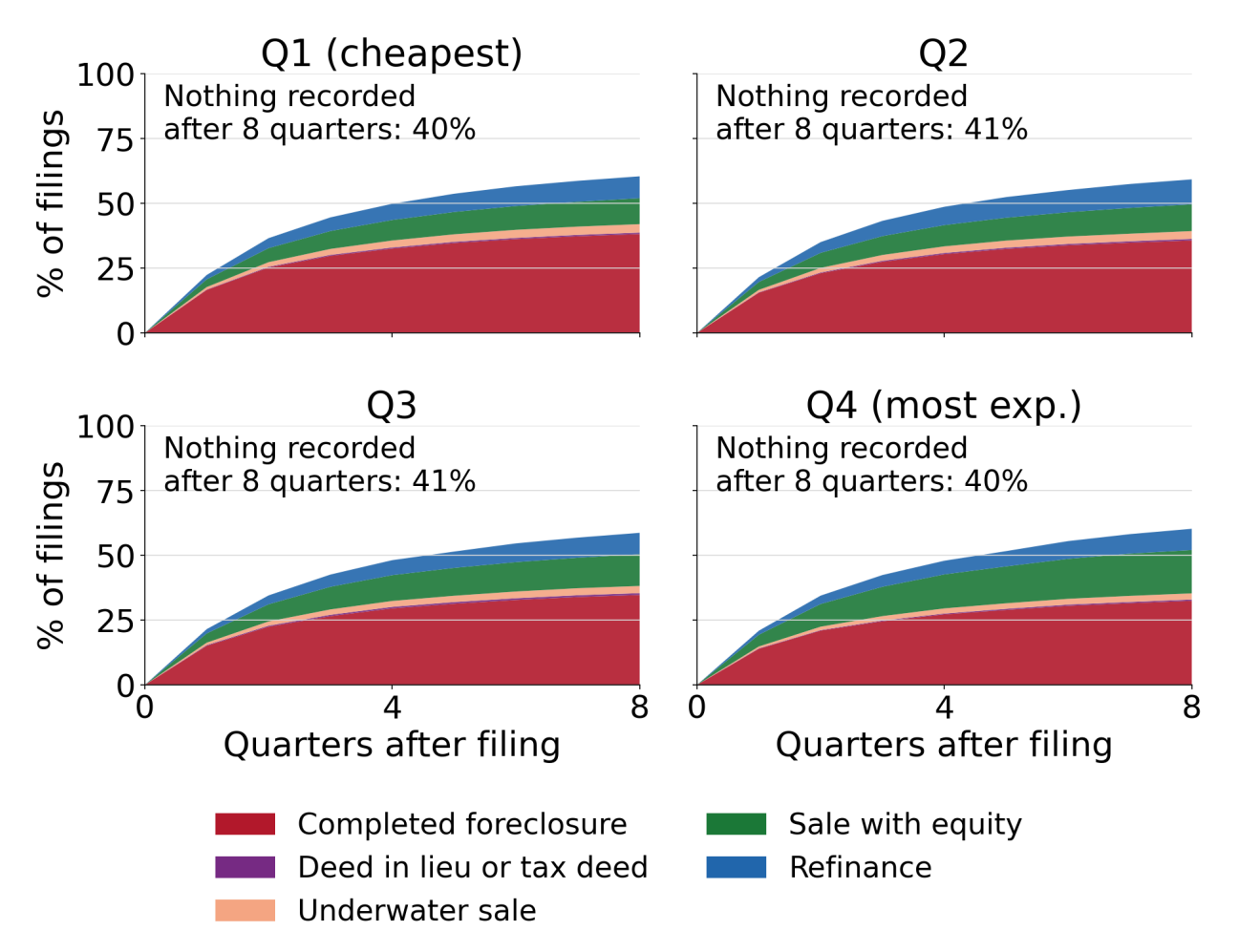
- τ_g: each overlapping government's rate, set every year (Amornsiripanitch, 2024)
- $\widehat{AV}_i$: assessor's mass-appraisal estimate of market value
- r: statutory assessment ratio, 100% in some states, a fraction in others (McMillen and Singh, 2020)
- $\widehat{AV}_i$ changes only when the assessor updates it

What Follows a Foreclosure Filing



How Filings End

First recorded document within eight quarters of a filing, NC, 2011–2018



Cheapest quartile: 38% completed foreclosure, 10% sale with equity, 9% refinance, 40% nothing on record.

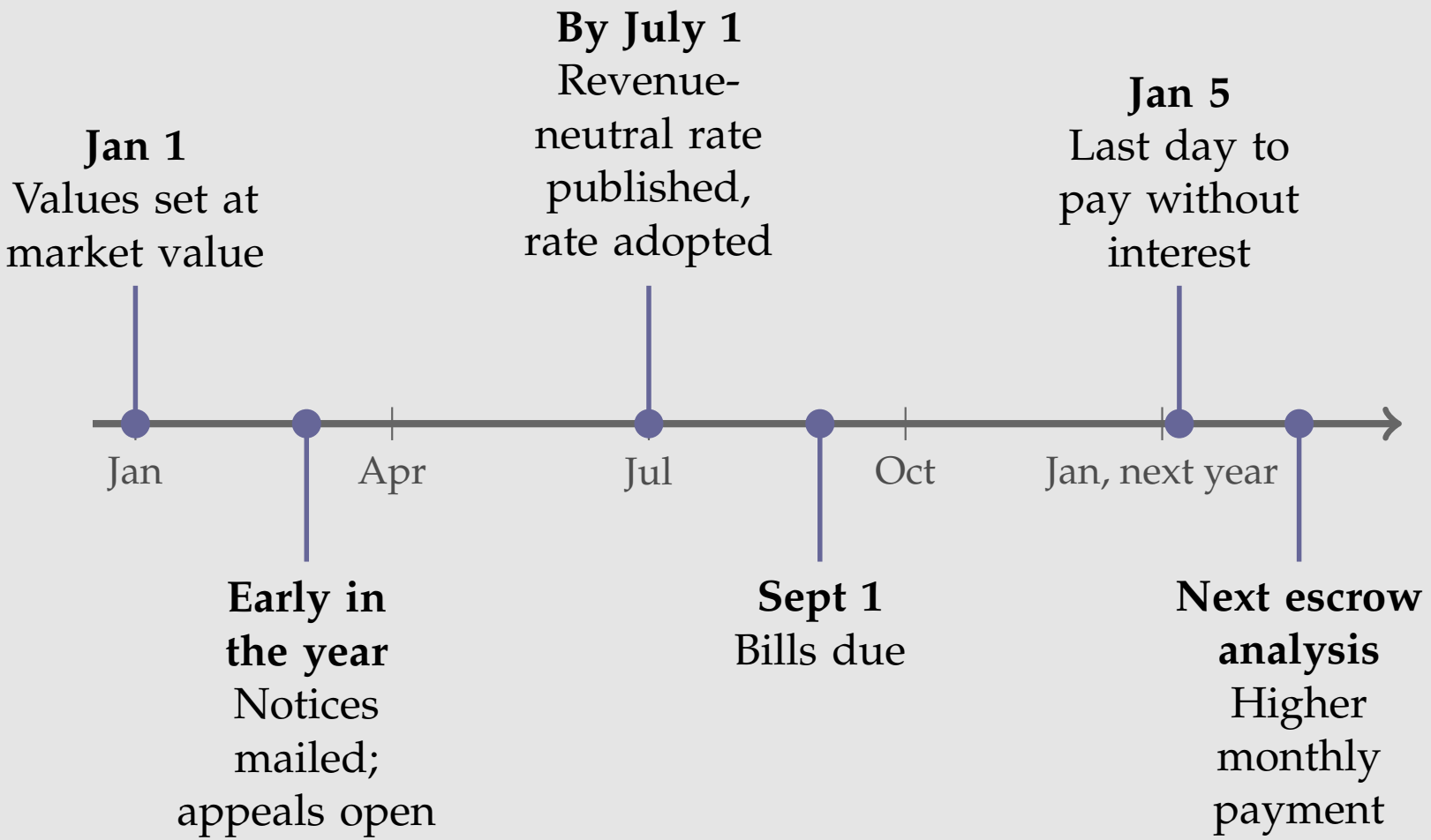
Setting: North Carolina

Assessment in North Carolina

- Mandates countywide reassessments at least every 8 years
  - Commissioners may adopt a shorter cycle by resolution
- Between assessments, values change only with construction, demolition or appeal
- No cap on assessment growth*, no general homestead exemption
- Nearly all of an assessment reaches the typical owner's bill in the year it takes effect

The Assessment Year

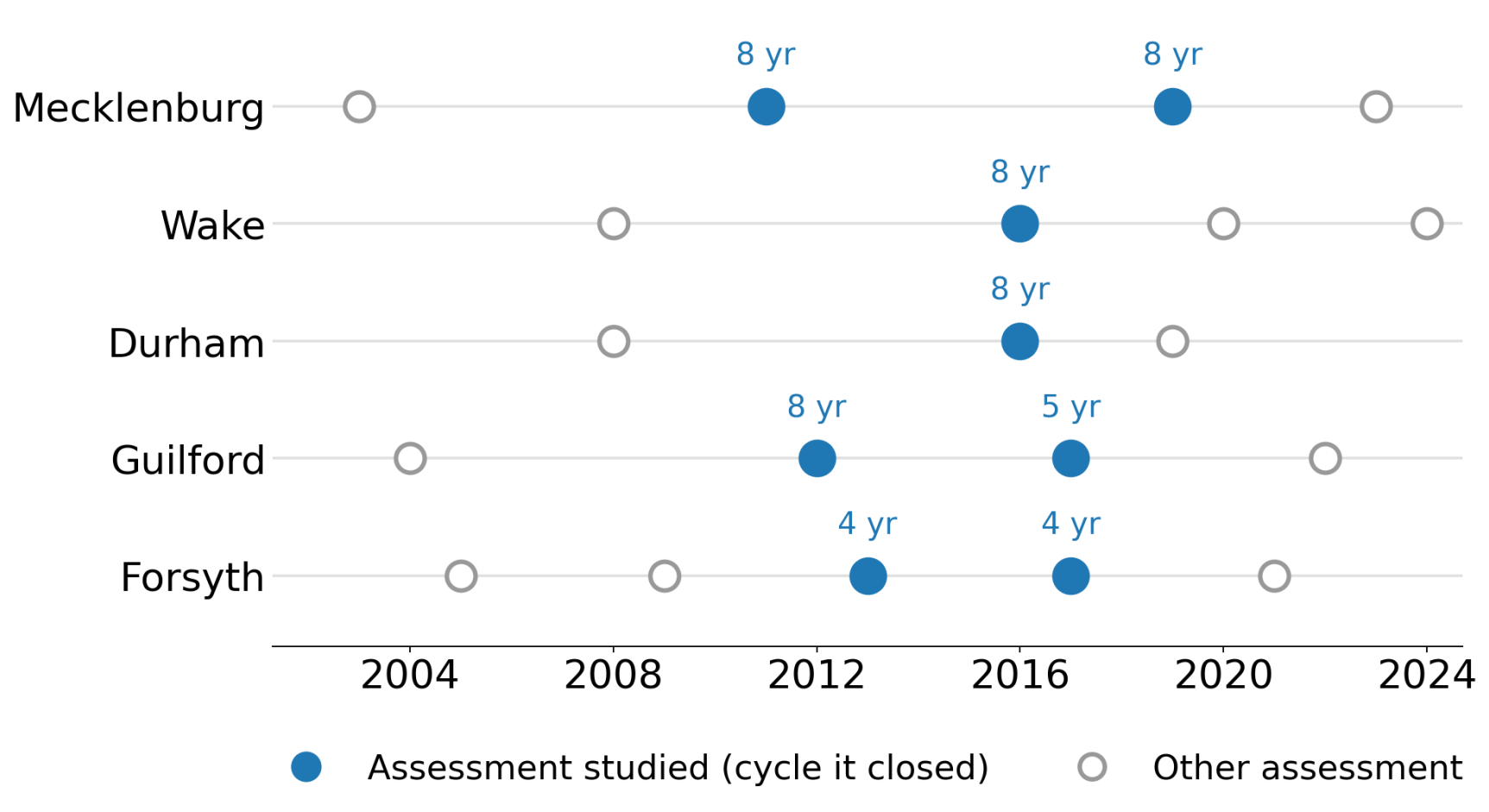
North Carolina, from the new value to the higher payment



Appeals: county board of equalization and review, then the state Property Tax Commission.

Staggered Assessments in the Five Counties

Countywide assessment years, NC Department of Revenue



Assessment in the Comparison Counties

- Assess every year: values follow the market in annual steps
- Bills carry no deferred correction
- Several states cap a homestead's annual rise
  - Florida: 3% or CPI; Michigan: 5% or inflation; Arizona: 5%
- The estimate: one correction in one year vs. the same change in small steps

Conceptual Framework

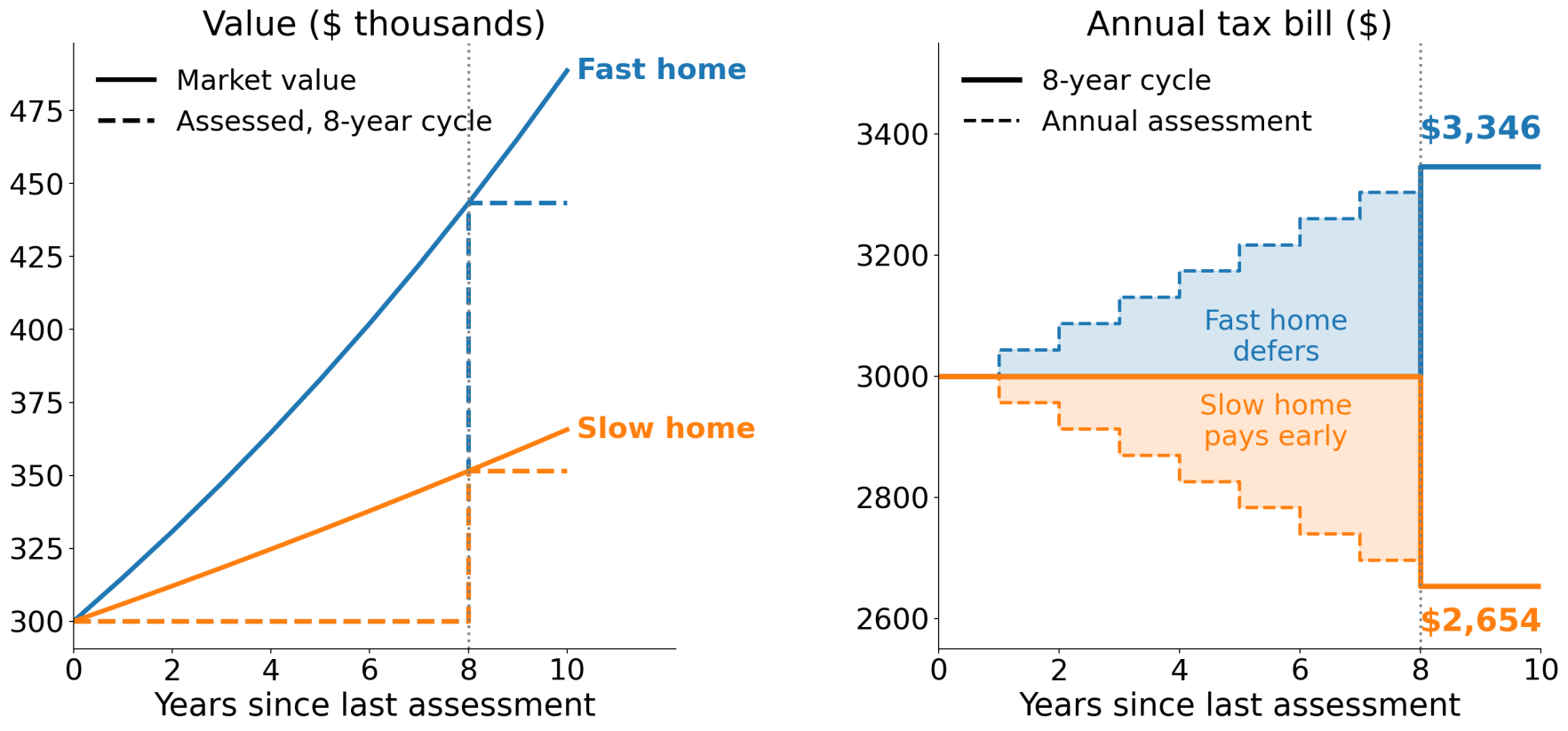
Why Would an Assessment Cause Foreclosure?

An owner falls behind when

$$\underbrace{m}_{\text{mortgage}} + \underbrace{\tau_t A_t}_{\text{tax bill}} > \underbrace{y_t + s_t}_{\text{income + savings}}$$

- Escrow passes the bill into the monthly payment
- Annual assessment: bill rises in small steps
- Long cycle: years of growth arrive in one bill
- Refinancing or selling closes the gap only with equity

Two Homes Under Two Schedules



Who Gets the Bill Change?

$$\Delta \ln B_i = \underbrace{\left(\Delta \ln A_i - \overline{\Delta \ln A}\right)}_{\text{relative to the county}} + \underbrace{\left(\overline{\Delta \ln A} + \Delta \ln \tau\right)}_{\text{common to all homes}}$$

	Common to all homes			Relative assessment change			
	Assessed value	Rate	Bill	Q1	Q2	Q3	Q4
Mecklenburg 2011	$+5.3$	-3.2	$+2.2$	-6.6	-7.7	$+4.3$	$+9.8$
Guilford 2012	-1.1	$+0.1$	-1.1	-5.4	-0.8	$+2.2$	$+4.1$
Guilford 2017	$+3.5$	-1.8	$+1.8$	-3.8	$+0.8$	$+1.1$	$+2.0$
Mecklenburg 2019	$+39.2$	-24.1	$+15.2$	$+10.6$	$+2.1$	-3.6	-8.9

Log points, owner-occupied homes. Comparing quartiles within a county differences out the common part, and with it the county's revenue decision.

Hypotheses

1. An assessment raises foreclosure filings, and the completed foreclosures and distressed exits that follow

2. The rise is largest for the cheapest homes

3. The rise is larger where the bill rises more

Empirical Approach

Why Not Plain Difference in Differences?

- Pooled two-way fixed effects under staggered timing uses already-assessed counties as controls (Goodman-Bacon, 2021)
- Event by event DID needs the treated county parallel to the *average* annually assessing county
- It is not: treated filings were already rising before the assessment
- ▸ Event study DID pre-period gap is 0.06–0.09 points below the last pre-quarter; SDID within 0.025

Synthetic Difference in Differences

- **Difference in differences:** fixed effects absorb the level; the trend has to be parallel already
- **Synthetic control:** reweights donors to reproduce the treated path in the pre-window
- **SDID** combines them (Arkhangelsky et al., 2021)
  - Donor weights make the pre-period trend parallel
  - County fixed effects absorb level differences
  - Time weights favor pre-period quarters that predict the donors' post-period paths

Estimating Equation

One fit per assessment e and outcome

$$\left(\hat{\tau}_e, \hat{\mu}, \hat{\alpha}, \hat{\beta}\right) = \underset{\tau,\mu,\alpha,\beta}{\arg\min} \sum_i \sum_t \left(Y_{it} - \mu - \alpha_i - \beta_t - W_{it}\tau\right)^2 \hat{\omega}_i \, \hat{\lambda}_t$$

- Y_{it}: quarterly rate per 100 owner-occupied homes, county i
- α_i, β_t: county and quarter effects
- $\hat{\omega}_i$, $\hat{\lambda}_t$: county and time weights, fitted per event and outcome
- W_{it}: treated $\times$ post; eight quarters either side

Headline estimate

$\bar{\tau} = \frac{1}{8} \sum_e \hat{\tau}_e$; the same estimator on each value quartile's series gives $\bar{\tau}_q$

Unit and Time Weights

Unit Weights

$$(\hat{\omega}_0, \hat{\omega}) = \underset{\omega_0,\, \omega \in \Omega}{\arg\min} \sum_{t \in \mathcal{T}^-} \left(\omega_0 + \sum_j \omega_j Y_{jt} - Y_{0t} \right)^2 + \zeta^2 T_{\text{pre}} \|\omega\|_2^2$$

- $\hat{\omega}$: one weight per comparison county, event and outcome
- ω_0: intercept, so the weights match movement and leave the level to the county effect
- Ω: weights non-negative and sum to 1
- ζ: ridge penalty, spreads weight across many counties
- Largest weight in the median fit: 4–5%

Time Weights

$$(\hat{\lambda}_0, \hat{\lambda}) = \underset{\lambda_0,\, \lambda \in \Lambda}{\arg\min} \sum_j \left(\lambda_0 + \sum_{t \in \mathcal{T}^-} \lambda_t Y_{jt} - \tfrac{1}{T_{\text{post}}} \textstyle\sum_{t \in \mathcal{T}^+} Y_{jt} \right)^2$$

- $\hat{\lambda}$: one weight per pre-period quarter
- Fitted on the comparison counties alone, so the assessment cannot pick the baseline quarters
- Λ: weights non-negative and sum to 1
- 53–80% of the weight falls on the last pre-period quarter

Assumptions and Inference

Assumptions

Identifying assumption: weighted comparison counties share the treated county's exposure to common shocks (rates, prices, unemployment)

Testable: such a comparison tracks the treated county before the assessment

Design choices support it:

- Comparison counties assess every year, so are never treated
- One assessment per window

Inference

- **Placebo counties:** rerun each event with each comparison county treated as if assessed
- **Placebo average:** draw one placebo effect per event and average (Cavallo et al., 2013)
- **Standard error:** s.d. of 200,000 placebo averages; normal critical values
- **Quartile gap:** one comparison county plays the treated county in both Q1 and Q4, keeping their correlation
- Clustering would rest on five counties or eight events

Data Sources

Data

- **Zillow Transaction and Assessment (ZTRAX):** deeds, mortgages, foreclosure notices, owner-occupancy
- **NC Department of Revenue:** assessment years, tax rates
- **Mecklenburg and Guilford rolls:** every parcel's assessed value, every year
- **Florida Department of Revenue rolls:** every parcel, 2002–2023, matched in 64 of 67 counties
- **Value quartiles:** block-group median of past sales, cut within county before each window

The Eight Assessments

				Treated county			Comparison counties			
County	Year	Cycle	Homes	Filing	Fore.	Exit	Filing	Fore.	Exit	Counties
Mecklenburg	2011	8	263,179	0.408	0.260	0.342	0.515	0.226	0.373	90
Guilford	2012	8	117,713	0.182	0.151	0.207	0.440	0.222	0.369	97
Forsyth	2013	4	86,211	0.388	0.113	0.174	0.434	0.188	0.344	97
Durham	2016	8	67,661	0.196	0.082	0.152	0.190	0.141	0.242	98
Wake	2016	8	280,848	0.117	0.046	0.103	0.190	0.141	0.242	98
Forsyth	2017	4	86,330	0.154	0.080	0.154	0.141	0.094	0.180	100
Guilford	2017	5	117,836	0.149	0.065	0.124	0.141	0.094	0.180	100
Mecklenburg	2019	8	264,074	0.106	0.041	0.091	0.097	0.043	0.113	109
Mean		6.6	160,482	0.213	0.105	0.168	0.269	0.144	0.255	99

Cycle: years since the previous assessment. Rates: pre-period quarterly rates per 100 owner-occupied homes. Comparison columns: equal-weighted means over eligible comparison counties.

Outcomes

Quarterly rate per 100 owner-occupied homes, seasonally adjusted

- **Foreclosure filing:** notice of default, notice of sale or lis pendens
- **Completed foreclosure:** title passes at a foreclosure sale
- **Distressed exit:** completed foreclosure, deed in lieu, tax deed, or sale below the estimated payoff

Comparison Counties

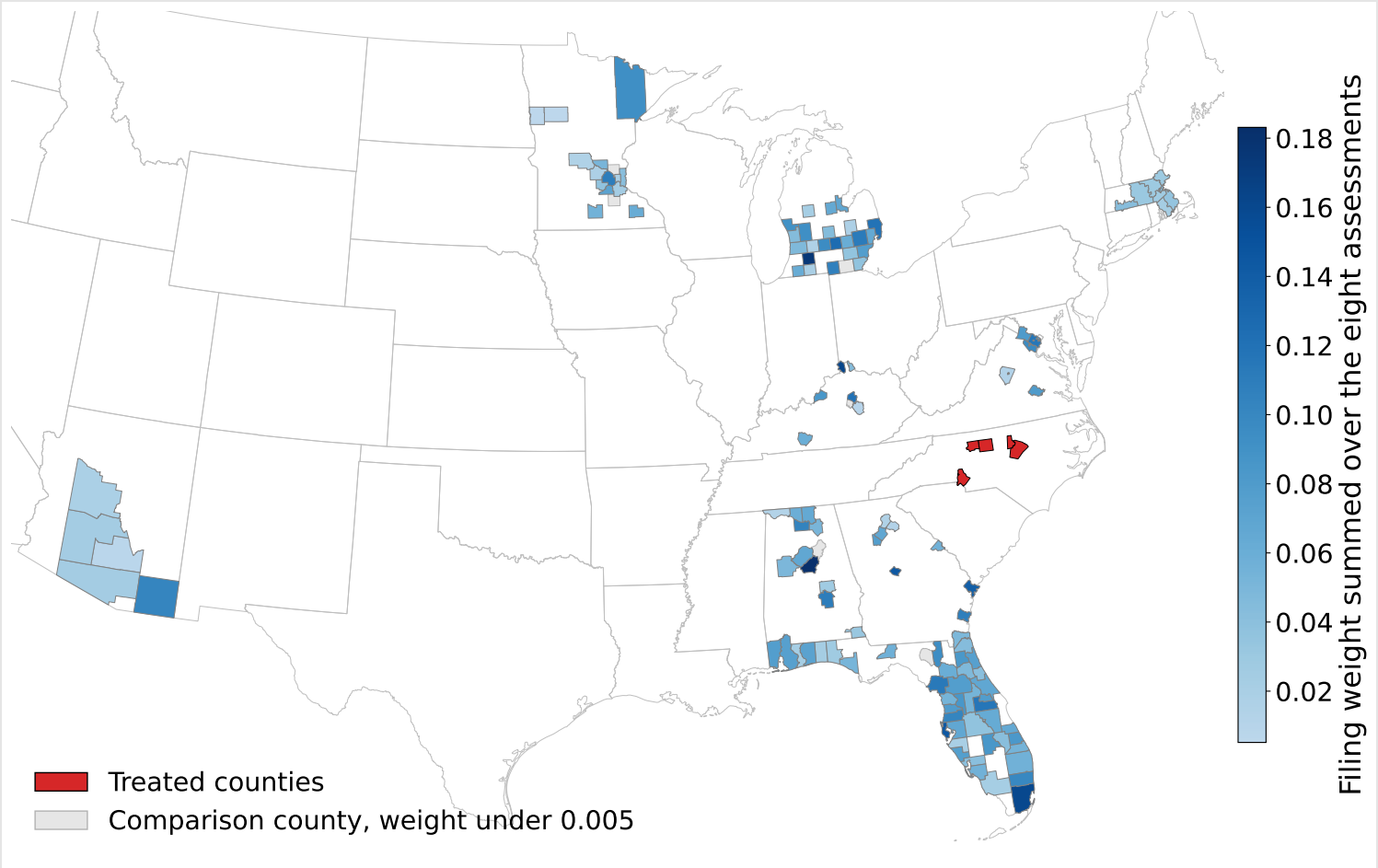
Counties remaining after each screen

	Counties remaining		
	Median across events	Fewest	Most
Counties screened	367	302	382
Annual assessment only	282	253	290
Coverage stable across the window	222	215	248
Enough distinct areas to sort on	145	143	160
No thin or empty quartile-quarters	98	90	109
Eligible donors	**98**	90	109

Nine annually assessing states, 745 counties extracted. A county failing more than one screen is charged to the first.

Where the Counterfactual Comes From

Foreclosure filing weight by county, summed over the eight assessments

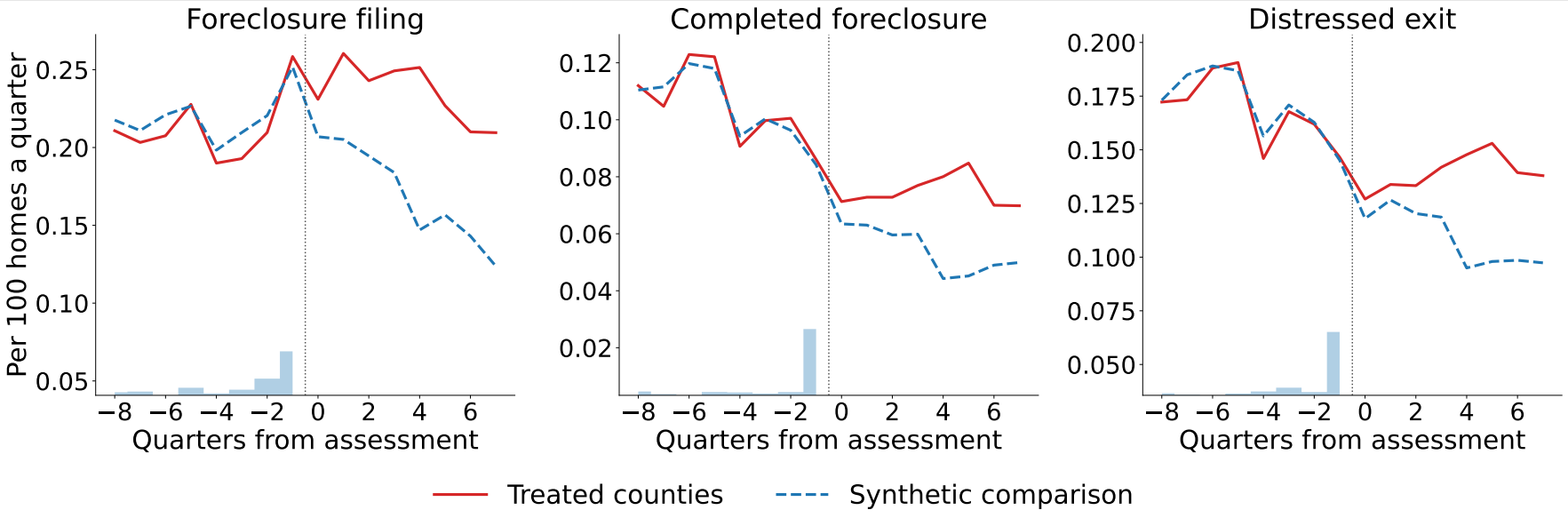


Darker shading is more weight. No county averages more than 2.3% of the filing comparison.

The Effect of an Assessment

Treated Counties and Their Synthetic Comparisons

Average over the eight assessments, time weights beneath



Synthetic comparison shifted by its time-weighted pre-period gap. Rates per 100 owner-occupied homes a quarter.

Main Result: All Homes

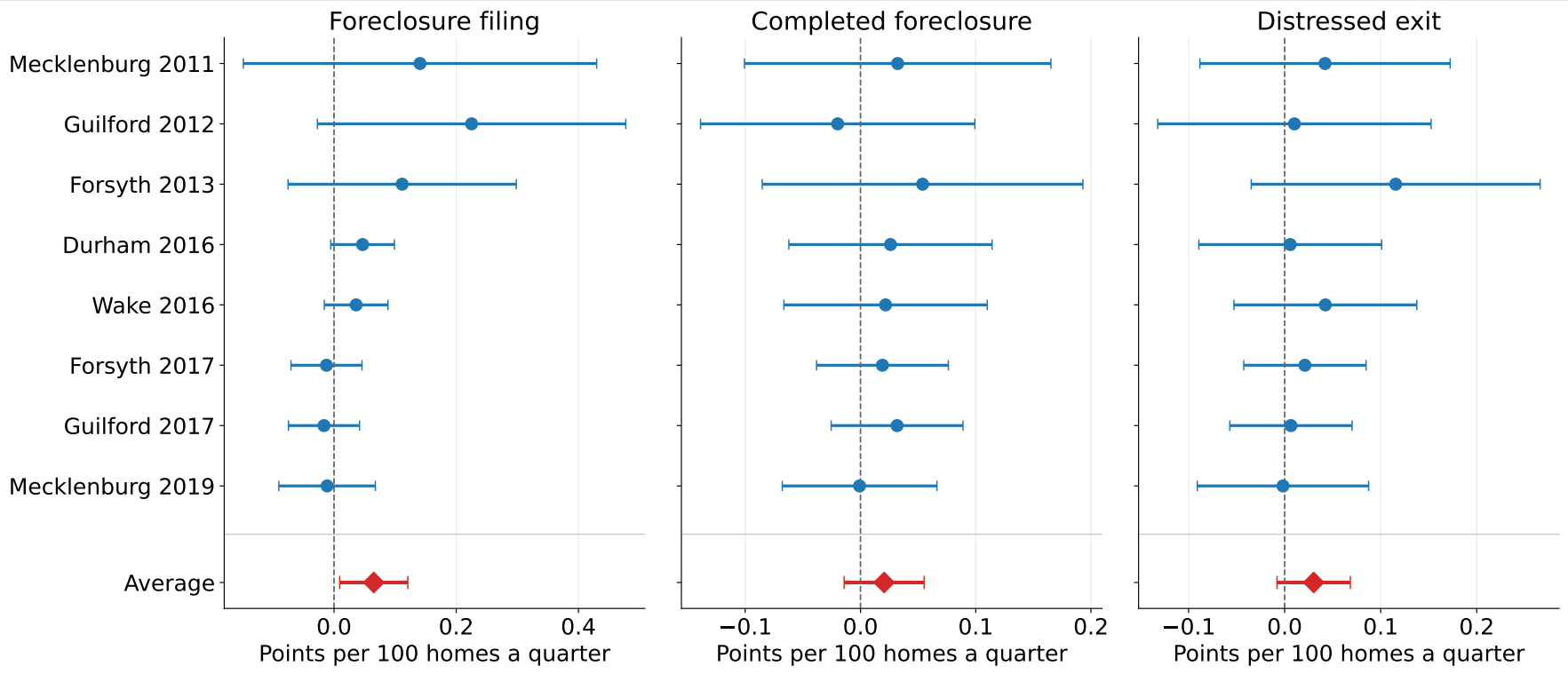
Average over eight assessments, points per 100 homes a quarter

	Foreclosure filing	Completed foreclosure	Distressed exit
	0.065^{**}	0.021	0.030
	(0.028)	(0.018)	(0.019)
Pre-period base	0.213	0.105	0.168
Parcels (median)	10,464,499	10,397,814	10,464,499

Notes. Each assessment and outcome is estimated separately by synthetic difference in differences, with its own comparison-county and time weights. Each column averages the eight assessments' estimates with equal weight. Outcomes are quarterly rates per 100 owner-occupied homes, eight quarters before and after. Standard errors are the standard deviation of averages from comparison counties treated as if assessed, with normal critical values; $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. Each event uses 89–109 comparison counties.

▸ Fit ▸ Window

The Effect of Each Assessment



Filings largest in 2011–2013 (0.11–0.23), as the foreclosure crisis wound down. Bars: 95% placebo intervals per event. Diamond: equal-weight average.

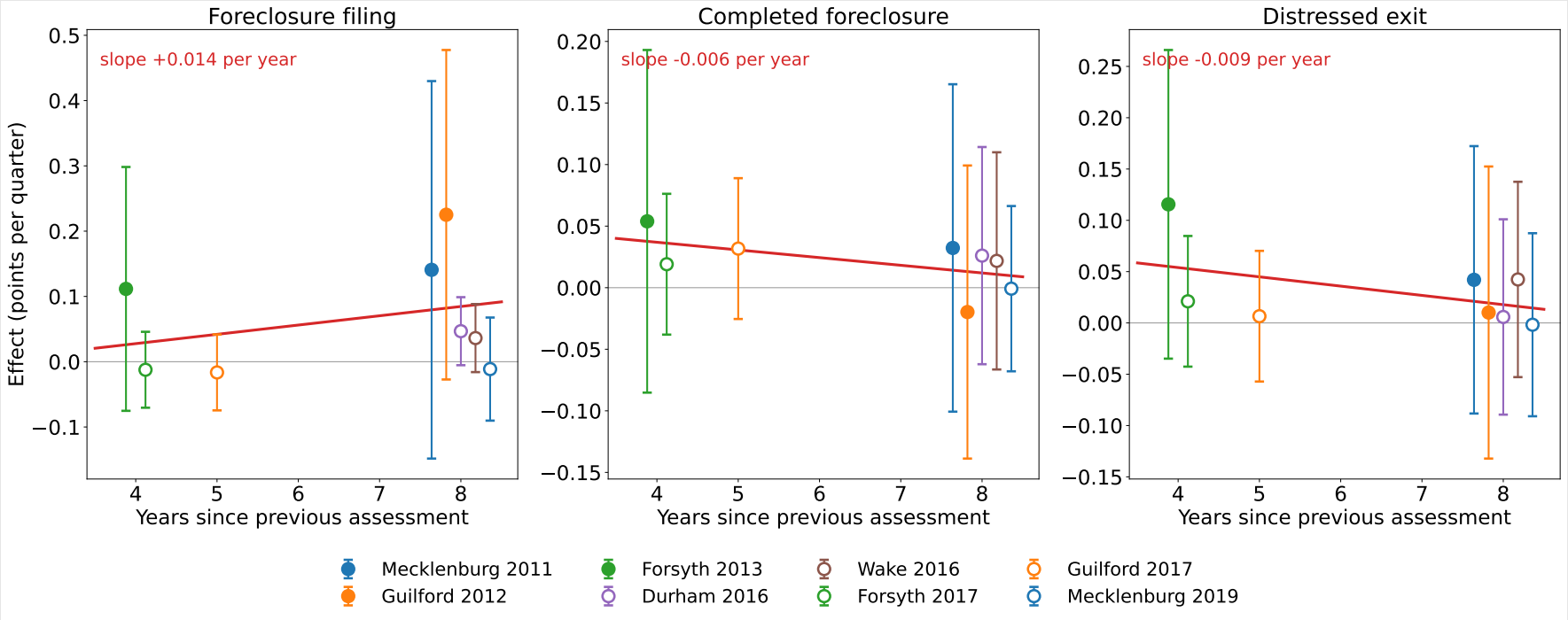
Effects by Home Value Quartile

	Q1 (cheapest)	Q2	Q3	Q4 (most expensive)
A. Foreclosure filing				
	0.088**	0.075**	0.063**	0.046*
	(0.039)	(0.033)	(0.030)	(0.025)
Pre-period base	0.306	0.262	0.174	0.109
B. Completed foreclosure				
	0.020	0.016	0.027	0.019
	(0.025)	(0.023)	(0.019)	(0.016)
Pre-period base	0.159	0.126	0.083	0.051
C. Distressed exit				
	0.029	0.030	0.052**	0.028
	(0.028)	(0.026)	(0.023)	(0.020)
Pre-period base	0.229	0.197	0.143	0.105

Notes. Each cell averages, with equal weight, eight SDID estimates, one per assessment, each with its own comparison-county and time weights. Outcomes are quarterly rates per 100 owner-occupied homes in the quartile, eight quarters before and after. Standard errors in parentheses come from unit placebo draws; $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

▸ Q1 — Q4

Does the Effect Grow With Cycle Length?



Filings: 0.088 after 8-year cycles, 0.028 after 4–5. Slope 0.014 per year (s.e. 0.015). Without Mecklenburg 2011 and Guilford 2012: 0.024 vs 0.028. Descriptive.

▸ Other specifications

Scaling the Effect by the Tax Bill

Scaling by the Bill

- Four events where rolls record every bill: Mecklenburg 2011, 2019; Guilford 2012, 2017
- Re-estimated against Florida counties, whose rolls record bills too
- Bill change: the same SDID comparison applied to the mean log bill
- Ratio of averages:

$$\hat{\beta}_q = \frac{\frac{1}{4}\sum_e \hat{\tau}_{eq}}{\frac{1}{4}\sum_e \Delta b_{eq}}$$

- Reported per 10% bill increase

Effects per 10% Bill Increase

	All homes	Q1	Q2	Q3	Q4
Foreclosure filings					
Per 10% bill	+0.019	+0.331***	+0.059	+0.008	−0.020
	(0.036)	(0.103)	(0.057)	(0.036)	(0.028)
Bill change vs. Florida (%)	5.6	2.1	4.4	6.6	7.5
Completed foreclosures					
Per 10% bill	+0.015	+0.018	+0.003	+0.013	+0.021
	(0.031)	(0.053)	(0.049)	(0.030)	(0.020)
Bill change vs. Florida (%)	7.0	5.9	5.7	7.6	8.1
Distressed exits					
Per 10% bill	+0.027	+0.036	+0.031	+0.049	+0.034
	(0.041)	(0.068)	(0.064)	(0.045)	(0.030)
Bill change vs. Florida (%)	6.7	5.5	5.5	6.9	7.9

Notes. Each entry is the average SDID estimate over Mecklenburg 2011 and 2019 and Guilford 2012 and 2017, divided by the average bill change, in points of the quarterly rate per 100 owner-occupied homes per 10 percent bill increase. The bill change is the post-minus-pre change in the mean log bill, North Carolina less Florida, times 100. Filings fill Guilford's record before 2012. Standard errors are the spread of placebo averages. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Next Steps: Tracking Displaced Households

Address Histories: Where Households Go Next

- **Data Axle:** up to ten addresses per adult, with move dates, 2007–2020
- Matched to parcels on address keys: 94% of parcels across 89 counties
- Each resident inherits the value quartile of the parcel they lived in
- Outcomes: left the county, left the state, moved to a majority-renter area, value of next neighborhood

Conclusion

- An assessment raises foreclosure filings by 31%, 0.52 per 100 homes over two years
- Additional filings decline with home value: 0.70 per 100 in the cheapest quartile, 0.37 in the most expensive
- Completed foreclosures and distressed exits rise 20% and 18%, imprecisely
- Where bills are measured, cheap homes' filings rise with the bill; expensive homes' do not
- Shorter cycles, phased increases or longer escrow repayment would spread the same tax over smaller steps

Thank you!

email: roxanag@email.sc.edu

website: roxana-gonzalez.github.io

Backup: Fit Diagnostics

Average over eight events, all homes

	Foreclosure filing	Completed foreclosure	Distressed exit
Pre-period fit			
Pre-period base	0.213	0.105	0.168
Pre-period RMSE	0.018	0.008	0.012
Pre-period RMSE, % of base	8%	7%	7%
Comparison-county weights			
Largest county weight	0.050	0.036	0.042
Effective number of counties	42	55	49
Estimator			
Synthetic DID	0.065	0.021	0.030
Difference in differences	0.096	0.023	0.039
Synthetic control	0.032	-0.005	0.006

Back

Backup: Length of the Post-Period

Pre-period held at eight quarters

	4 quarters	8 quarters	12 quarters
A. Foreclosure filing			
	0.048*	0.065**	0.084**
	(0.025)	(0.028)	(0.036)
Pre-period base	0.213	0.213	0.228
B. Completed foreclosure			
	0.013	0.021	0.029
	(0.016)	(0.018)	(0.021)
Pre-period base	0.105	0.105	0.114
C. Distressed exit			
	0.013	0.030	0.046*
	(0.018)	(0.019)	(0.024)
Pre-period base	0.168	0.168	0.179
Events	8	8	7

Twelve quarters drop Mecklenburg 2019, whose post-period runs into the 2020 moratoria.

◂ Back

Backup: Cheapest Minus Most Expensive Quartile

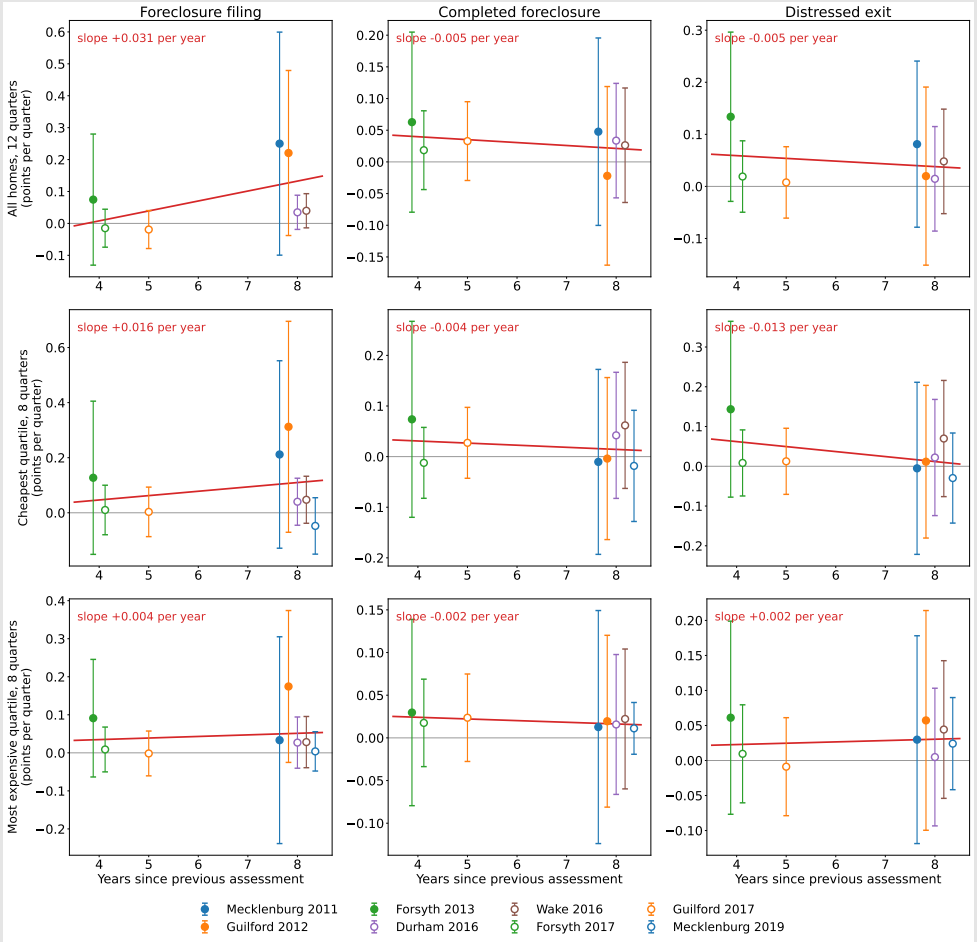
	Foreclosure filing	Completed foreclosure	Distressed exit
Q1 (cheapest)	0.088	0.020	0.029
Q4 (most expensive)	0.046	0.019	0.028
Q1 − Q4	0.042	0.001	0.001
	(0.030)	(0.020)	(0.027)
Events with Q1 > Q4	7 of 8	4 of 8	4 of 8

Standard errors from placebo gaps in which one comparison county per event plays the treated county in both quartiles.

◂ Back

Backup: Cycle Length, Other Specifications

All homes over 12 quarters, cheapest quartile, most expensive quartile



◂ Back

Backup: Tax Bills Between Assessments

Mecklenburg, 2007–2015

	Millage	Change in tax bill (%)			
	(per $100)	Q1	Q2	Q3	Q4
2007	1.237	1.76	2.62	2.37	2.06
2008	1.235	0.19	0.23	0.52	0.35
2009	1.245	0.19	3.26	2.25	1.39
2010	1.243	0.12	0.08	0.18	0.28
2011	1.203	-0.87	-2.43	8.07	14.03
2012	1.178	-2.30	-2.25	-2.21	-2.19
2013	1.205	1.95	2.03	2.03	1.53
2014	1.225	-0.11	1.46	1.48	1.81
2015	1.225	0.87	0.77	0.76	0.80

Mean year-over-year bill change (%) by value quartile. The rule marks the 2011 assessment.

Backup: County Tax Rates

	Mecklenburg	Wake	Durham	Guilford	Forsyth
2009	0.8387	0.5340	0.7081	0.7374	0.6740
2010	0.8387	0.5340	0.7459	0.7374	0.6740
2011	**0.8166**	0.5340	0.7459	0.7824	0.6740
2012	0.7922	0.5340	0.7444	**0.7804**	0.6740
2013	0.8157	0.5340	0.7744	0.7700	**0.7168**
2014	0.8157	0.5780	0.7931	0.7700	0.7168
2015	0.8157	0.6145	0.7931	0.7600	0.7310
2016	0.8157	**0.6005**	**0.7404**	0.7550	0.7310
2017	0.8157	0.6150	0.7679	**0.7305**	**0.7235**
2018	0.8232	0.6544	0.7779	0.7305	0.7235
2019	**0.6169**	0.7207	0.7122	0.7305	0.7535
2020	0.6169	0.6000	0.7122	0.7305	0.7435

Assessment years highlighted. County rate only, per $100 of assessed value.

References I

Natee Amornsiripanitch. Why are residential property tax rates regressive? Working paper, Federal Reserve Bank of Philadelphia, April 2024. URL https://ssrn.com/abstract=3729072. Revised version of the 2020 working paper; dated April 19, 2024.

Nathan B. Anderson and Jane K. Dokko. Liquidity problems and early payment default among subprime mortgages. *The Review of Economics and Statistics*, 98 (5):897–912, December 2016. doi: 10.1162/REST_a_00609.

Dmitry Arkhangelsky, Susan Athey, David A. Hirshberg, Guido W. Imbens, and Stefan Wager. Synthetic difference-in-differences. *American Economic Review*, 111(12):4088–4118, 2021.

Christopher Berry and Qining Wang. Property tax assessment and housing market cycles. University of Chicago, Harris School of Public Policy; draft of 24 February 2024, presented in the Syracuse-Chicago Webinar Series on Property Tax Administration and Design, February 2024. URL https://www.maxwell.syr.edu/docs/default-source/research/cpr/property-tax-webinar-series/2023-2024/berry-and-wang-2024-accessible.pdf.

References II

Marika Cabral and Caroline Hoxby. The hated property tax: Salience, tax rates, and tax revolts. NBER Working Paper 18514, National Bureau of Economic Research, November 2012. URL `https://www.nber.org/papers/w18514`.

Eduardo Cavallo, Sebastian Galiani, Ilan Noy, and Juan Pantano. Catastrophic natural disasters and economic growth. *Review of Economics and Statistics*, 95 (5):1549–1561, 2013.

Andreas Fuster and Paul S. Willen. Payment size, negative equity, and mortgage default. *American Economic Journal: Economic Policy*, 9(4):167–191, November 2017. doi: 10.1257/pol.20150007.

Peter Ganong and Pascal Noel. Liquidity versus wealth in household debt obligations: Evidence from housing policy in the great recession. *American Economic Review*, 110(10):3100–3138, 2020. doi: 10.1257/aer.20181243.

References III

Marina Gindelsky, Jeremy Moulton, Kelly Wentland, and Scott Wentland. When do property taxes matter? tax salience and heterogeneous policy effects. *Journal of Housing Economics*, 61:101951, September 2023. ISSN 1051-1377. doi: 10.1016/j.jhe.2023.101951. URL http://dx.doi.org/10.1016/j.jhe.2023.101951.

Andrew Goodman-Bacon. Difference-in-differences with variation in treatment timing. *Journal of Econometrics*, 225(2):254–277, 2021.

Tullio Jappelli. Who is credit constrained in the U.S. economy? *Quarterly Journal of Economics*, 105(1):219–234, 1990. doi: 10.2307/2937826.

Yusun Kim and Yilin Hou. Property valuation – cycle length and assessment outcome. *The Journal of Real Estate Finance and Economics*, 71(4):545–586, November 2025. doi: 10.1007/s11146-023-09975-8. URL https://doi.org/10.1007/s11146-023-09975-8.

Daniel McMillen and Ruchi Singh. Assessment regressivity and property taxation. *The Journal of Real Estate Finance and Economics*, 60:155–169, 2020.