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Foreclosures, Property Value Assessment Practices and Tax Delinquency in the Motor City (Detroit)

James Alm, Tim Hodge, Sung Kang, Dan McMillen, Laura Reese, Gary Sands, & Mark Skidmore

Mark Skidmore

Professor and Morris Chair in State and Local Government Finance and Policy, Michigan State University

Visiting Fellow, Lincoln Institute of Land Policy

Acknowledgments: We thank the Lincoln Institute of Land Policy for financial support
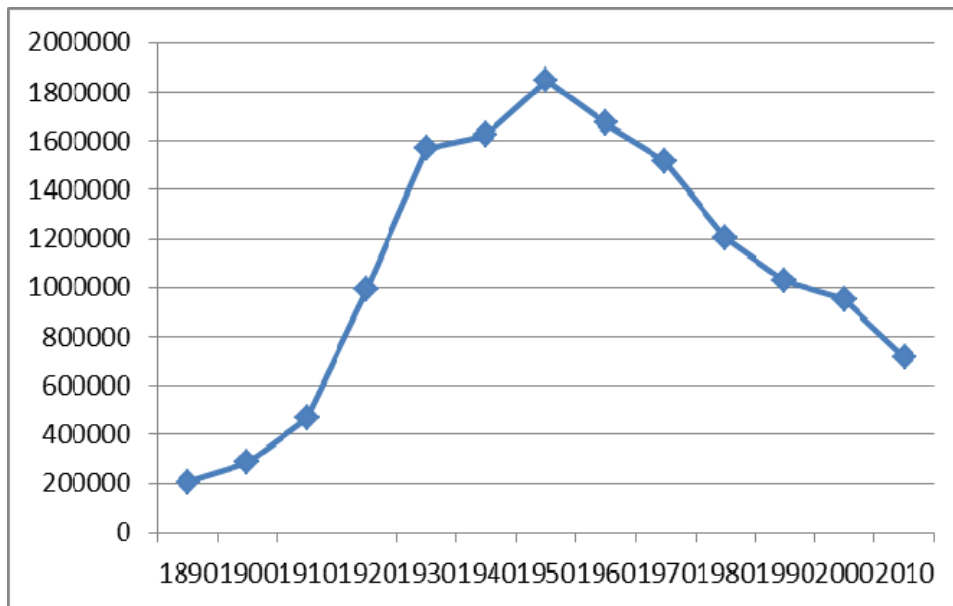
Presentation Outline

- **Background and History**
- **Current Situation**
  - **City Budget, Debt, Bankruptcy**
- **Broader Context**
- **Tax Base Erosion & Assessment Practices**
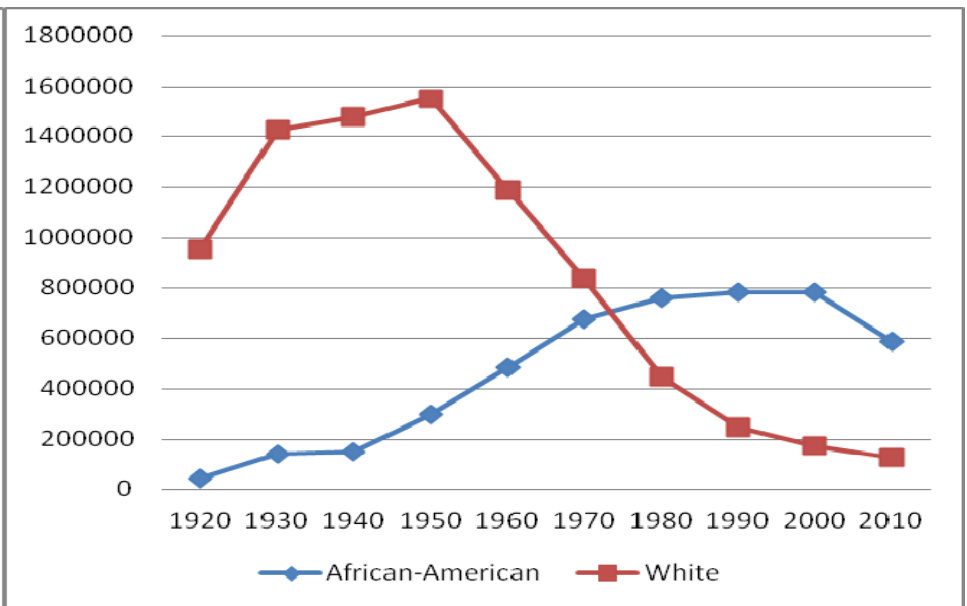- **Property Tax Delinquency**
- **Concluding Remarks…Policy Options**

Background and History (Population)

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Detroit Population Trends, 1890-2010

Detroit Racial Trends, 1920-2010

Reese, Sands, & Skidmore (2013)
Sand & Skidmore (2013)

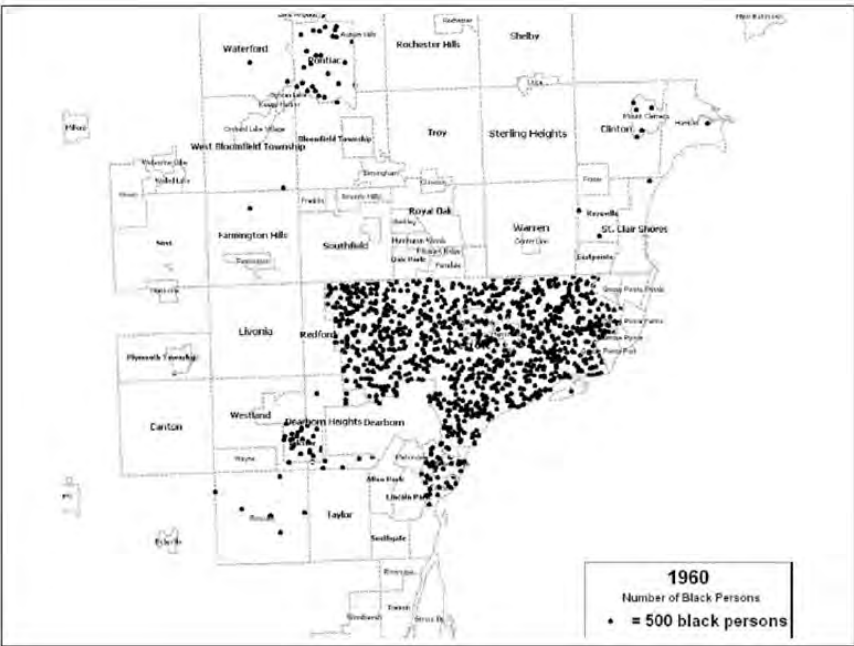# Detroit 1940s and 1950s

Detroit Today

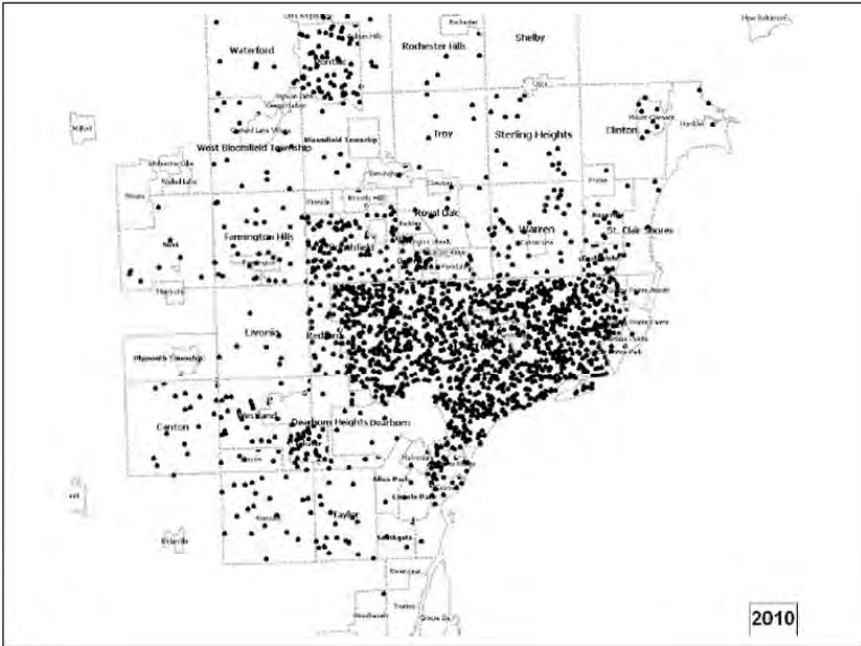Home on East Side Detroit that recently sold for one dollar

Black Population in Region

Metro Detroit Black Population, 1960

Metro Detroit Black Population. 2010

Causes (and Effects)

- Manufacturing Decline/Global Competition
- Racial Tension
- Policies (land use, tax rates, public services, schools)
  - 40% of Street Lights Are Non-functioning
  - Highest Crime Rate Among Large Cities
 - 47 Minute Police Response Time (national average=11 minutes)
- Corruption

Crime Incidents and Case Clearance Rates

City	Violent Crime	Murder	Rape	Robbery	Aggr. Assault	Simple Assault	Property Crime	Burglary	Larc. Theft	MV Theft	Arson	Total
Detroit												
Cases Assigned	15,254	344	426	4,976	9,508	17,240	43,759	16,032	16,500	11,227	958	136,224
Cleared	2,841	39	54	401	2,347	2,427	1,844	730	578	536	57	11,854
Clearance Rate	18.6%	11.3%	12.7%	8.1%	24.7%	14.1%	4.2%	4.6%	3.5%	4.8%	5.9%	8.7%

Detroit Financial Situation

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City of Detroit Balance by Fiscal Year (in millions)
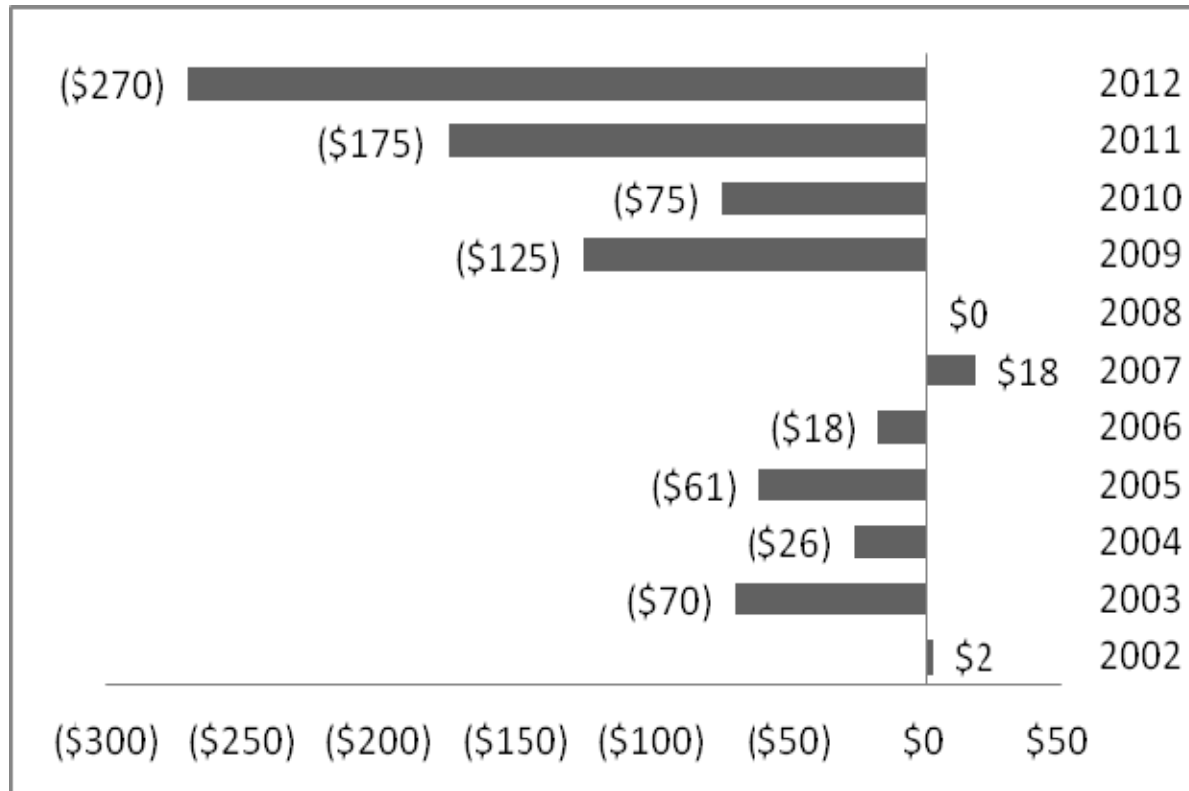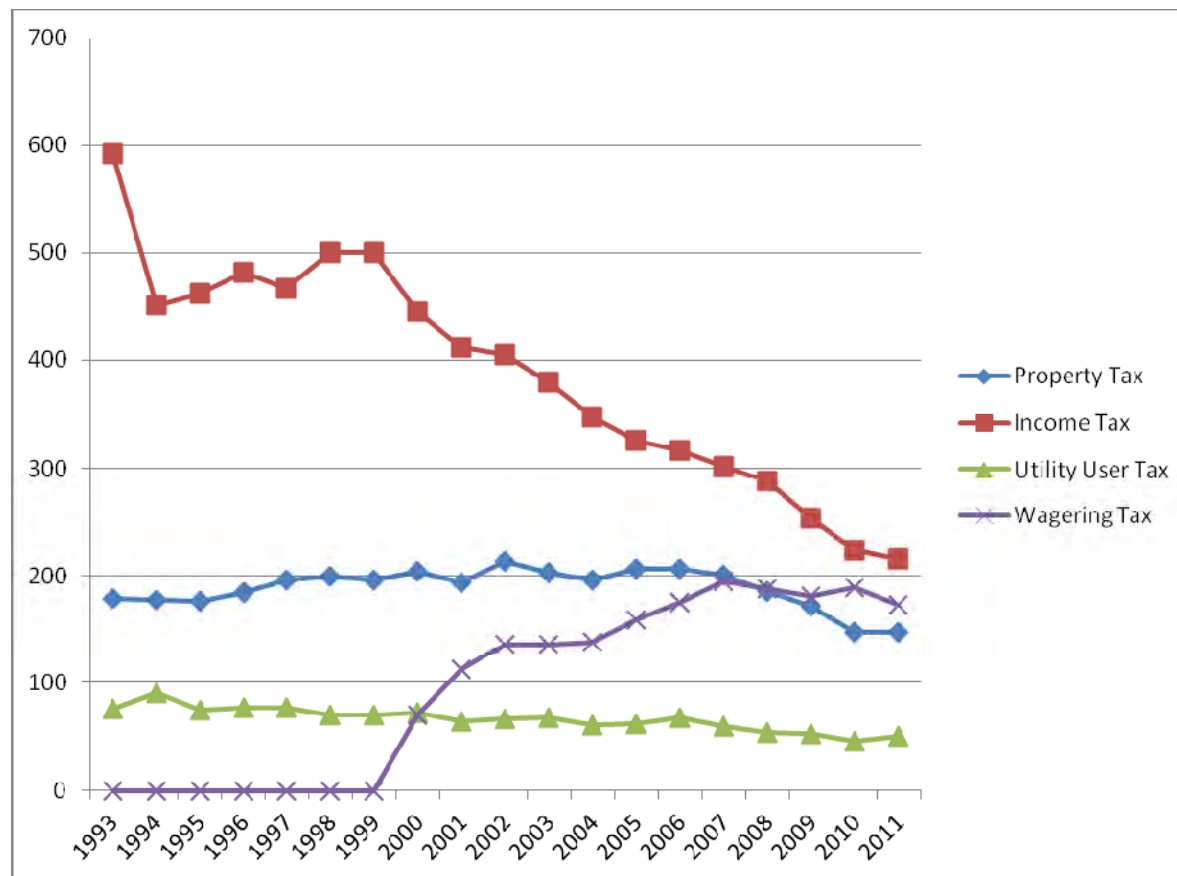

True deficits unrevealed by "debt restructuring", and underfunding retiree benefits accounts

Major Revenue Sources (millions of real $)

Detroit General Fund Major Revenue Sources, FY93-FY10

Total Debt and Unfunded Liabilities = $18 billion

or $68,000 per Detroit household

Bankruptcy in Process

Broader Context—other Local Governments

- Cities: Fiscal Challenges in Chicago, Jacksonville, Los Angeles, Oakland and Providence to name a few. Many troubled cities cite under-funded retiree compensation promises as major issue

- Schools: California—200 schools using capital appreciation bonds: Borrow $1 million today…no principal or interest (zero payments) for 40 years. At the end of year 40, $1 billion is due to be paid in full

Broader Context—State Governments

- Illinois—Underfunded State Retiree Benefits ($100 billion or about $21,000 per Illinois household)

- California—Underfunded Retirement Benefits ($327 billion or about $22,000 per California household)

- Novy-Marx and Rauh (2010)

Broader Context—Federal Government

- 2012 Deficit Spending ($29 cents of every $1 spent is borrowed)

- Total Debt–
    - $17 trillion
    - $148,000 per household
    - ~$242,000 per tax paying household
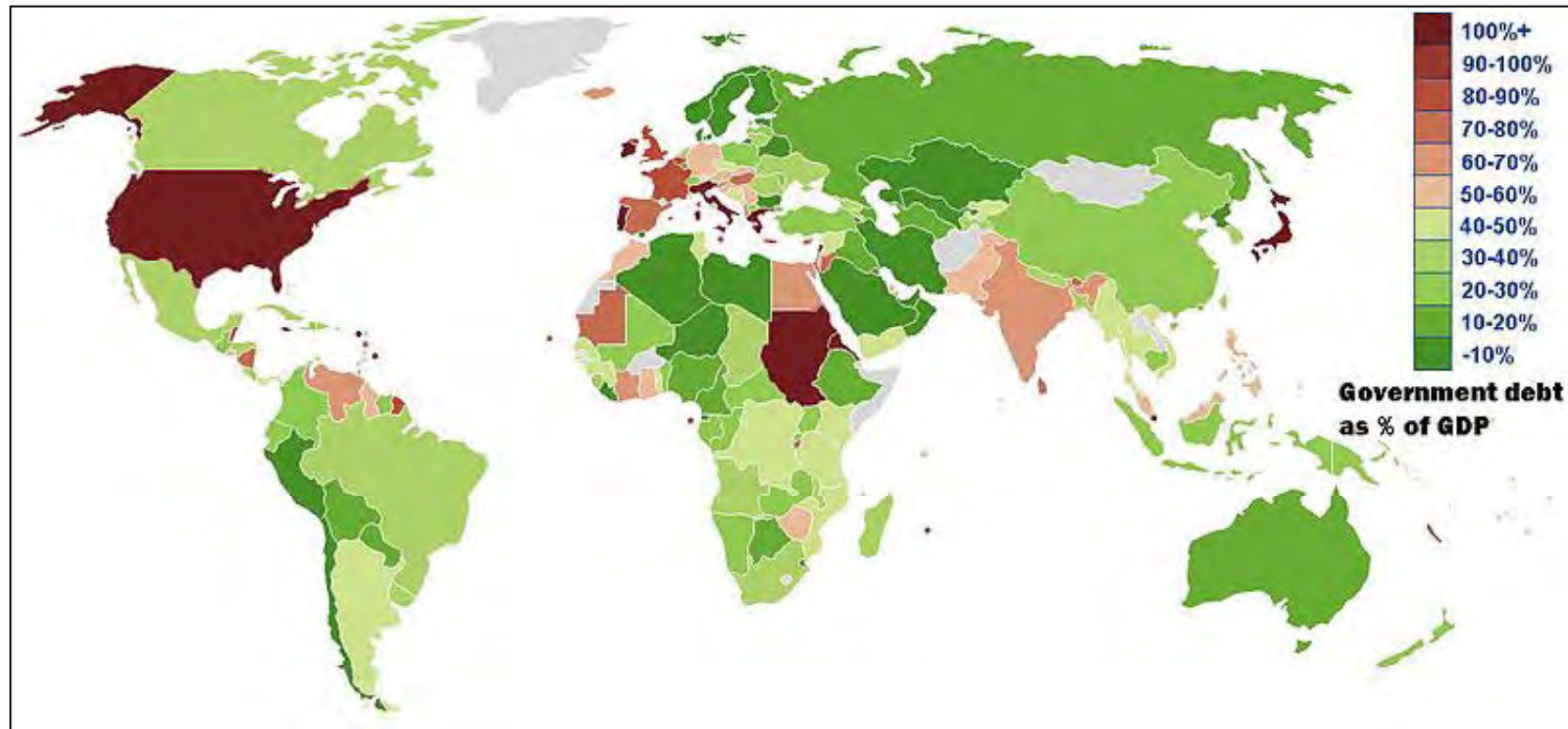
Broader Context—Federal Government

- Unfunded Liabilities
  - $125 trillion
  - $1.2 million per household
  - ~$1.8 million per tax paying household
- Total Liability
  - $142 trillion
  - $1.35 million per household
  - ~$2.0 million per tax paying household

Broader Context—International

Debt as Percent of GDP, 2012

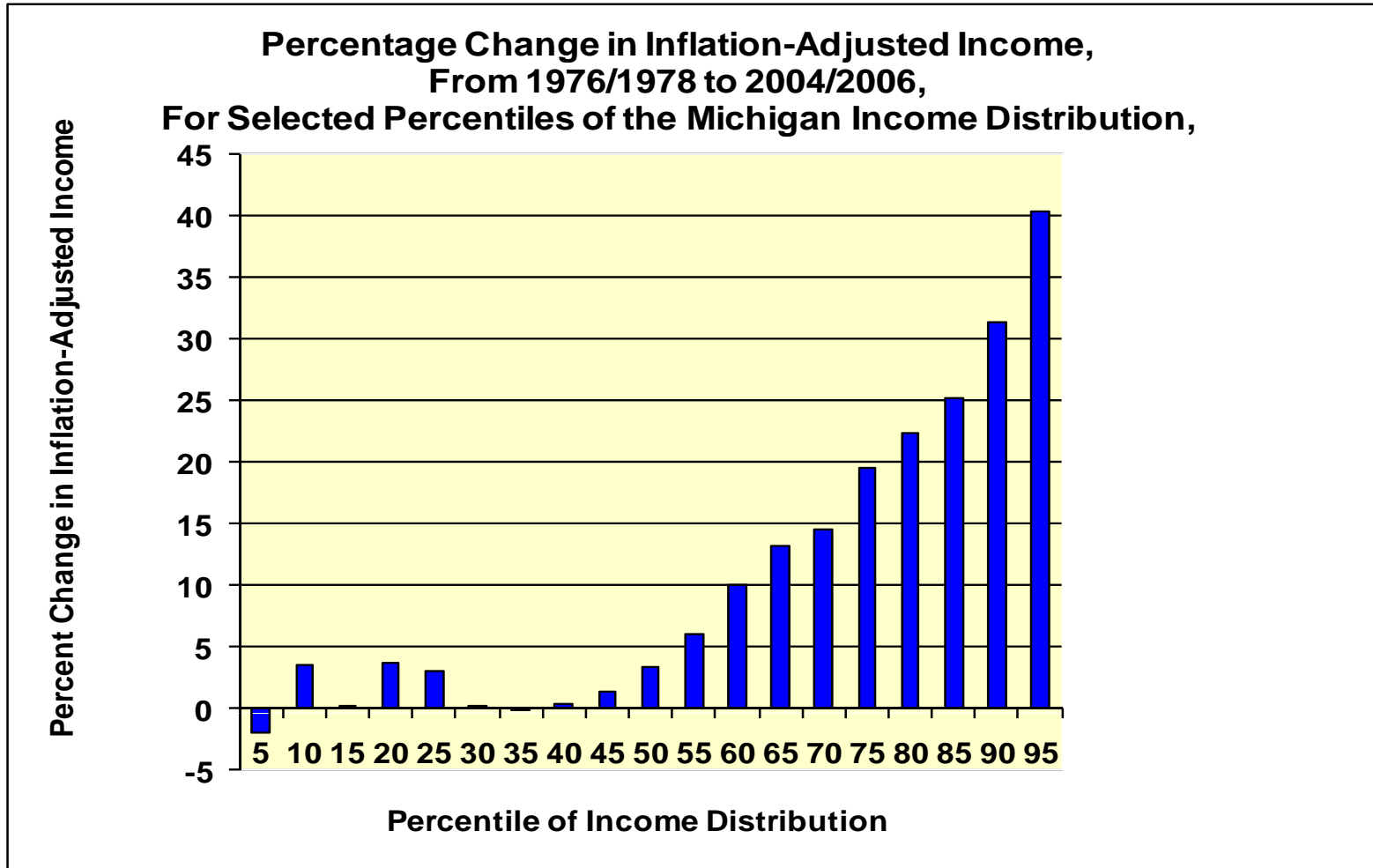**Greece: 1/3 of Tax Revenue Lost to Tax Evasion**

Mistaking Short-term Crises for Long-term Trends

- Detroit Fiscal Problems Accumulated over Decades

- One Interpretation: Citizens and Public Officials in Detroit Mistook a Long-run Permanent Structural Shift for Short-term Challenges

  - It might be rational to delay pension & retiree contributions, transfer short-term deficit spending into long-term bonds, & enact tax rate increases, if you think your problems are temporary and you anticipate a return to previous trends…

Short-term?

**Percentage Change in Inflation-Adjusted Income,
From 1976/1978 to 2004/2006,
For Selected Percentiles of the Michigan Income Distribution,**

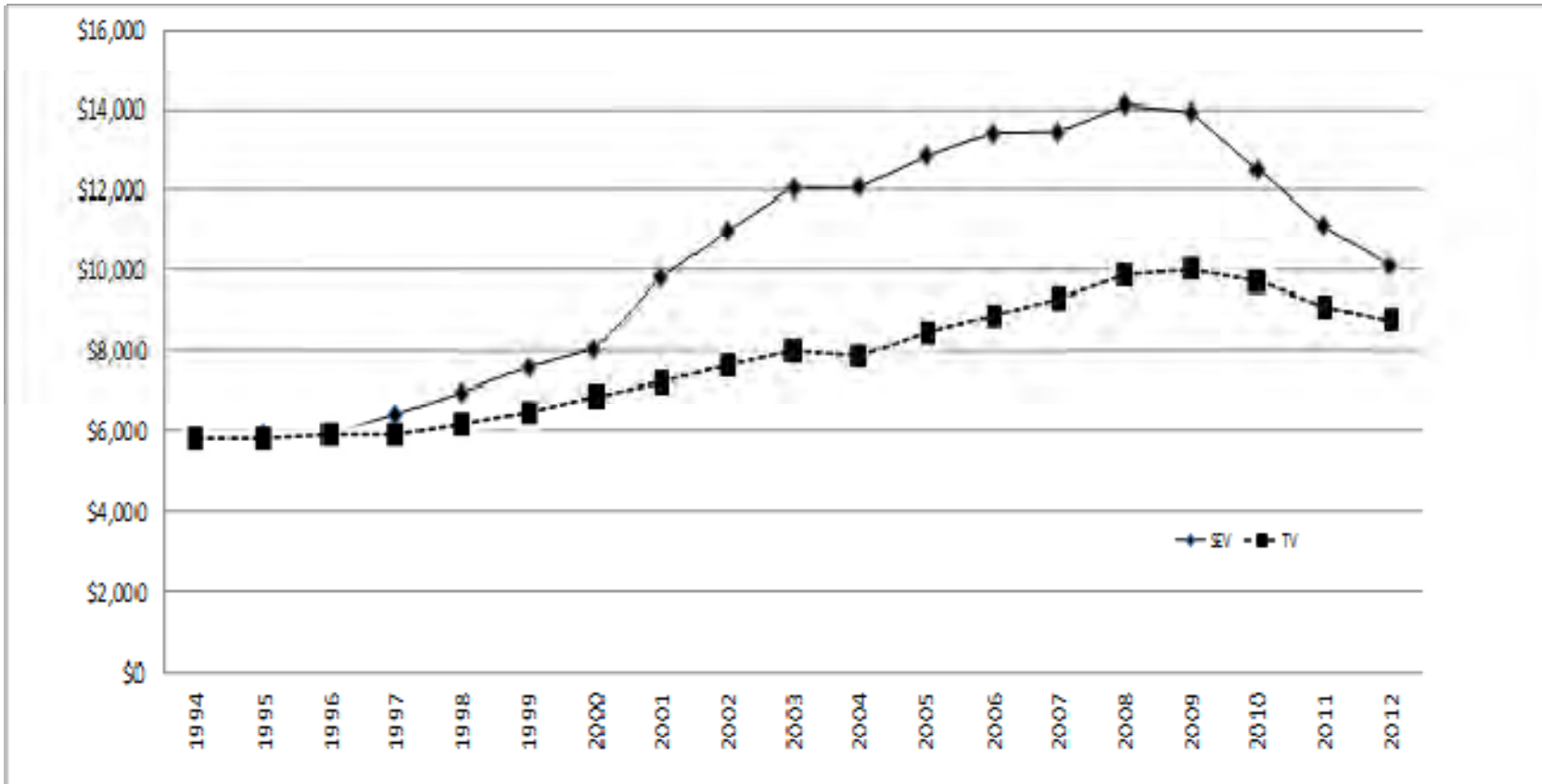# Detroit: Property Tax, Delinquency, & Publicly Held Parcels

- Definitions & Institutional Background
  - Taxable Value Grows at Rate of Inflation until Property Is Sold (Assessment Growth Cap Imposed in 1994)
  - State Equalized Value=1/2*Market Value
  - Tax Payment=Taxable Value*Statutory Tax Rate
  - Effective Tax Rate=Tax Payment/State Equalized Value
  - Millage Rates Vary Depending on Abatements
  - Effective Tax Rates Vary Substantially from Neighborhood to Neighborhood and from Parcel to Parcel

Hodge, Skidmore, Sands, & McMillen (2013a)

Skidmore, Sands, & Hodge (2013)

Detroit Residential SEV and TV

Dollar figures in millions
Source: City of Detroit Comprehensive Annual Financial Reports

Property Tax Delinquency and Abandonment

- Delinquency Facts and Processes
  - 48% of Parcels Are Tax Delinquent (20% delinquent for five or more years)
  - Wayne County Does Not Have the Resources to Bring Tax Foreclosure Proceedings on All Delinquent Property Owners
  - Properties with Less than $1,500-$2,000 in Back-taxes Are Ignored
  - For Properties That Are Tax Foreclosed, a Public Auction is Held
  - If a Property Is not Sold, the Property is Transferred to a Public Body such as City, State or Land Bank

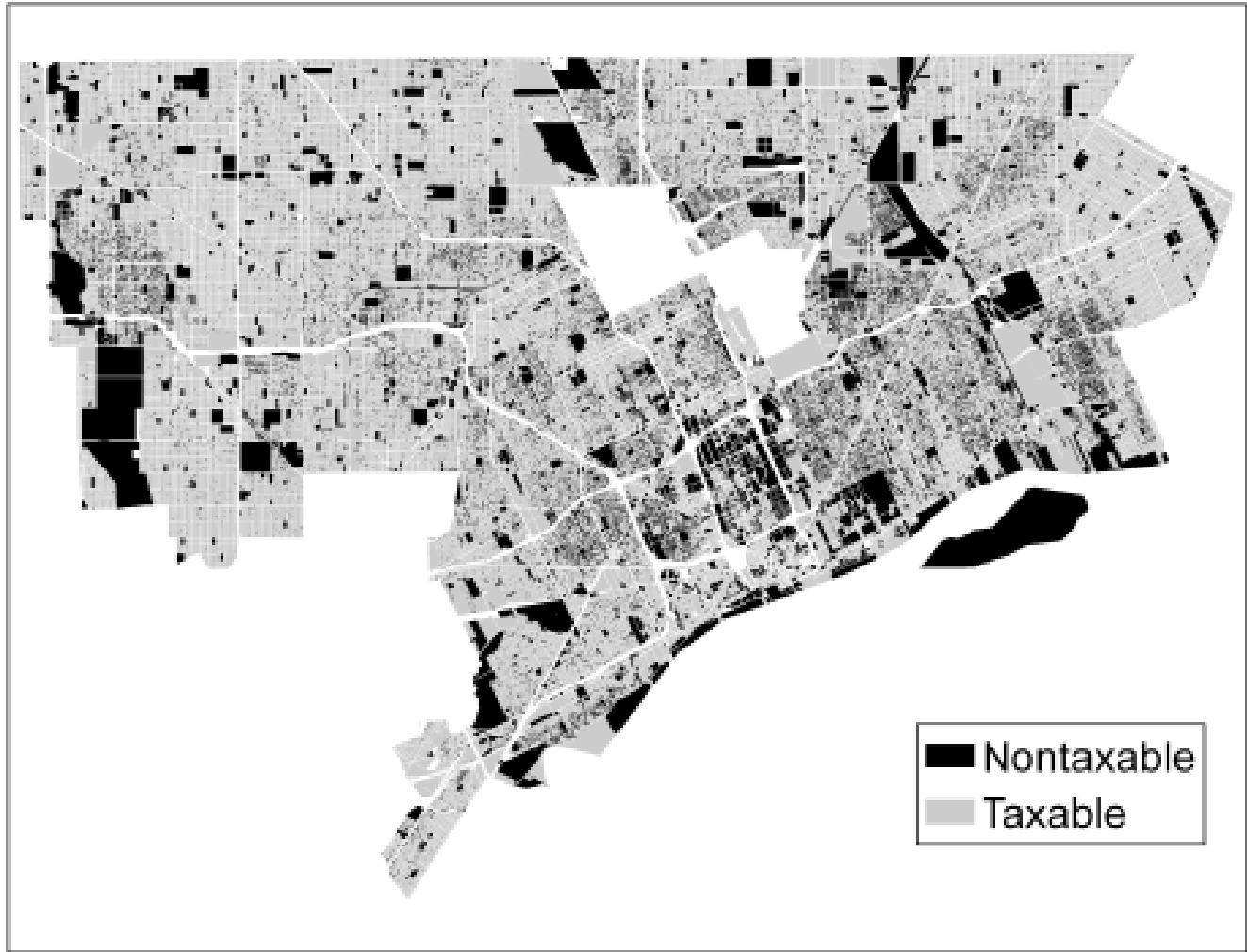# Property Tax Delinquency and Abandonment

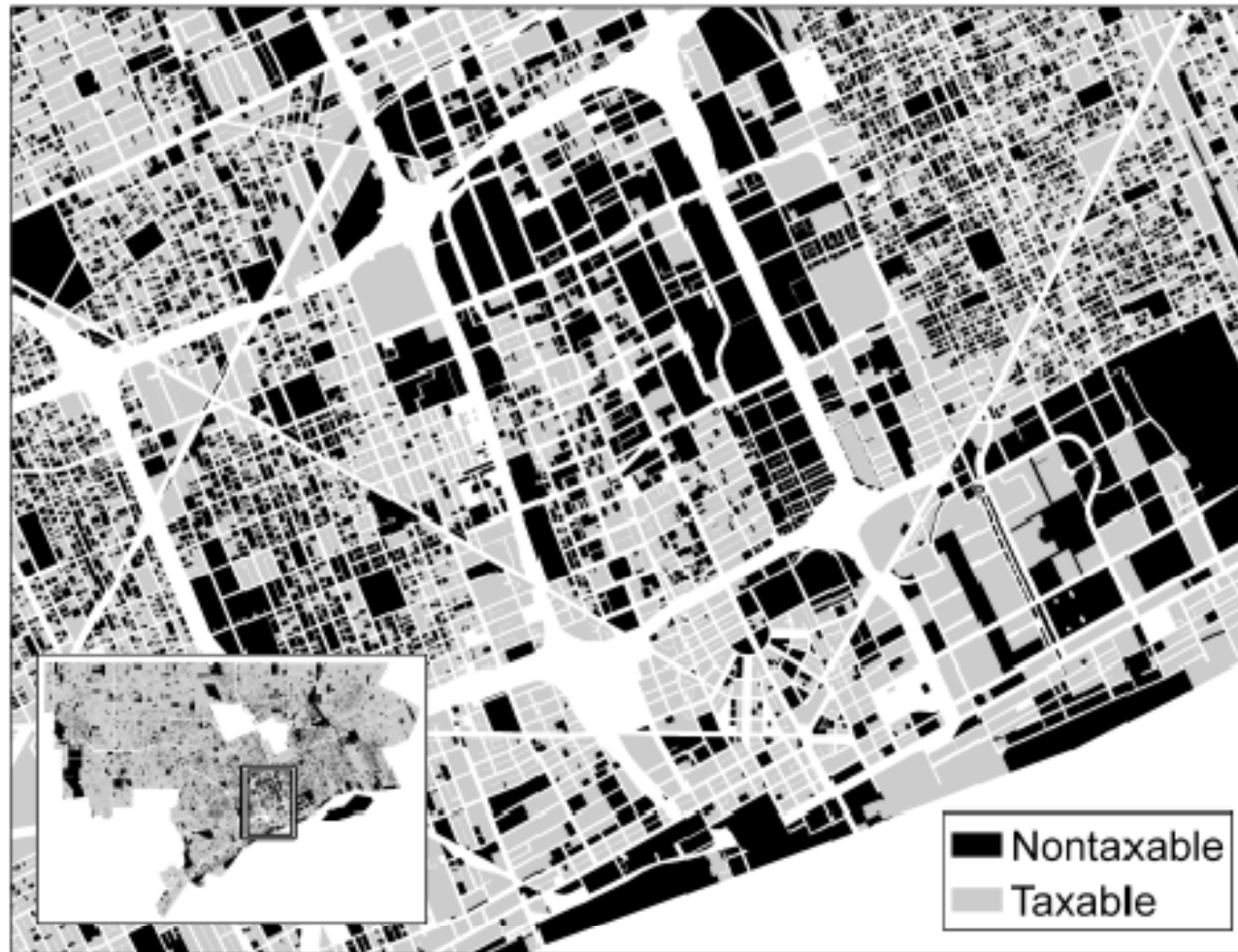- 80% of Properties Sold at Auction Two Years ago Are Again Delinquent on Taxes

- There Is Backlog of 200,000 Tax Delinquent Properties in Wayne County (most in Detroit)

- The Number of Parcel in Public "Ownership" is Growing

Taxable and Nontaxable Properties

Legend: Nontaxable (black), Taxable (gray)

Central City Taxable and Nontaxable Properties

Tax Base Erosion:
Abatement Zones

Legend
RZs
NEZs

Tax Base Erosion: Assessment Growth Cap

Neighborhood Average Effective Tax Rates of Owner-Occupied Residential Property

Effective Tax Rates
☐	25.31 - 42.84
▨	42.85 - 47.34
▨	47.35 - 50.05
▨	50.06 - 53.58
■	53.59 - 67.01
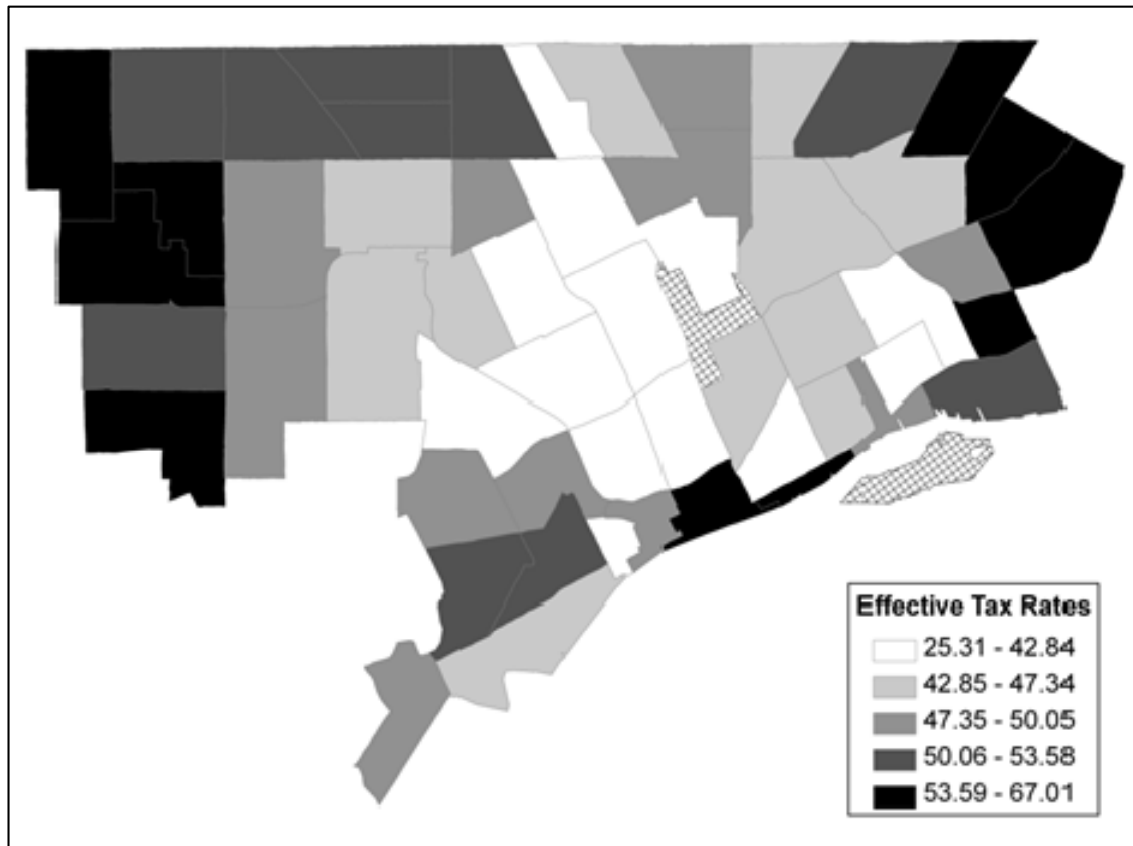
Recall that:

Tax Payment=
    Statutory Tax Rate*TV

Effective Tax Rate =
    Tax Payment/SEV

Parcel Level Effective Tax Rates

Evergreen Neighborhood

Effective Rates
- 0.00 - 30.92
- 30.93 - 50.19
- 50.20 - 65.50
- 65.51 - 81.14
- 81.15 - 85.5

Miles
0   0.25   0.5

*Crosshatched parcels represent nontaxable properties.

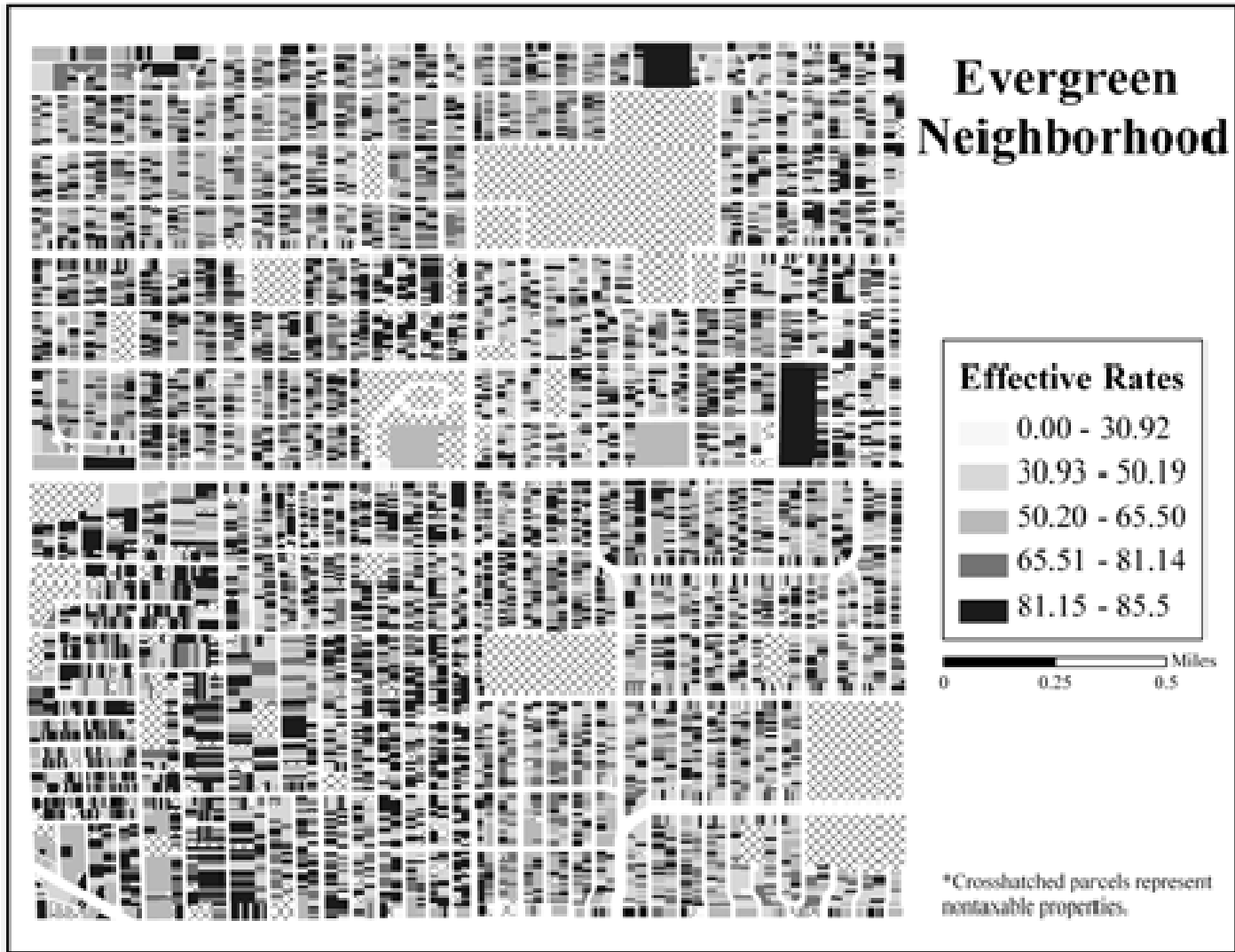# Quantile Regression Results: Effect of Assessment Growth Cap on Effective Tax Rate Densities
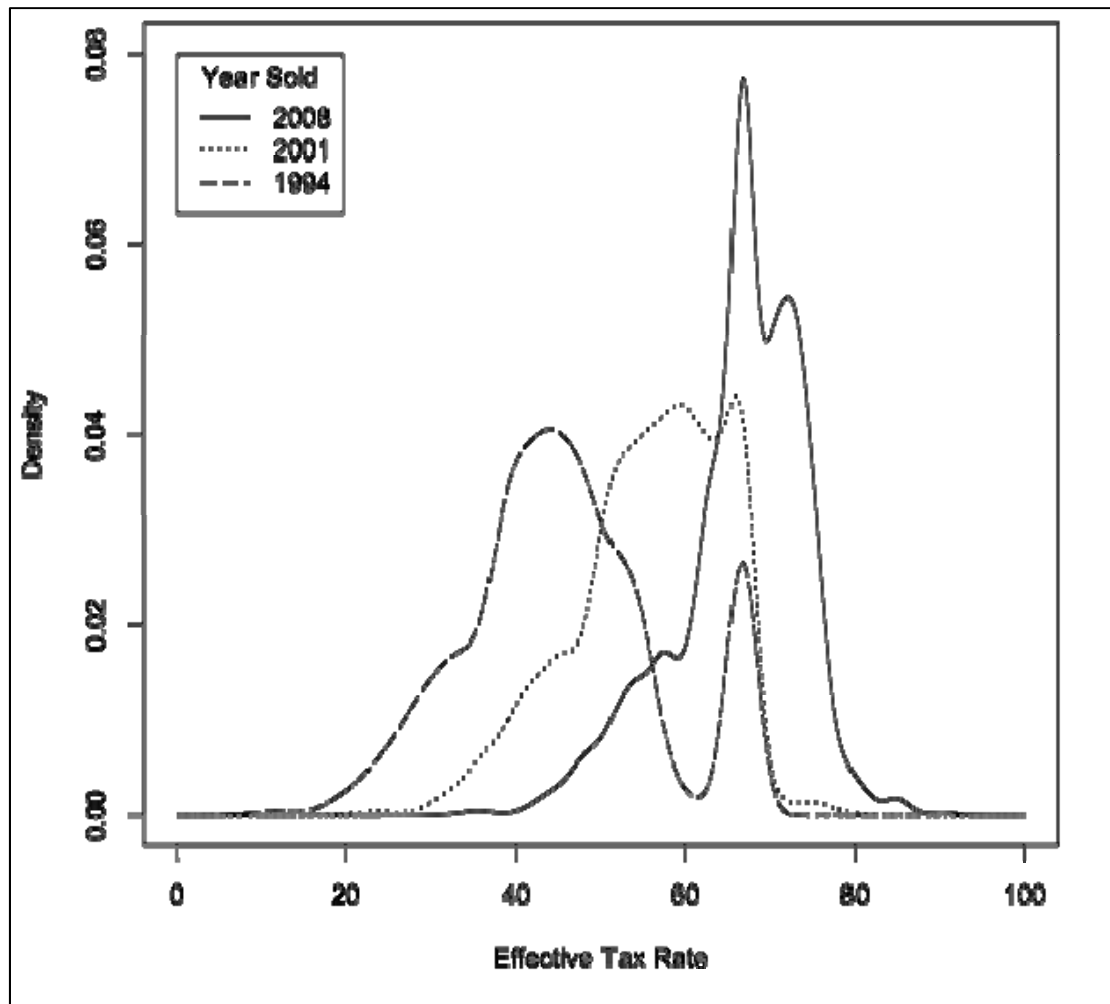
Hodge, Skidmore, Sands, & McMillen (2013a)

Quantile Regression Technique Allows a More Complete Evaluation of the Distributional Implications of the Assessment Growth Cap

Standard Linear Regression

$$E(y \mid X) = \beta_0 + \beta_1 x_1 + ... + \beta_i x_i + u$$

Quantile Regression

$$Q^{(p)}(y \mid X) = \beta_0^{(p)} + \beta_1^{(p)} x_1 + ... + \beta_i^{(p)} x_i + u^{(p)}$$

$$0 < p < 1$$

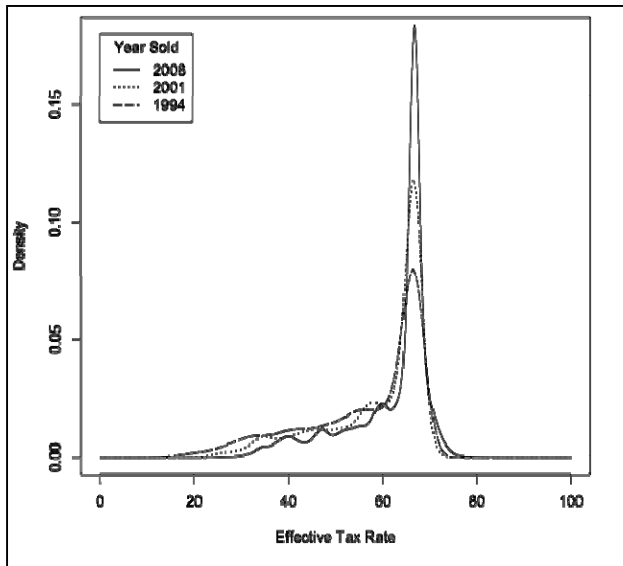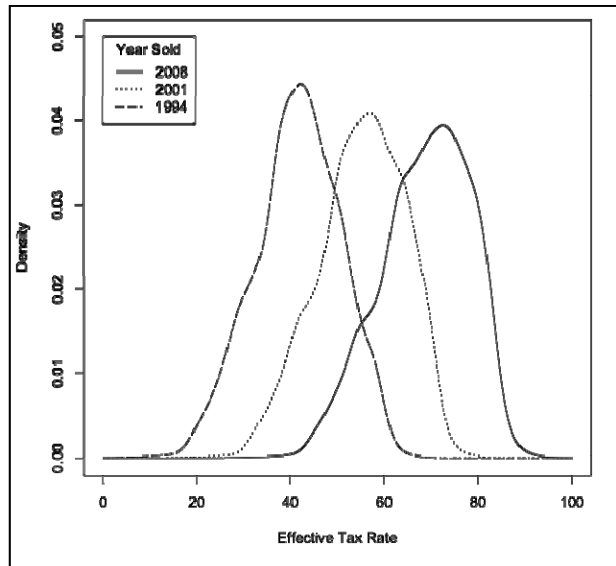# Effects of Assessment Growth Cap within Different Effective Tax Rate Deciles (horizontal inequity)
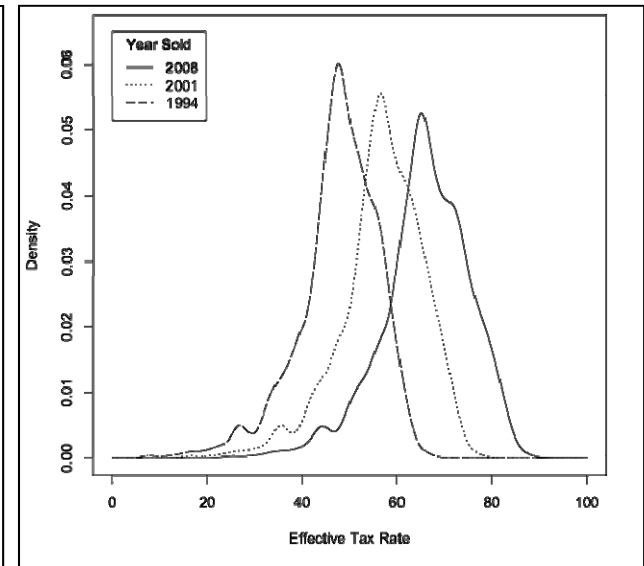

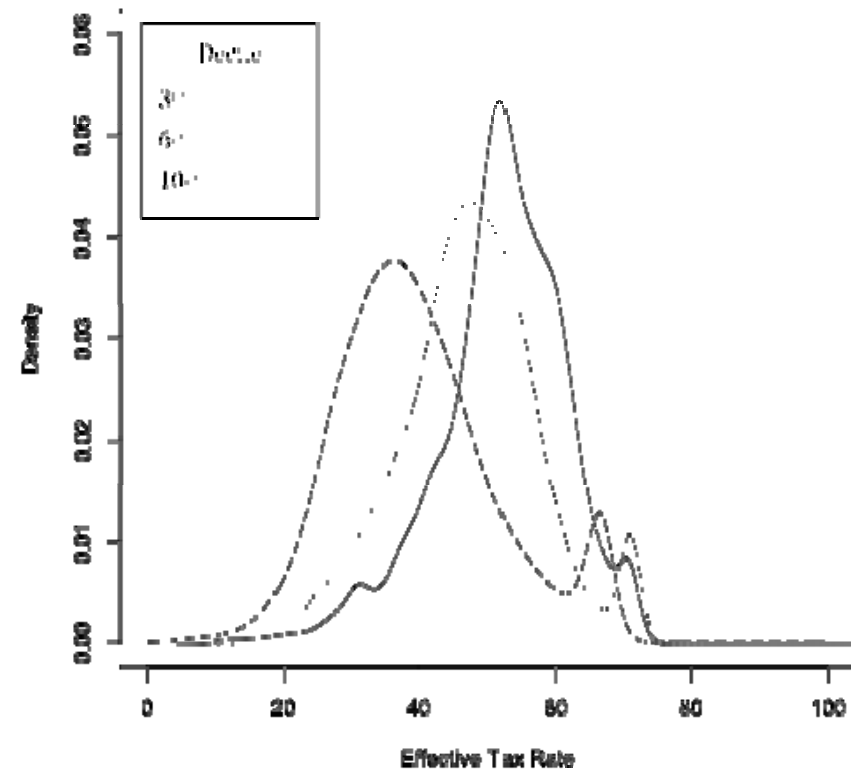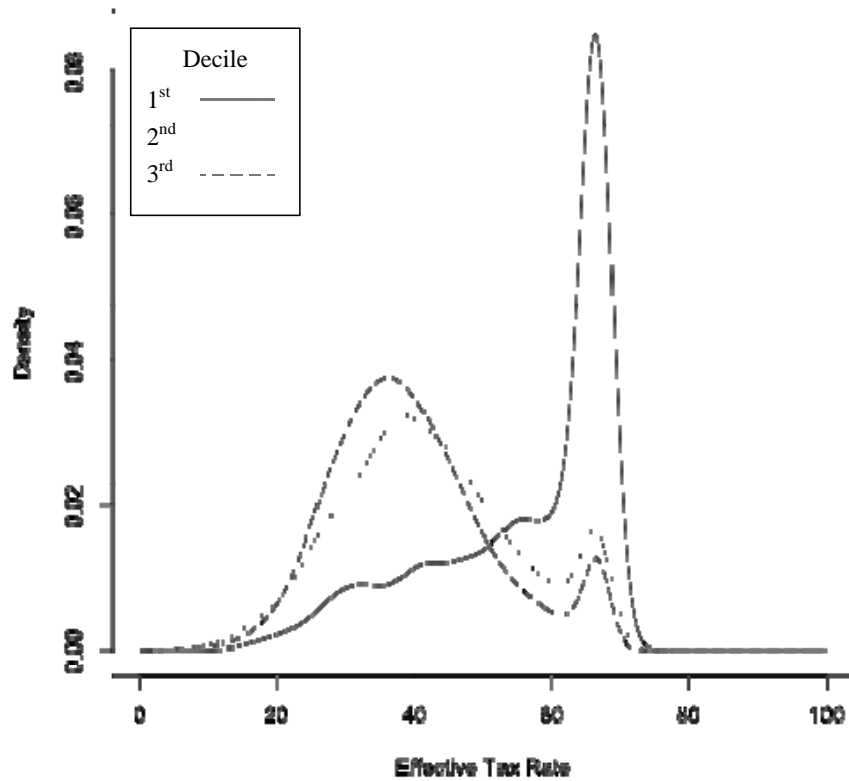1st Decile   5th Decile   10th Decile

Effects of Assessment Growth Cap across Different Effective Tax Rate Deciles (vertical inequity)

Effects of Assessment Growth Cap on Efficiency (Mobility)

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Probit Home Sale Estimation Results

Dependent Variable: Home Sale Indicator Variable (yes=1, no=0)			
Independent Variable	Homestead	Non-Homestead	All Residential
	(0.3810)	(0.2533)	(0.2079)
Effective Tax Rate	**0.0042***	**-0.0001**	**0.0014***
	(0.0007)	**(0.0005)**	**(0.0004)**
Years_Owned	-0.0236***	-0.0243***	-0.0247***
	(0.0016)	(0.0016)	(0.0011)
PRE	-	-	0.0328***
			(0.013)
Constant	-1.7860***	-1.5279***	-1.6488***
	(0.1193)	(0.1123)	(0.0822)
Neighborhood Effects		Yes	
# of Obs.	103,500	92,664	196,164
Pseudo R-squared	0.0328	0.0292	0.0283

Marginal Effect on Probability of Sale (dy/dx)

Variable	Homestead	Non-Homestead	All Residential
Erate	0.0004***	-0.00001	0.0001***
	(0.00006)	(0.00005)	(0.00004)

Notes: Standard errors are in parentheses and all regressions are corrected for heteroskedasticity. Asterisks denote significance at the 1% (***), 5% (**) and 10% (*) levels.

Taxable Value Cap Reduces the Property Turnover Rate from 4.4% to 3.2% for Long-time Homeowners Relative to New Homeowners

Assessment Practices

- Real Estate Market Collapse

- Are State Equalized Values Falling Fast Enough?

- Again Use Quantile Regression Techniques

- Assessment Ratio = Assessed Value/Sales Price
  - Assessed Value = 2*SEV
  - Assessment Ratio = 1 (According to State policy)
  - Actual Average Assessment Ratio ~5
  - Vertical Equity & Horizontal Equity

  Hodge, Skidmore, Sands, & McMillen (2013b)

Assessment Ratio Distributions
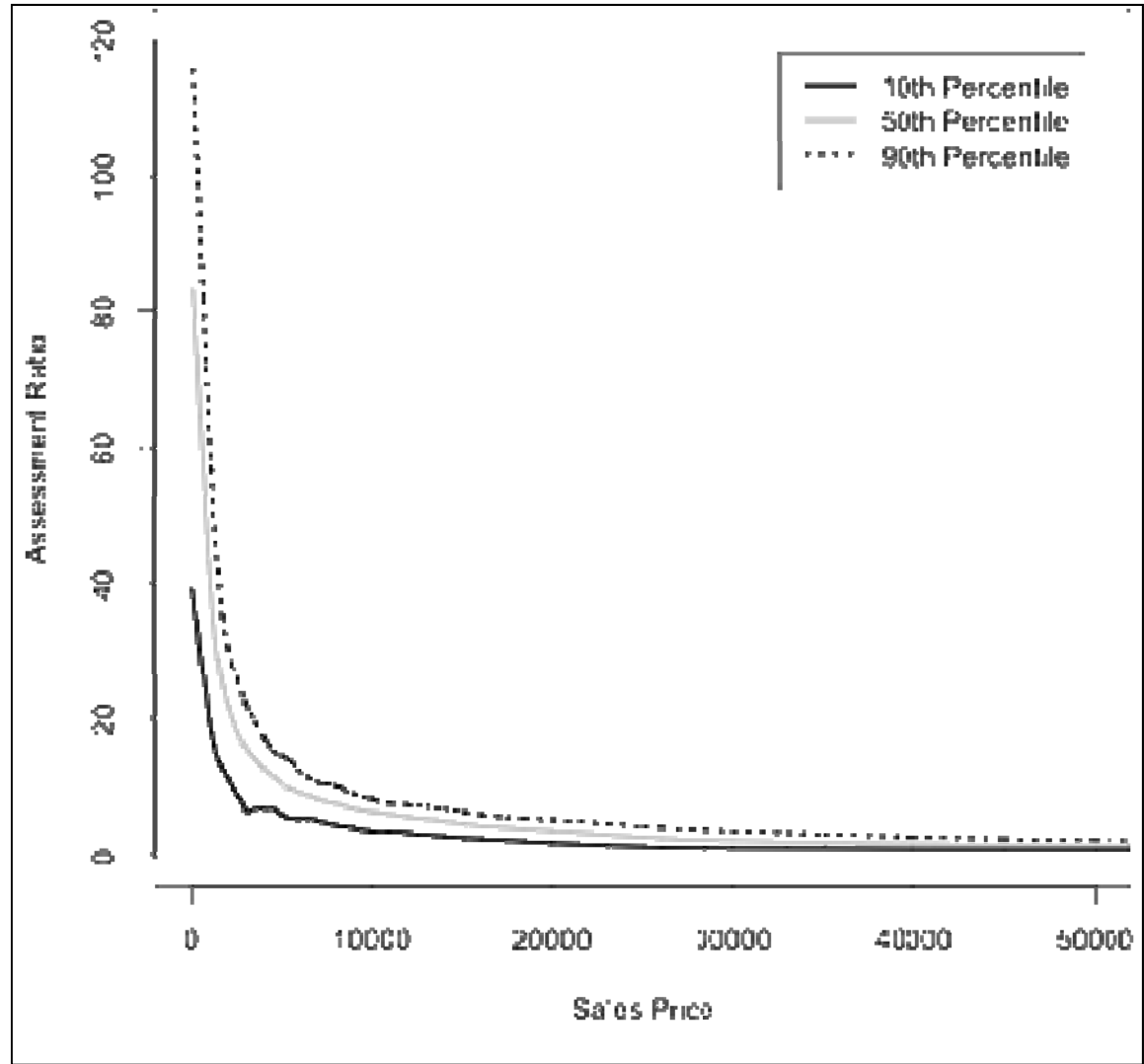
Assessment Ratio Distributions by Sales Price Quintile
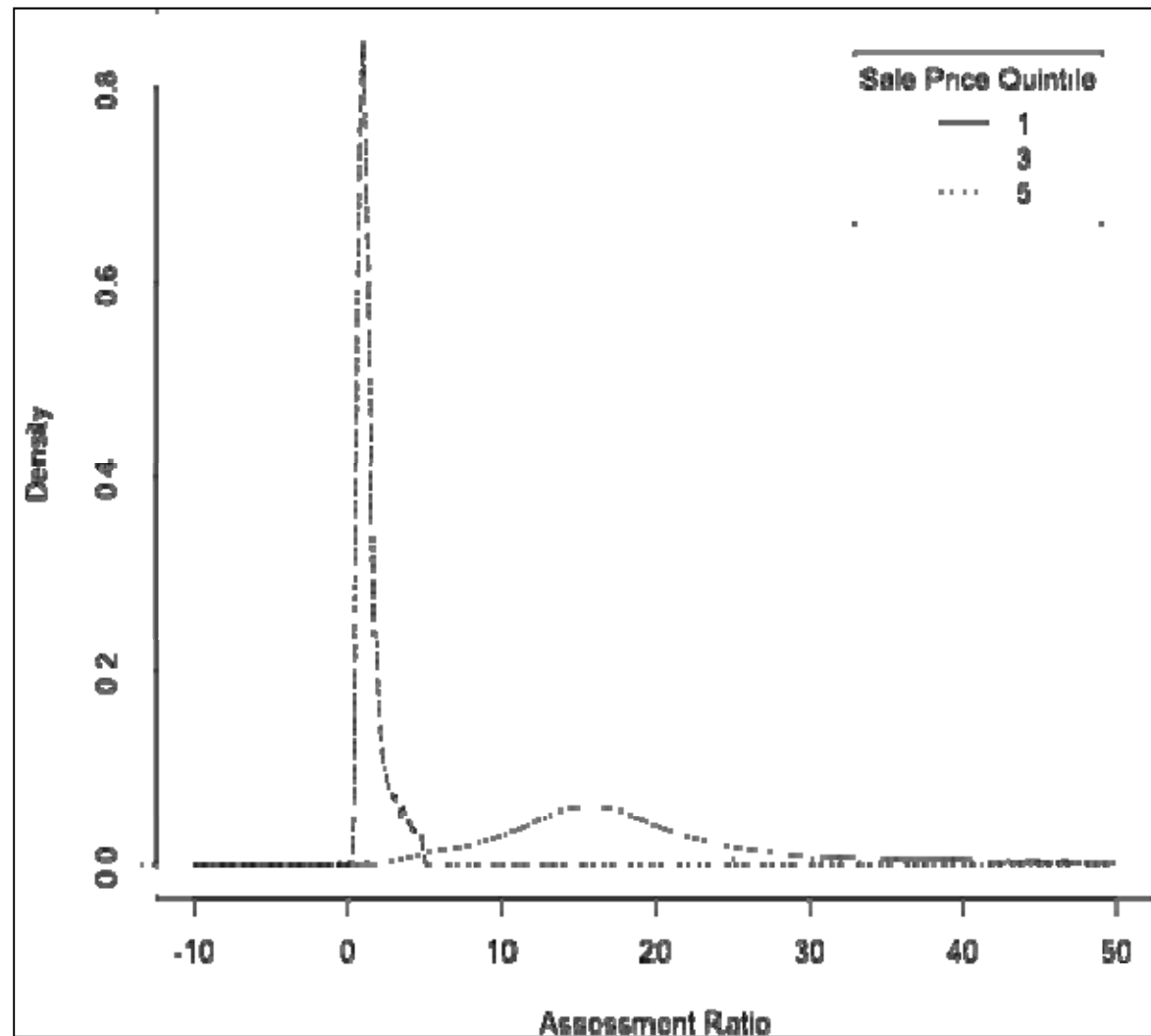
Summary…

- Assessment Growth Cap
  - Creates Horizontal & Vertical Inequity
  - Generates Market Inefficiencies (reduces mobility)
  - BUT Cap Impacts Depend on Assessment Practices…
- Assessment Practices
  - Properties Are Over Assessed (by a factor of 5 or more on average)
  - Differential Assessment Ratios within & across Property Value Groups
- Property Tax Delinquency = 48%

Tax Compliance

It isn't just a matter of lax enforcement, though. ***xxxxx*** citizens also have what social scientists call very low "tax morale." In most ***places***, tax-compliance rates are much higher than a calculation of risks would imply. We don't pay our taxes just because we're afraid of getting caught; we also feel a responsibility to contribute to the common good. But that sense of responsibility comes with conditions. We're generally what the Swiss behavioral economist Benno Torgler calls "social taxpayers": we'll chip in as long as we have faith that our fellow-citizens are doing the same, and that our government is basically legitimate. ***Places*** where people feel that they have some say in how ***government*** acts, and where there are high levels of trust, tend to have high rates of tax compliance.

James Surowiecki (New Yorker, July 2011)

Detroit Delinquency by Neighborhood
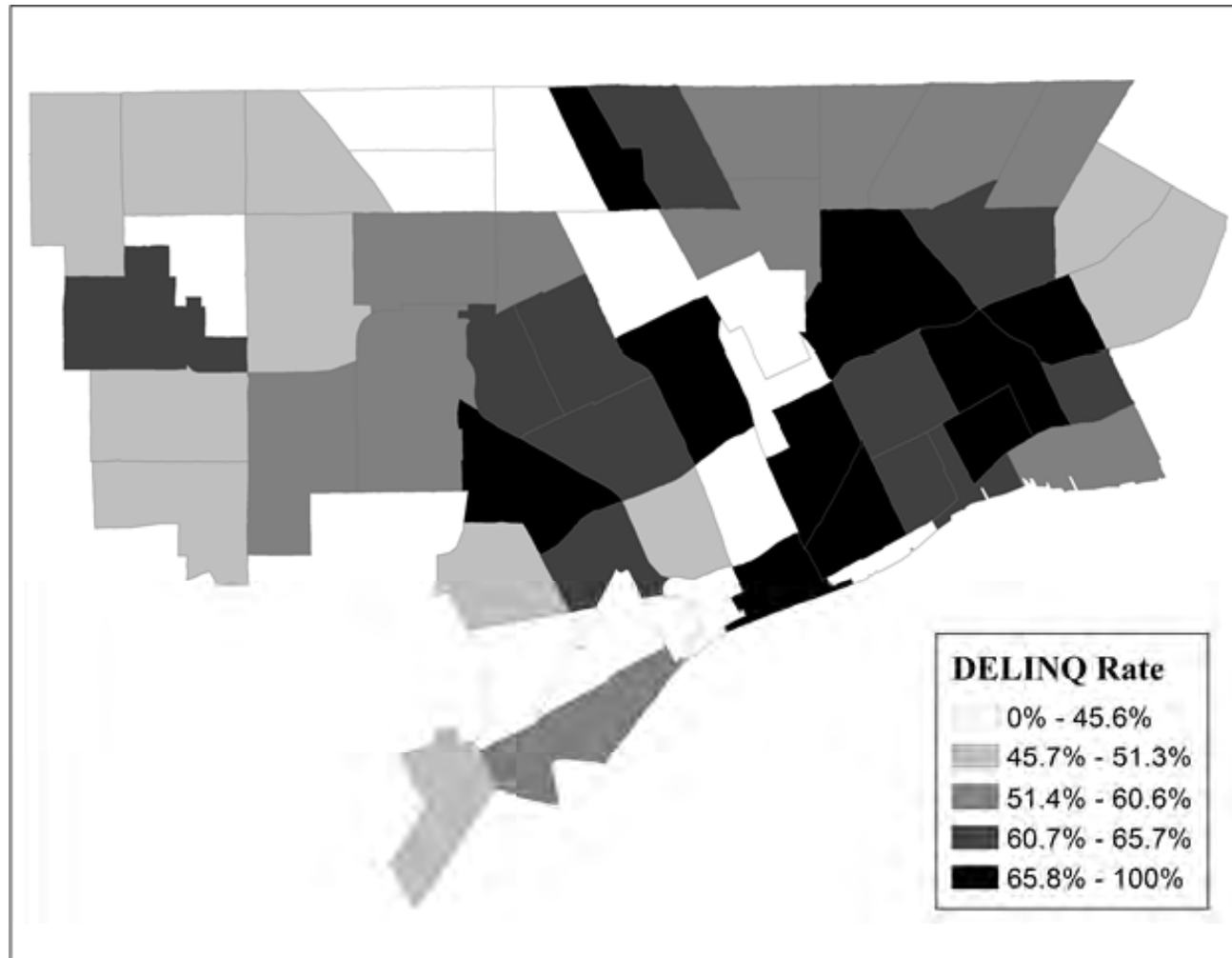
What Factors Contribute to Delinquency?

- Wayne County Does Not Have the Resources Bring Tax Foreclosure Proceedings on All Delinquent Homeowners
- Properties with Less than $1,500-$2,000 in Back-taxes Are Ignored (~20% of property owners are delinquent for five years or longer)
- For Properties That Are Tax Foreclosed, a Public Auction is Held.
- If a Property Is not Sold, the Property is Transferred to a Public Body such as City, State or Land Bank
- Eighty Percent of Properties Sold Two Years Ago at Auction Are Again Delinquent on Taxes
- There Is Backlog of 200,000 Tax Delinquent Properties in Wayne County (most in Detroit)
- **The Number of Parcel in Public "Ownership" is Growing**

Factors that Determine Delinquency

Property owner first chooses whether or not to pay taxes, and if not then by how much.

Joint decision is estimated simultaneously in order to address the potential bias introduced by the property owners' selection into delinquency. (Heckman; 1979).

Delinquency (yes/no) selection equation, which is represented by:

$$Delinquent_i = \{ \begin{array}{l} 1 \quad if \quad P_i\alpha + X_i\beta + u_i \geq 0 \\ 0 \quad if \quad P_i\alpha + X_i\beta + u_i < 0 \end{array}$$

$Delinquent_i$ indicates whether the property owner is delinquent (yes=1, no=0)

P_i is a vector of property and characteristics, and X_i is a vector of variable(s) that are excluded from the second-stage outcome equation

Variable(s) in X are used as instruments; in the estimates presented these instruments are indicators for whether the property is owned by a Detroit resident (*Detroit Resident*) and a bank owned property (*Bank Owned Property*).

The Heckman second stage outcome equation is represented by:

$Delinquency\ Amount_i = P_i\alpha + \varepsilon_i$

Summary Statistics

Table 1: Summary Statistics

Variable	Full Sample Mean	SD	Homestead Mean	SD	Non-homestead Mean	SD
Delinquent (yes=1, no=0)	0.536	0.498	0.350	0.477	0.623	0.484
Delinquent Amount	1,105	1,402	694.6	1,160	1,502	1,496
No Tax Enforcement (yes=1, no=0)	0.175	0.380	0.212	0.409	0.139	0.346
Crime Response Time (minutes)	47.60	8.039	48.26	7.699	46.95	8.313
Size (per 1,000 sq. ft.)	1.152	0.537	1.095	0.382	1.208	0.653
Age (Decades)	6.726	1.426	6.567	1.411	6.922	1.433
Homestead Property (yes=1, no=0)	0.500	0.500	--	--	--	--
Statutory Tax Rate (tax payment/SEV)	64.71	19.09	51.43	14.92	74.38	18.22
Taxable Value ($1,000s)	21.84	11.14	23.24	11.74	20.39	10.31
Years Owned	10.19	6.112	11.91	5.467	8.471	6.233
Assessment Ratio	5.252	12.35	2.909	7.045	6.579	14.89
Detroit Owner (yes=1, no=0)	0.783	0.412	--	--	0.592	0.491
Bank Owned Property (yes=1, no=0)	0.043	0.202	0.108	0.103	0.074	0.262
Delinquent on Water (yes=1, no=0)	0.241	0.428	0.200	0.400	0.283	0.450
# of Observations	161,590		80,852		80,738	

Table 2: Heckman First Stage Selection Estimation

Independent Variable	All Properties	Homestead Properties	Non-Homestead Properties
Dependent Variable: Delinquent (yes=1, no=0)			
No Tax Enforcement (yes=1, no=0)	0.145***	0.156***	0.152***
	(13.30)	(10.54)	(9.14)
Crime Response Time (minutes)	0.002***	0.003***	0.002***
	(4.61)	(4.29)	(2.84)
Size (per 1,000 square feet)	-0.033***	0.091***	-0.076***
	(-4.60)	(6.01)	(-8.89)
Age (Decades)	0.025***	0.007*	0.038***
	(8.98)	(1.77)	(9.37)
Homestead Property (yes=1, no=0)	-0.436***	--	--
	(-50.51)		
Statutory Tax Rate	0.003***	0.000	0.005***
	(12.50)	(1.04)	(15.14)
Taxable Value (per $1,000)	-0.011***	-0.012***	-0.013***
	(-27.35)	(-19.75)	(-21.74)
Years Owned	-0.043***	-0.039***	-0.049***
	(-59.69)	(-38.38)	(-47.15)
Assessment Ratio	0.011***	0.015***	0.008***
	(31.47)	(24.92)	(20.95)
Detroit Owner (yes=1, no=0)	0.051***	--	0.070***
	(5.10)		(6.68)
Bank Owned Property (yes=1, no=0)	0.092***	-0.872***	0.246***
	(4.88)	(-18.74)	(11.64)
Delinquent on Water (yes=1, no=0)	0.492***	0.630***	0.387***
	(62.43)	(54.89)	(35.58)
# of Observations	161,523	80,807	80,716
# of Censored Observations	75,232	48,288	26,944
Psuedo R^2	0.113	0.067	0.076

Policy Variables such as the Tax Rate and Assessment Practices Appear to Matter

Cutting the Tax Rate by a Third Reduces Delinquency by 6 Percentage Points

Cutting the Assessment Ratio by a Factor of 5 Reduces Delinquency by 5 Percentage Points

Enforcement Also Matters
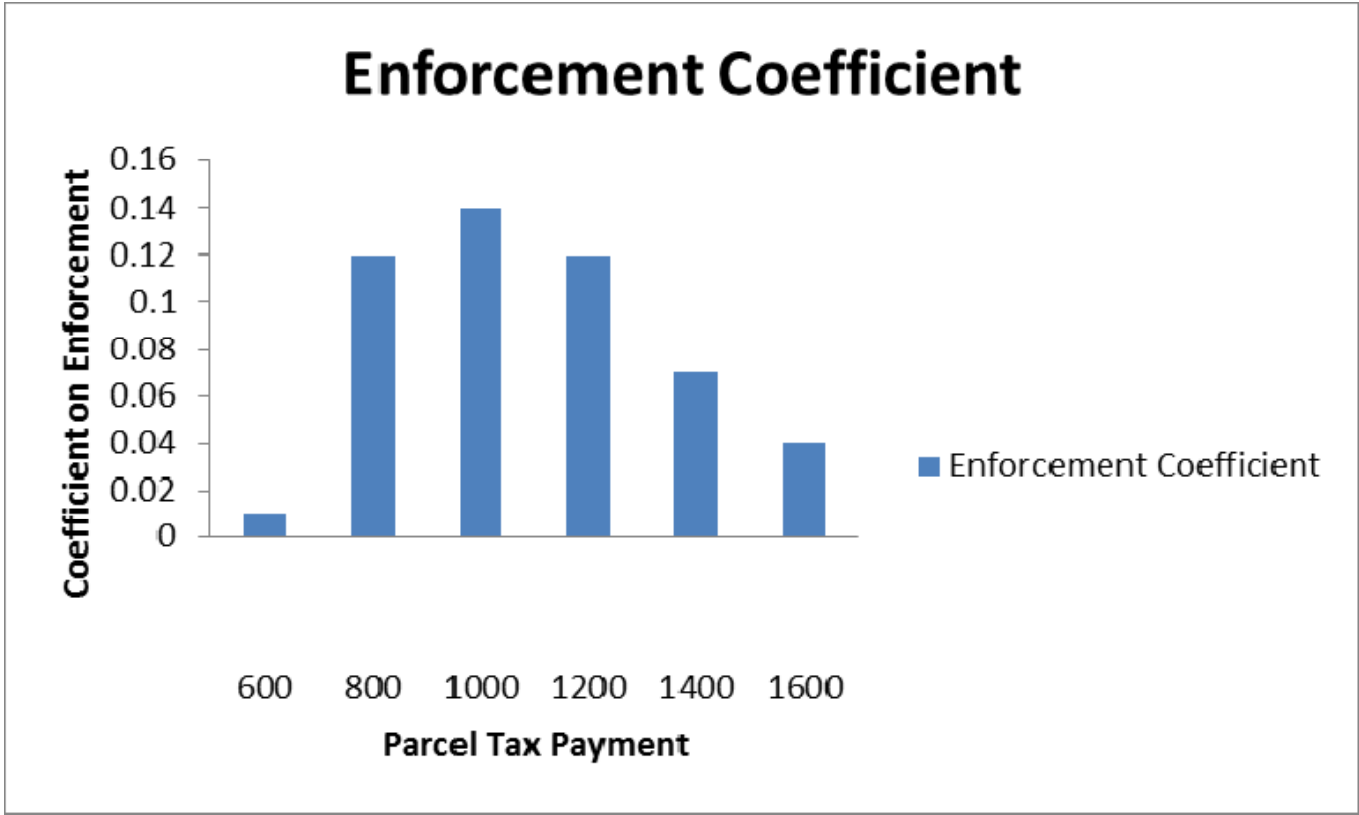
- Properties with a Tax Payment of Less than $1,000 Have a 14 Percentage Point Higher Probability of Being Delinquent

Concluding Remarks & Policy Options

- Bankruptcy Proceedings Will Determine How the Pain Will be Shared

- Considerations for Altering Trajectory
  - Stabilize Budget & Improve Public Services
  - Eliminate Assessment Growth Cap (reduce inequities & inefficiencies)
  - Reduce the Millage Rate (cut rates by 33%)
  - Adjust Assessments Downward (by a factor of 5)
  - **Manage Excess Supply of Land**
  - Human and Social Capital Investment

Lessons from the Great Depression

- State and National Forests in MI, MN, & WI
    - Farmers of Marginal Lands-Abandonment and Tax Foreclosure (millions of acres)
    - County Governments Took Possession of Lands
    - Eager to Sell, Counties Found Buyers in State and Federal Governments
    - State and Federal Authorities pay PILOTs, and Manage the Land for the Good of the General Public
    - Could State and Federal Authorities Purchase Sections of Unwanted Detroit Lands?

State and Federal Government Intervention

- Purchase Blocks of Unwanted Parcels
- Immediate Infusion of $ to City Government
- PILOTs Generate Annual Revenue Payments for all Overlying Jurisdictions
- Excess Supply of Land Credibly Removed from the Market
- Land Acquired to Be Used for the Benefit of the General Public and Is a Long-term Investment

Caveat—State and Federal Governments Face Constraints too…

Perspective: 1910 (vs. 2010)

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The average life expectancy for men was 47 years. (78 years)

Only 14 percent of the homes had a bathtub (97 percent)

Only 8 percent of the homes had a telephone (97 percent)

There were only 8,000 cars and only 144 miles of paved roads (2,615,870 miles of pave roads)

The average US wage in 1910 was $5 per hour ($22 per hour) — inflation corrected comparisons.

The average US worker made about $7,000 per year ($45,000 per year) – inflation corrected comparisons

More than 95 percent of all births took place at HOME . (less than 1 percent)

About 14 percent of all adults had a high school diploma (86 percent)

Four percent of all adults had a college education (28 percent)

Most women only washed their hair once a month, and used Borax or egg yolks for shampoo.

The Five leading causes of death were (are):
    1. Pneumonia and influenza (heart disease)
    2. Tuberculosis (cancer)
    3. Diarrhea (chronic lower respiratory diseases)
    4. Heart disease (stroke)
    5. Stroke (accidents)

Geography of Government "Entitlements"

- **Implications of Promises Made….**
    - **http://www.nytimes.com/interactive/2012/02/12/us/entitlement-map.html?ref=us**

Infrastructure Quality

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- Public infrastructure (e.g. transportation, water supply sewage, etc.) is now 25 to 50 years old and in significant disrepair. According to the American Society of Engineers (for Michigan):

  - Overall Infrastructure Rating   "D"
  - Drinking Water   "D"
  - Transit   "D"
  - Roads and Bridges   "D"
  - 38% of all roads were rated to be in poor condition, and 29% of bridges were deemed to be either obsolete or deficient.

Federal Obligations

US National Debt As Percent Of GDP
US from FY 1990 to FY 2012