

On the Fiscal Health of U.S. Cities

June 23, 2017

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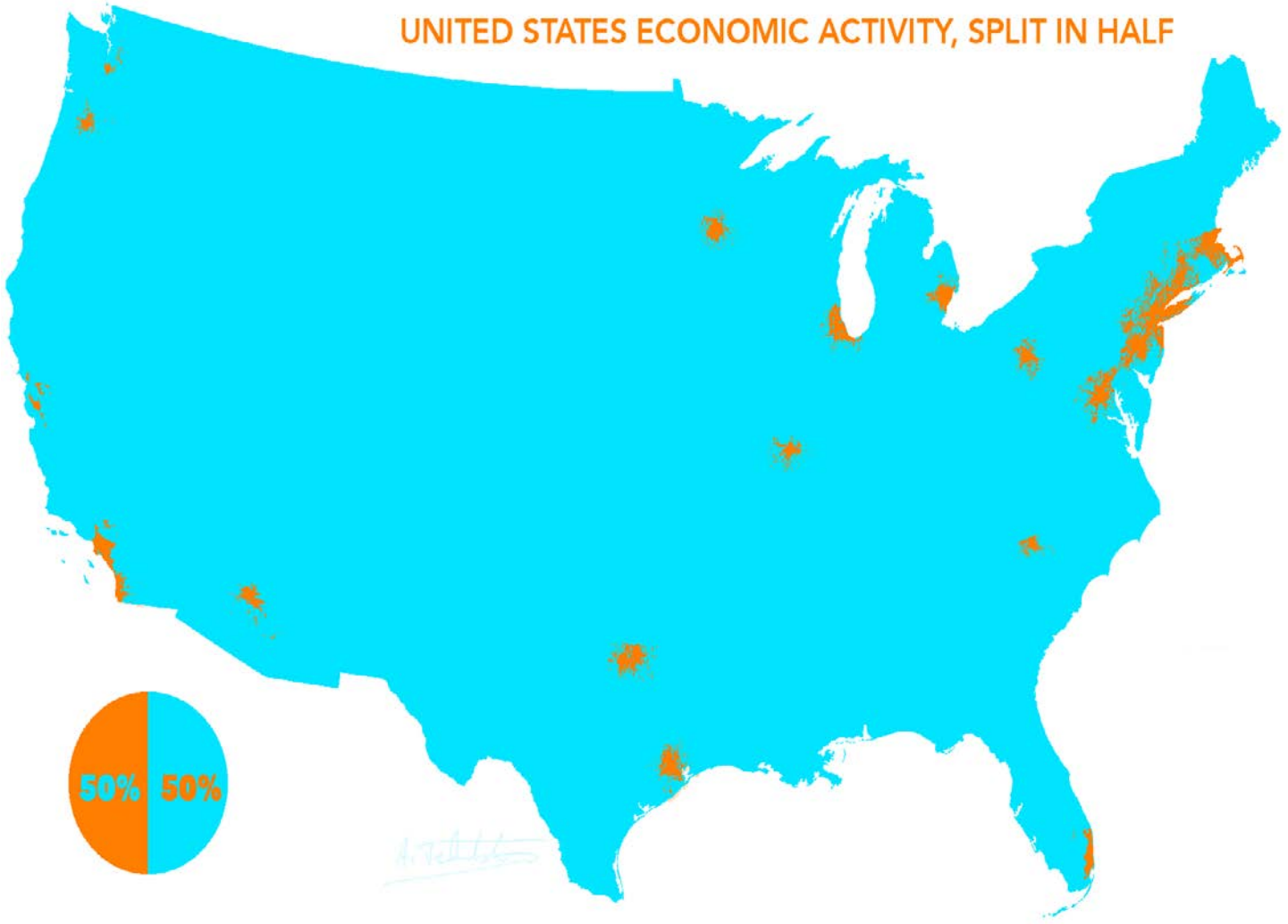
Prepared for Presentation at the Cleveland Federal Reserve Policy Summit,
Cleveland, Ohio, June 22-23, 2017.

I would like to thank the Lincoln Institute for Land Policy for financial support,
under their “Fiscal health of cities” initiative.

Introduction

- I. On the Finances of Big Cities
- II. Measurement and Fiscally Standardized Cities
- III. Stresses through the Housing Market
- IV. Patterns of spending and revenue
- V. Measuring Fiscal Health
- VI. Some Policy Recommendations

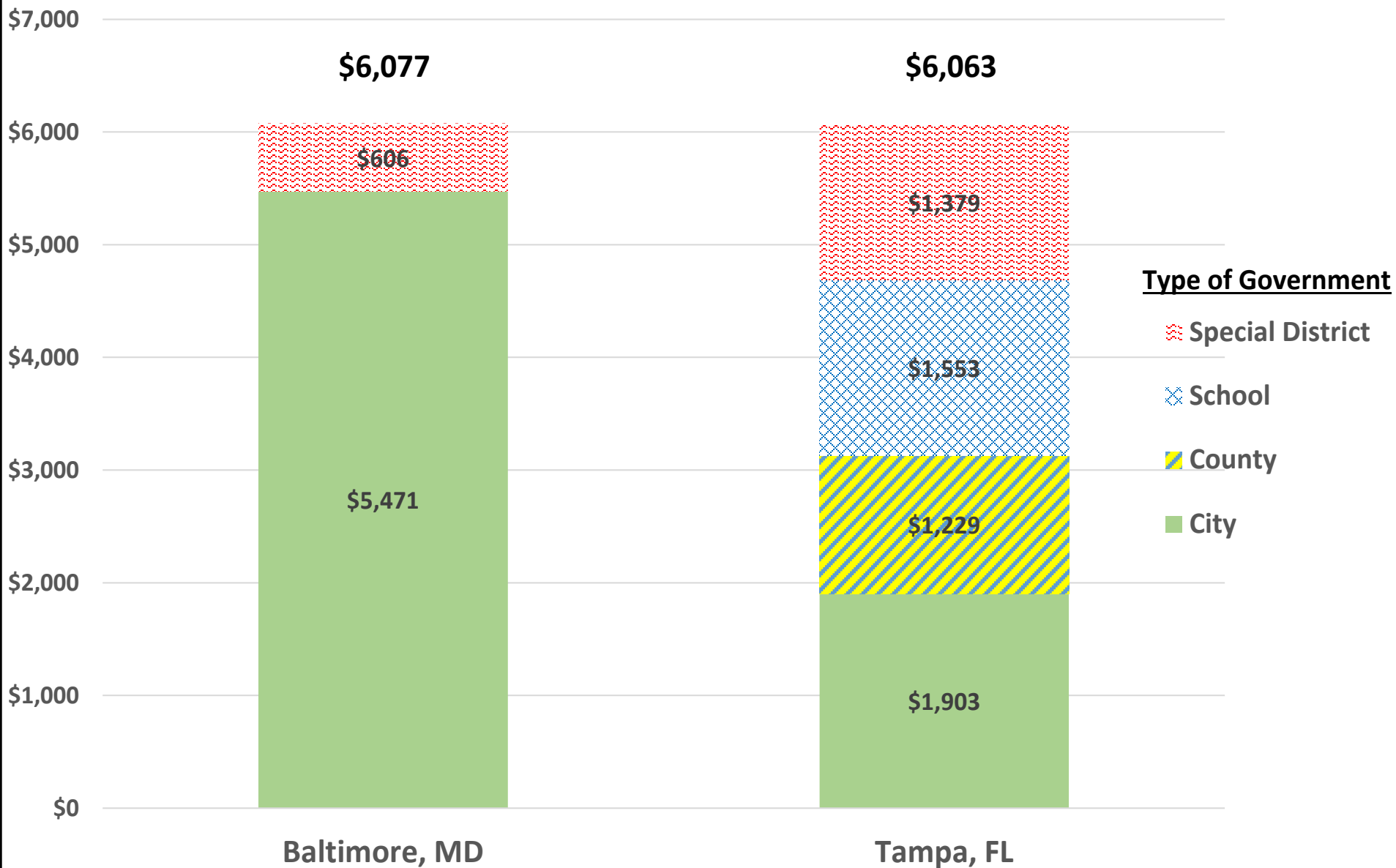
UNITED STATES ECONOMIC ACTIVITY, SPLIT IN HALF



It is Hard to Compare Fiscal Conditions Across Cities

- Governance structures vary across cities, making fiscal comparisons difficult
- For example:
 - The municipal government in **Boston** finances almost all public services,
 - but in **La Vegas**, $\frac{3}{4}$ of revenue raised by local governments serving Las Vegas residents is raised by *overlying* independent school districts, counties, and special districts

Per Capita General Expenditures in the Baltimore and Tampa FiSCs by Type of Government, FY 2014



Fiscally Standardized Cities (FiSCs)

- Constructed by summing city government revenues and spending **and** the share of revenue and spending of overlying governments collected from or spent on behalf of central city residents
- FiSC database – 91 large central cities with annual data from 2000 to 2014

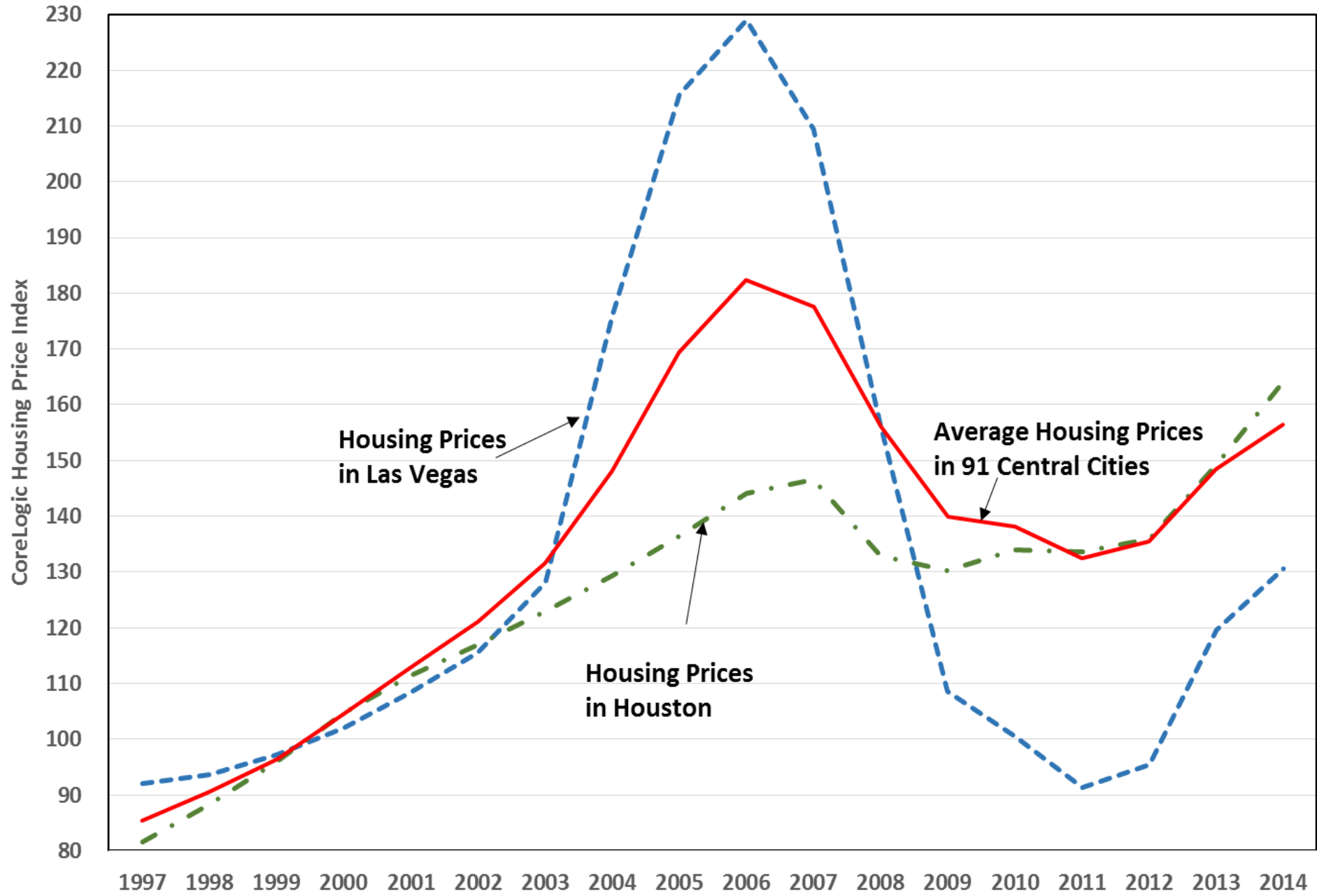
The Housing Market in 91 FiSCs

CoreLogic Housing Price Index

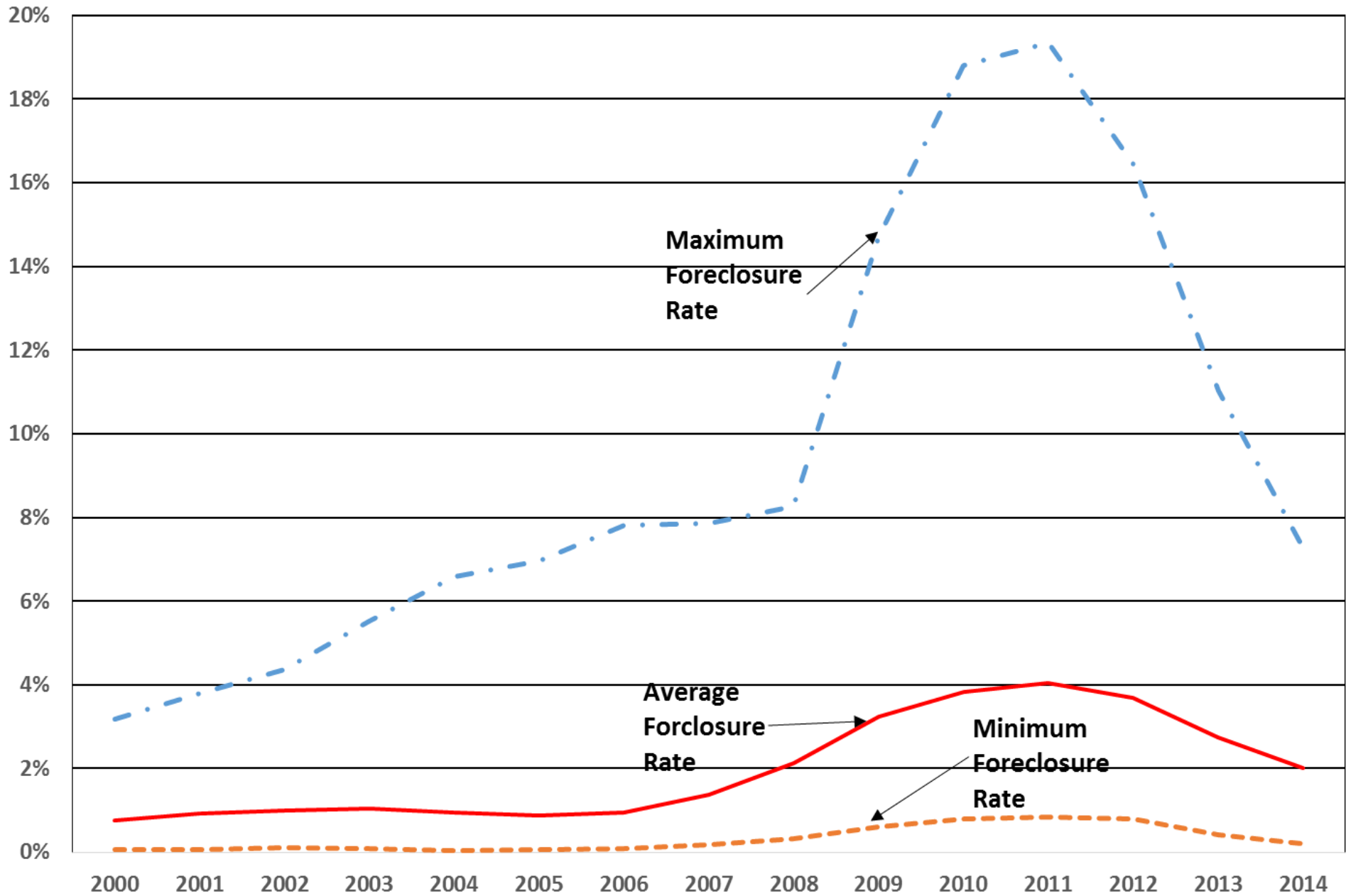
Foreclosure Rates

CoreLogic Housing Price Index, 1997-2014

Average for 91 Central Cities, Las Vegas, and Houston



**Average, Minimum, and Maximum Housing Foreclosure Rates
91 Fiscally Standardied Cities, 2000-2014**



Housing Market Experience in Selected Cities, 2002-2011

Four Types of Housing Markets

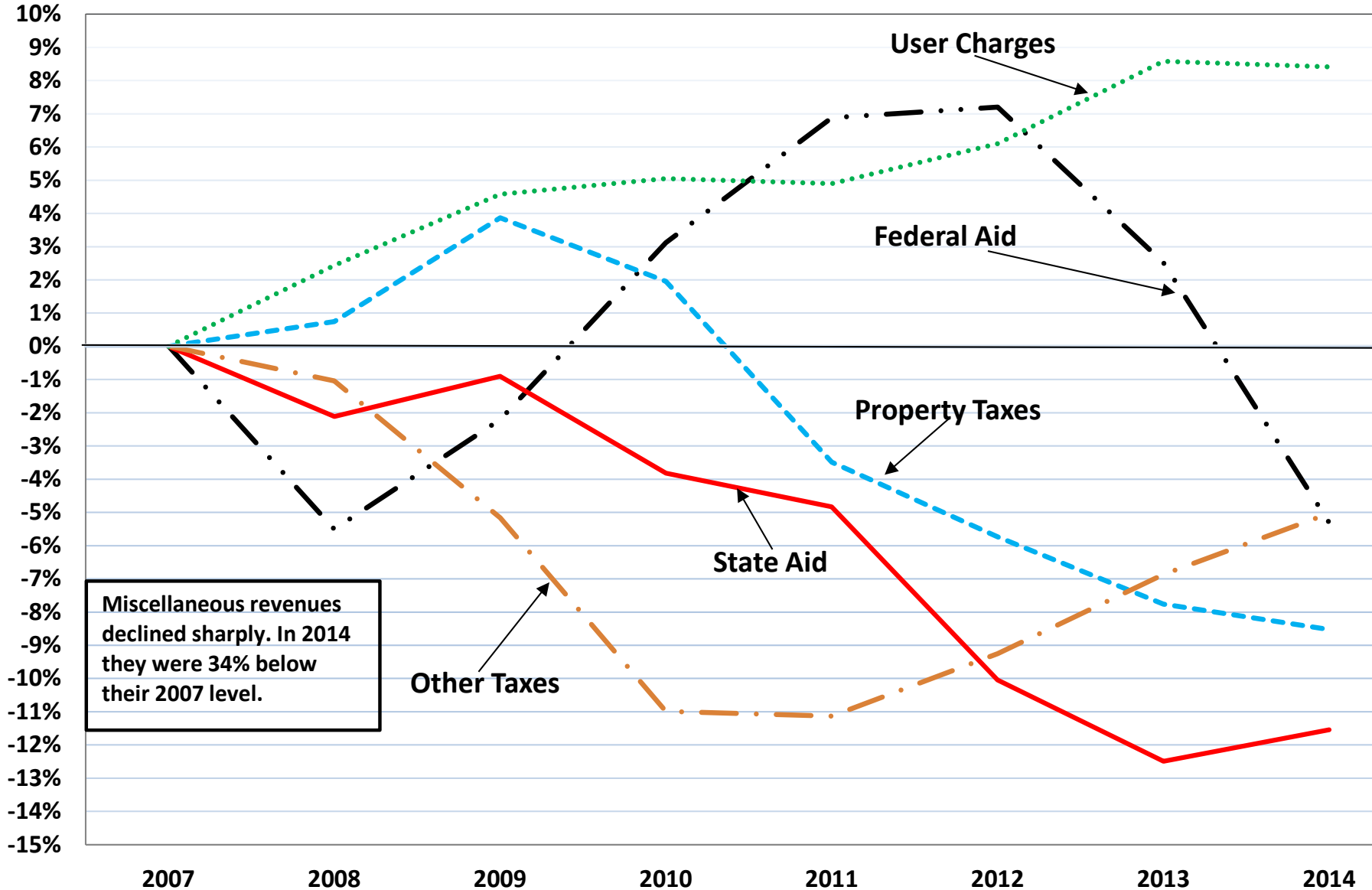
Percentage Change in Housing Prices

	2002 to Peak Year		Peak to 2011
Boom No Bust			
New York	78.7	(2007)	-12.5
San Francisco	49.7	(2007)	-18.8
Boom and Bust			
Baltimore	103.8	(2007)	-32.3
Stockton	82.5	(2006)	-60.4
Status Quo			
Buffalo	29.2	(2011)	
Houston	25.3	(2007)	-8.8
Secular Decline			
Cleveland	7.5	(2005)	-32.5
Detroit	6.6	(2005)	-51.5

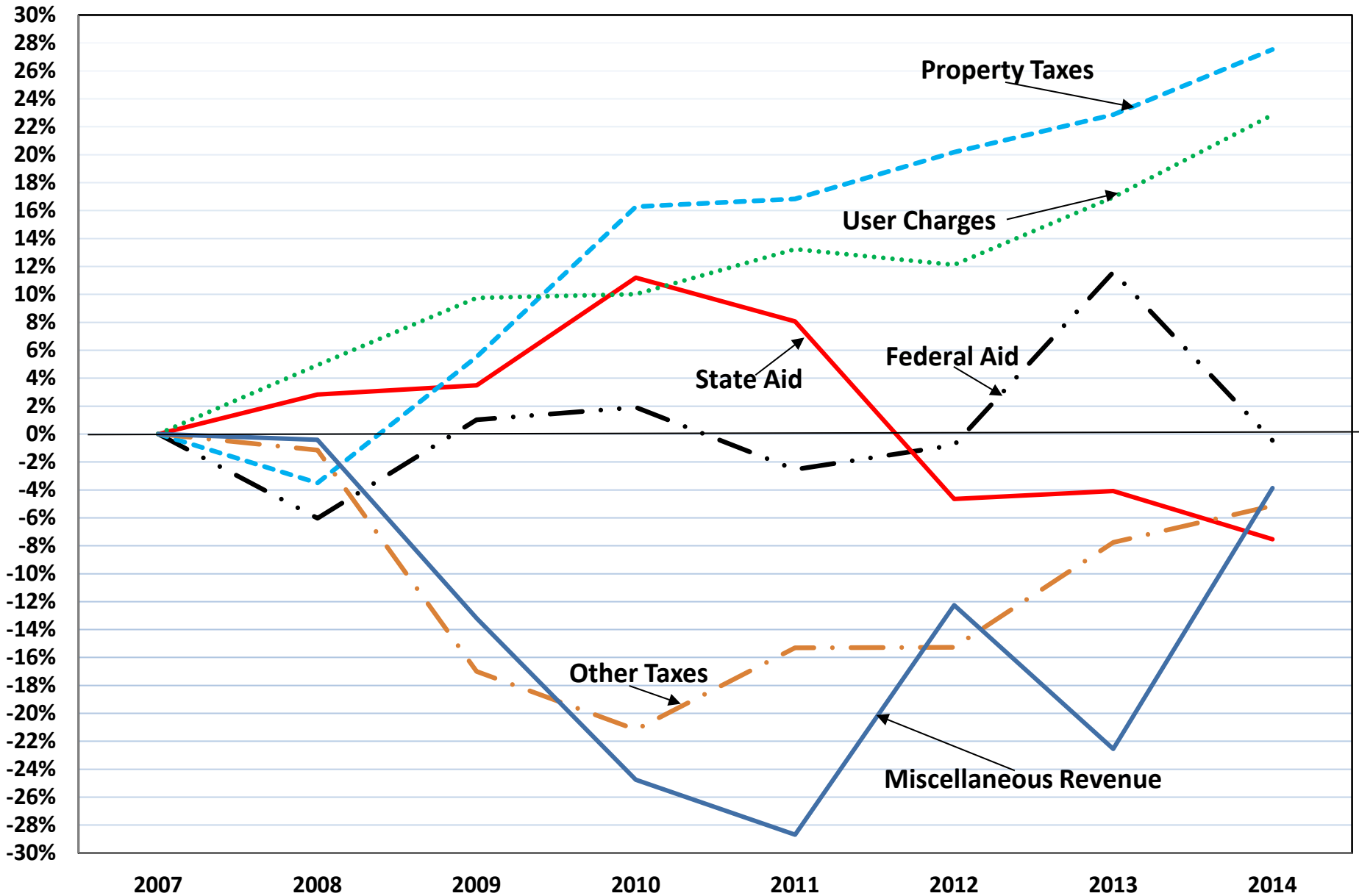
Real Per Capita Revenues and Spending Average in 90 Fiscally Standardized Cities Trends Since the Beginning of the “Great Recession”

Real Per Capita Revenue by Source, Percentage Change Relative to 2007

90 Fiscally Standardized Cities

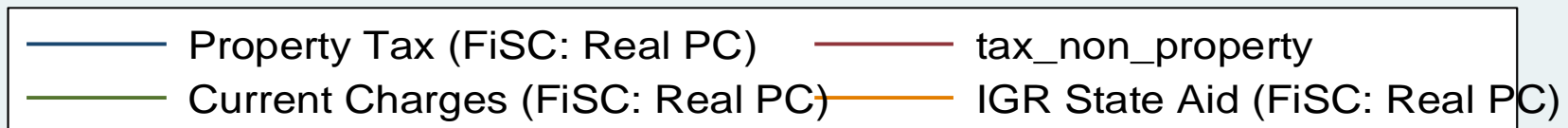
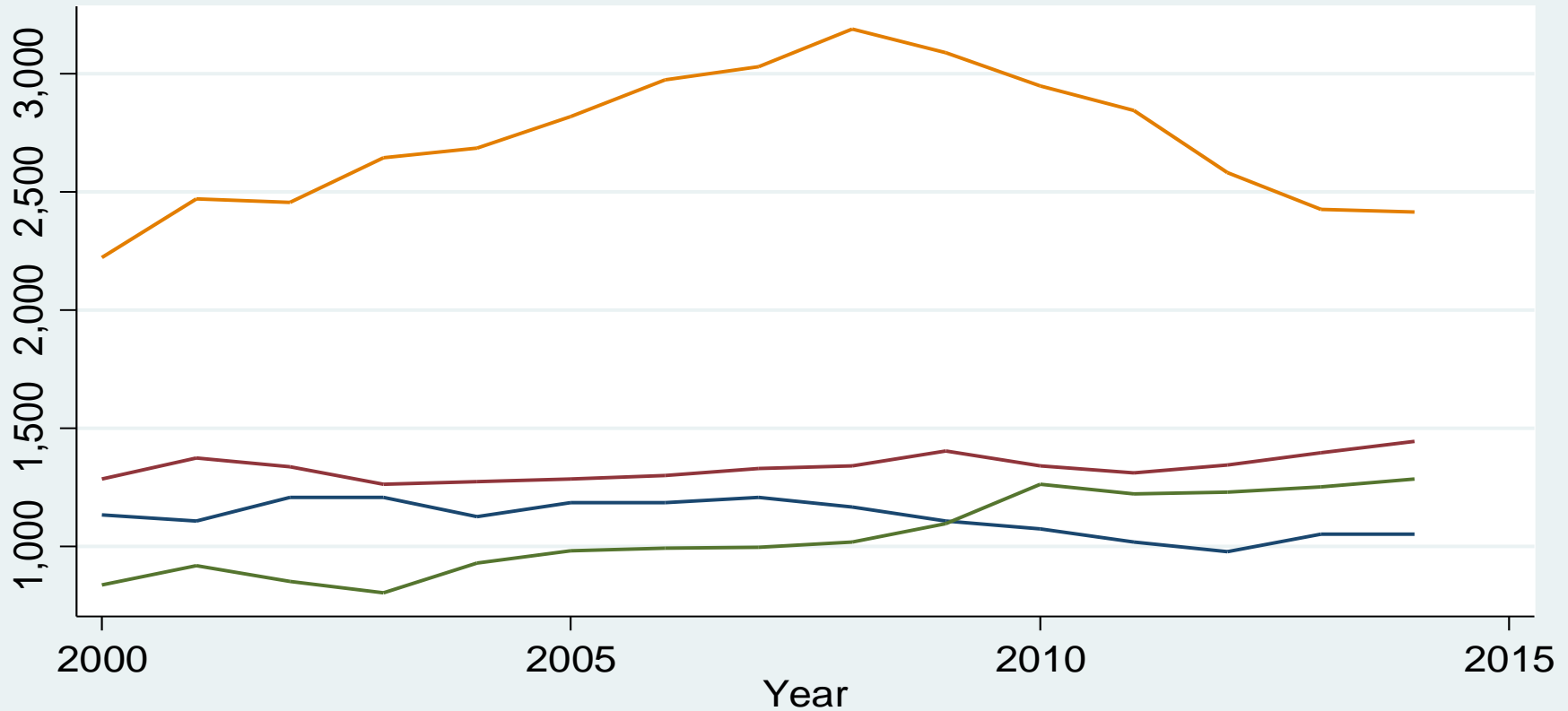


Real Per Capita Revenue by Source, Percentage Change Relative to 2007 New York City (FiSC)

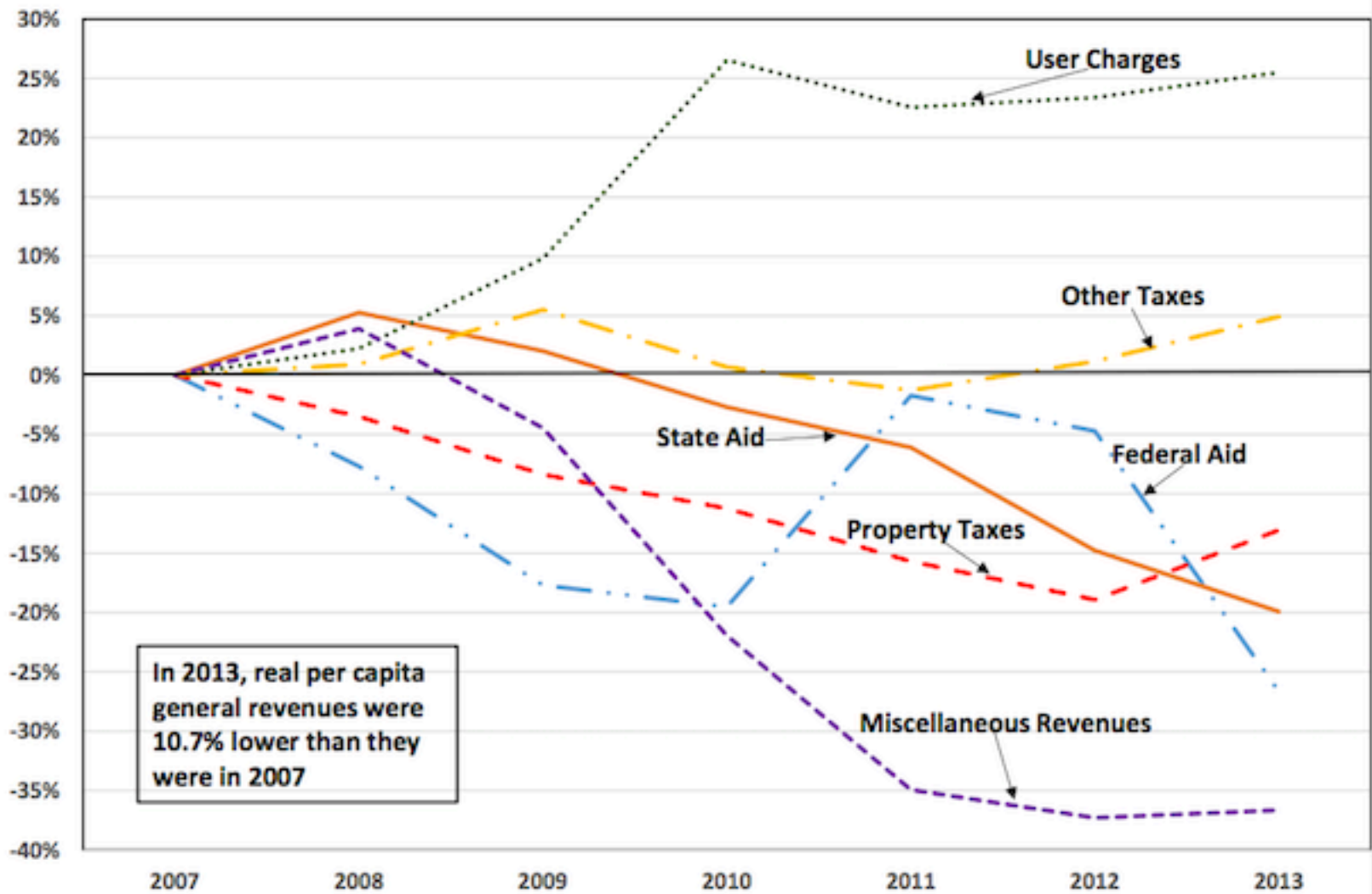


Cleveland FiSC: Revenue Sources by year, 2000-2014

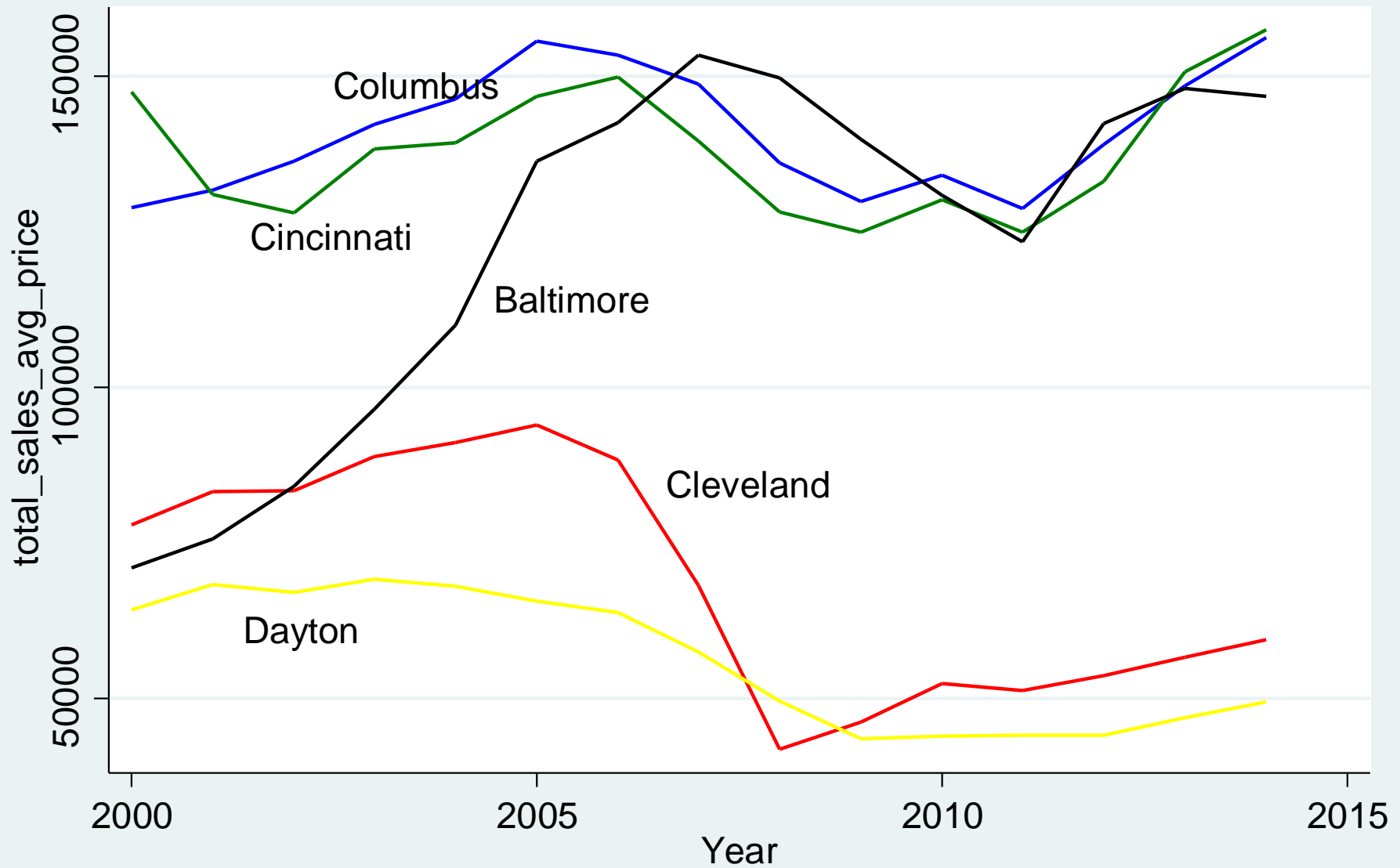
2014 Inflation Adjusted Dollars



Percentage Change in Real Per Capita Revenue Relative to 2007
Cleveland, OH Fiscally Standardized City

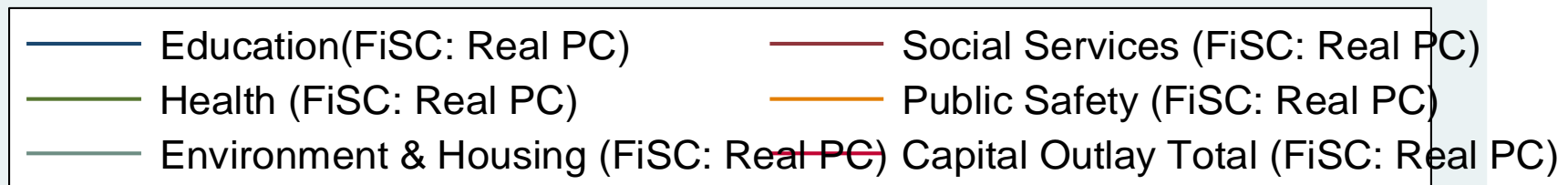
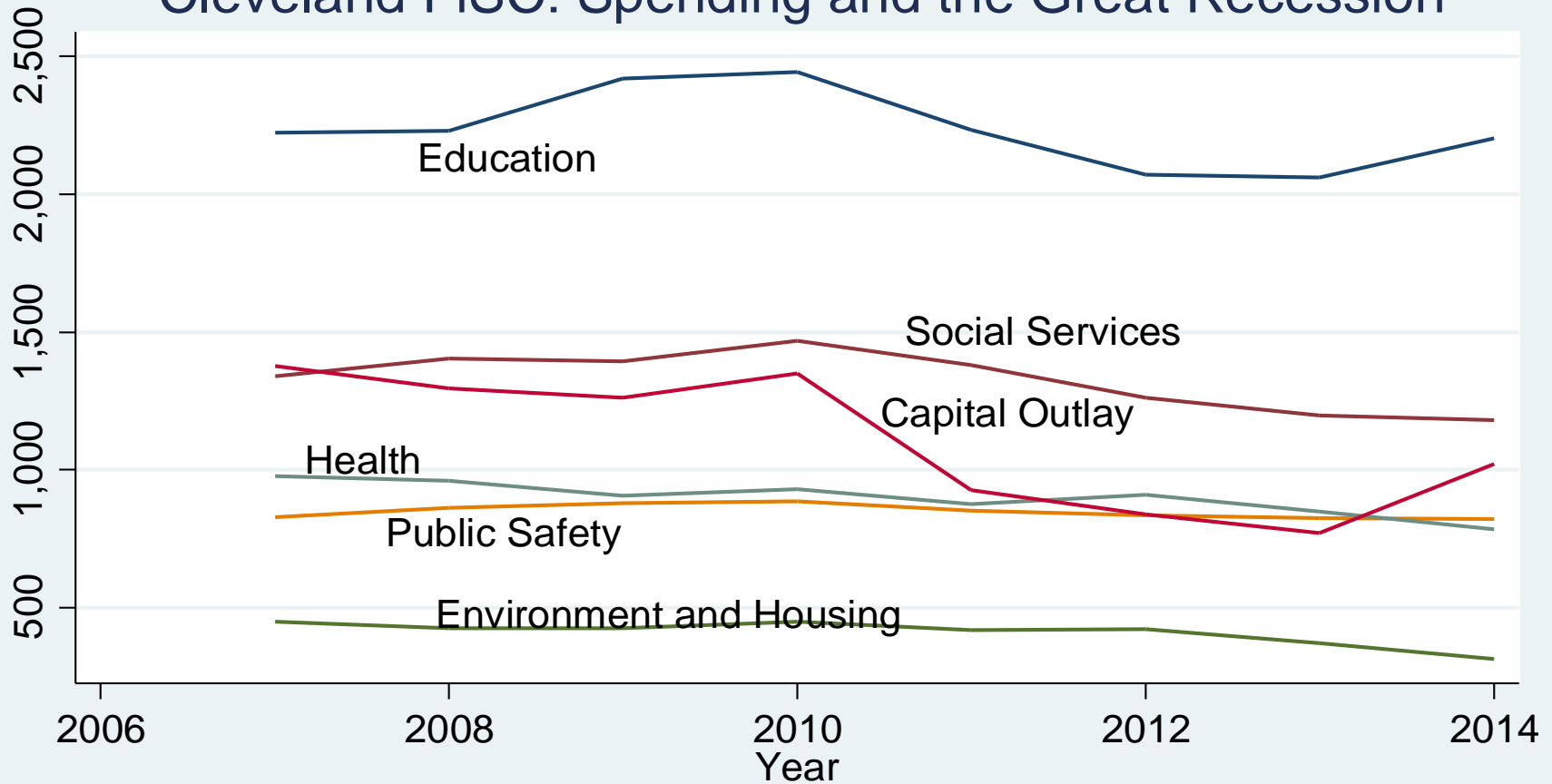


Average Price of Homes Sold, 2000-2014



Source: Corelogic

Cleveland FiSC: Spending and the Great Recession



Real Per Capita Spending, Percentage Change Relative to 2007 90 Fiscally Standardized Cities

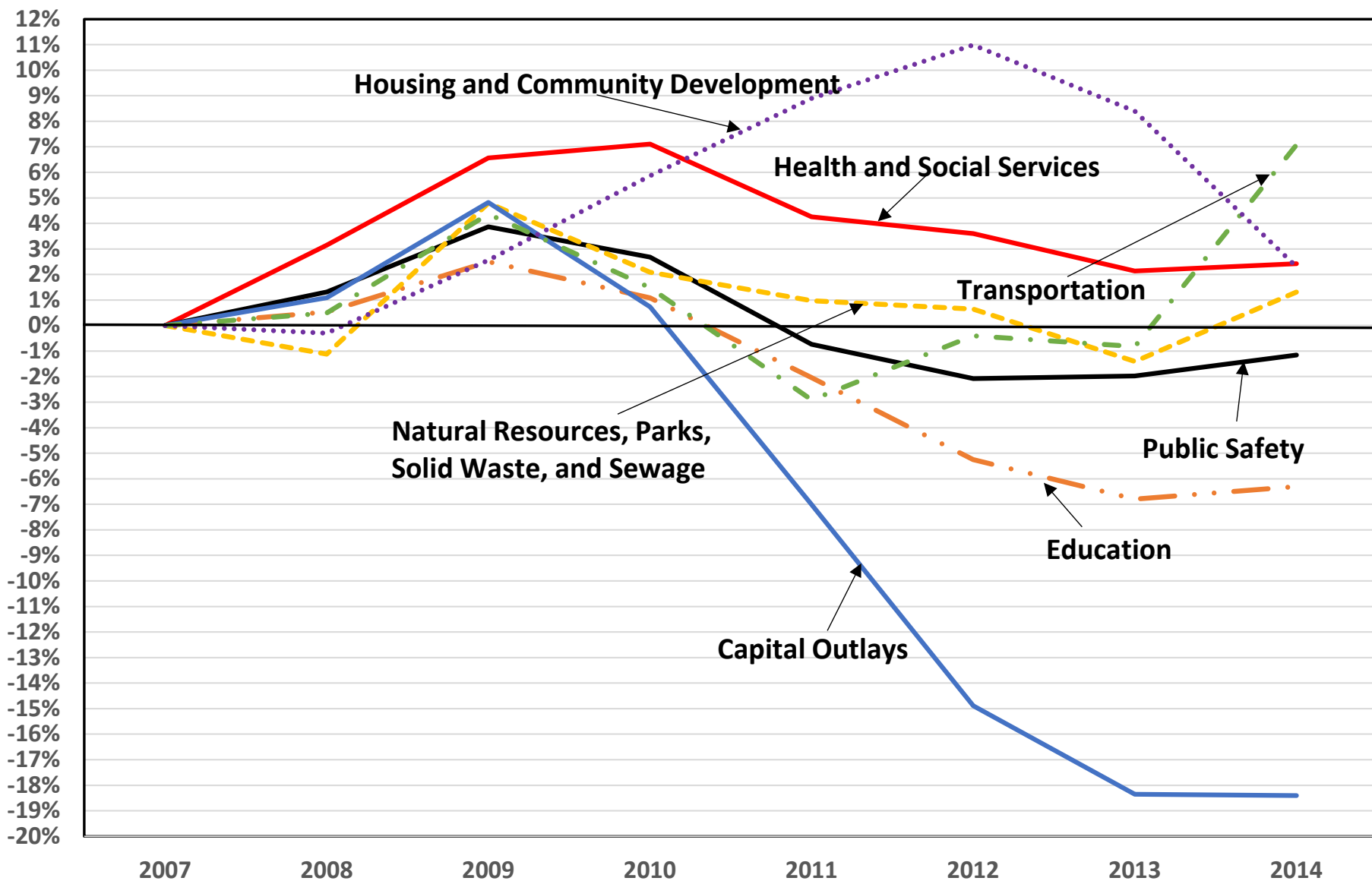


Fig.1 Median spending and revenue, 2000-2013

150 Fiscally Standardized Cities

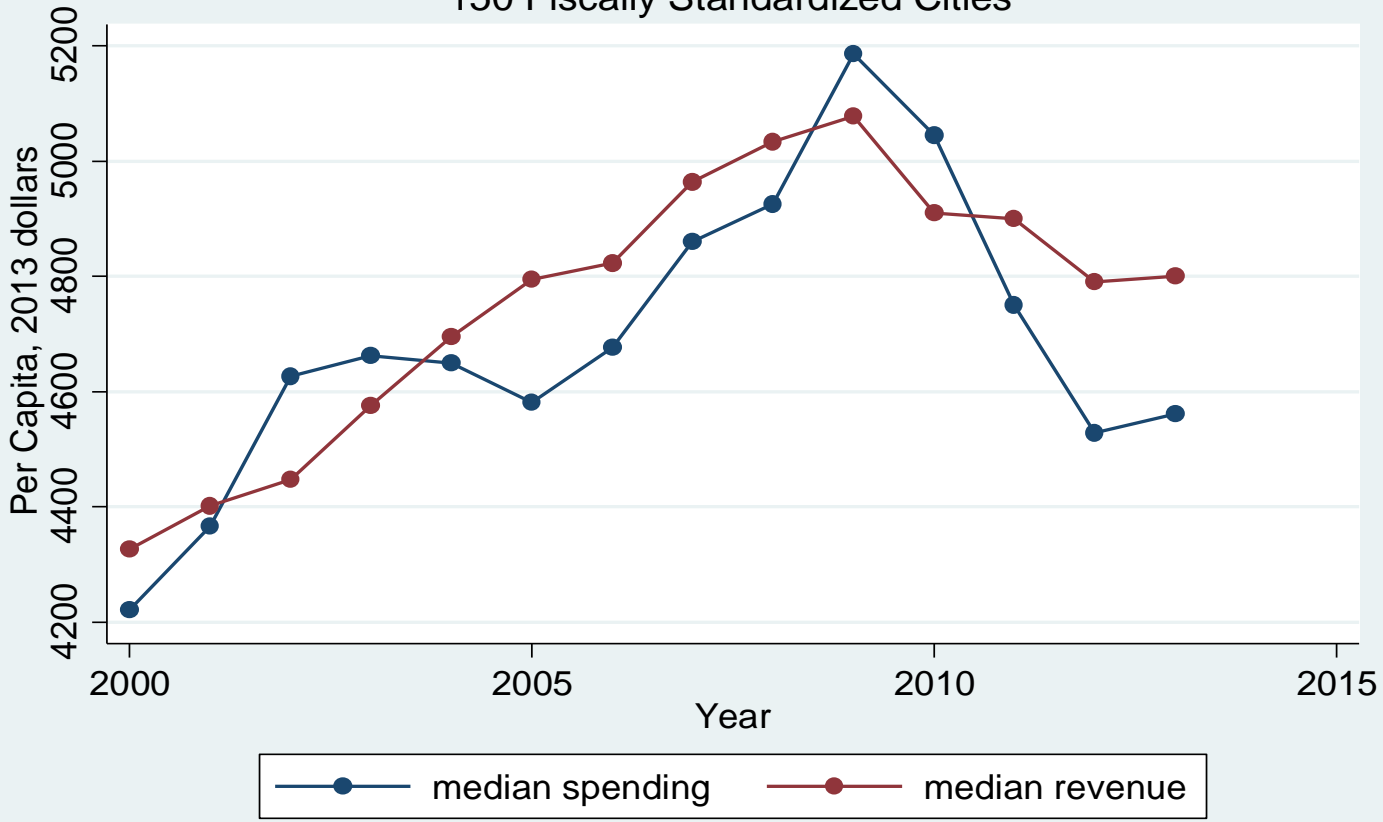
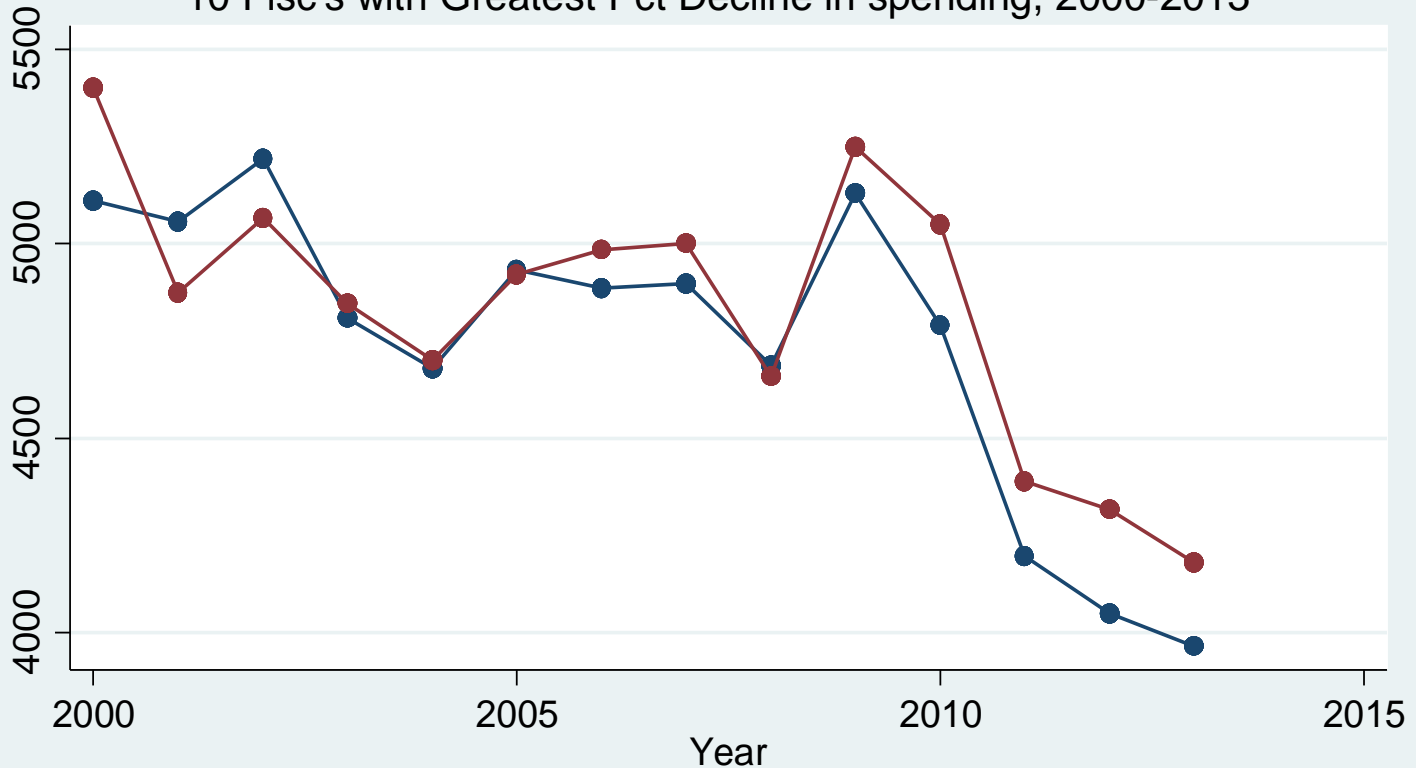


Fig 2. Median Spending and Revenue, 2000-2013

10 Fisc's with Greatest Pct Decline in spending, 2000-2013



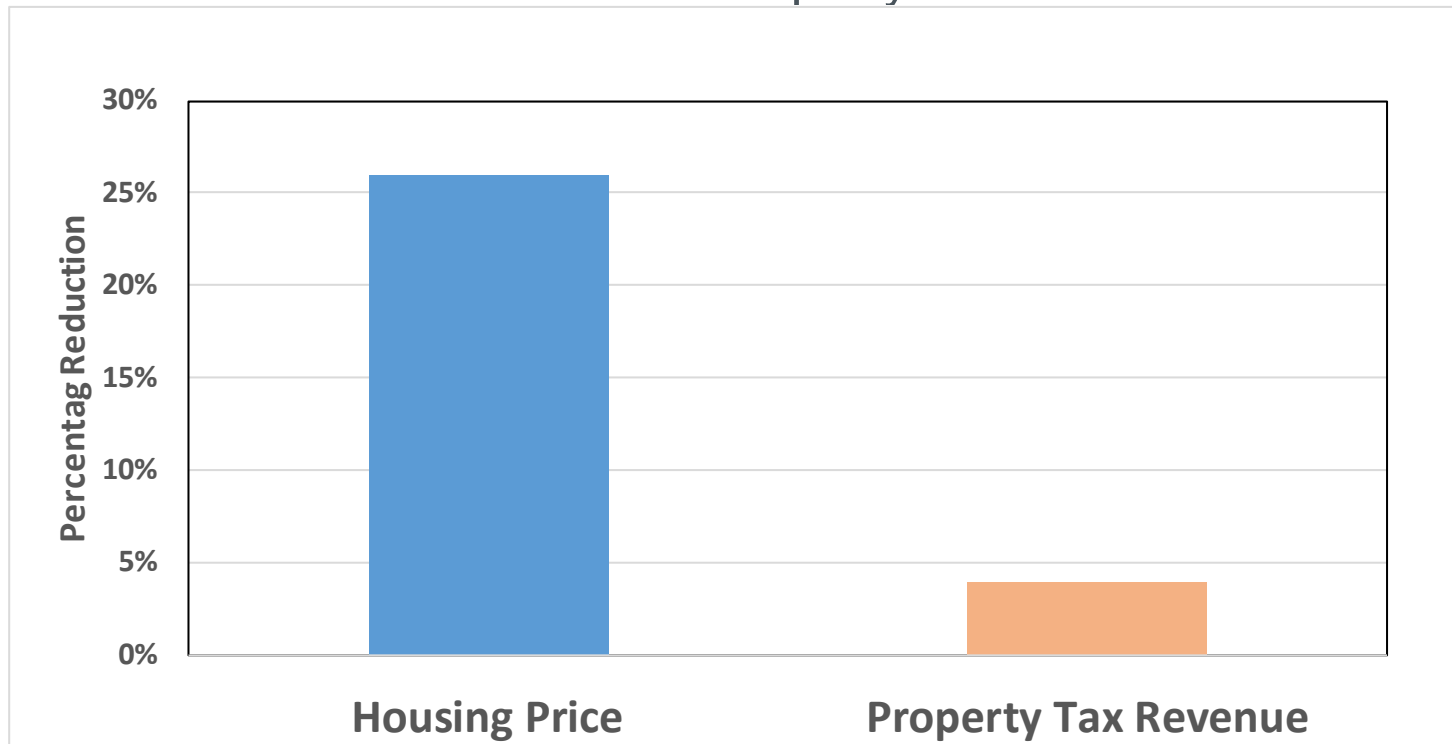
—●— median spending —●— median revenue

Louisville, Knoxville, Mesa, Gary, St Paul, Richmond, Columbia, Wilmington, Detroit, Las Cruces

Property Tax Results

- Housing prices rise--3 years later, property tax revenues rise
- Housing prices fall—3 years later, property tax revenue fall

Average 26% decline in Housing Prices Associated with
a 4% Decline in Property Tax Revenue

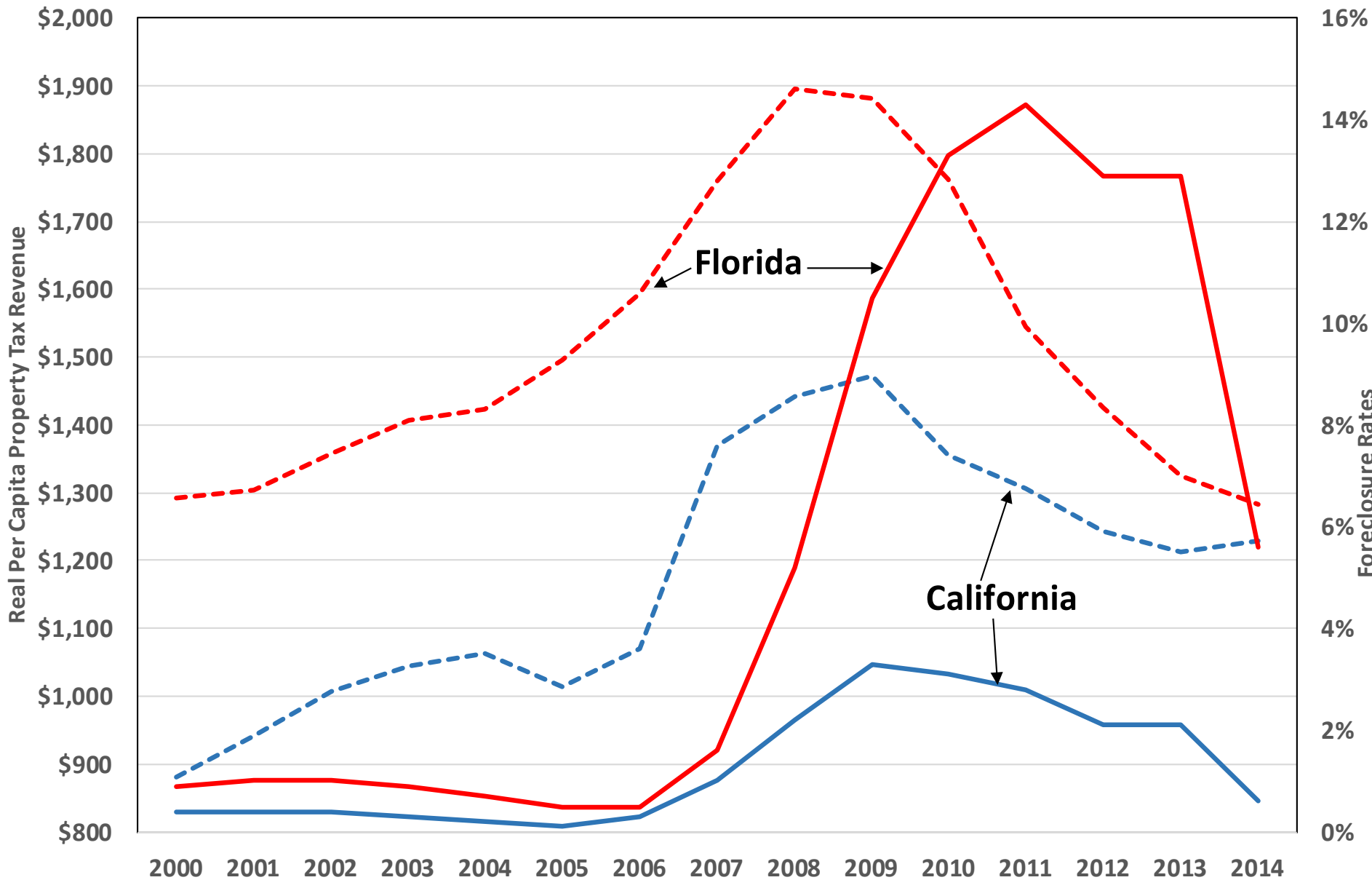


The Impact of Foreclosure Rates on Property Tax Revenue

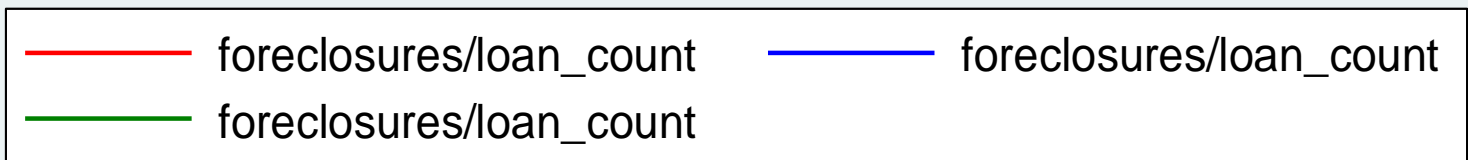
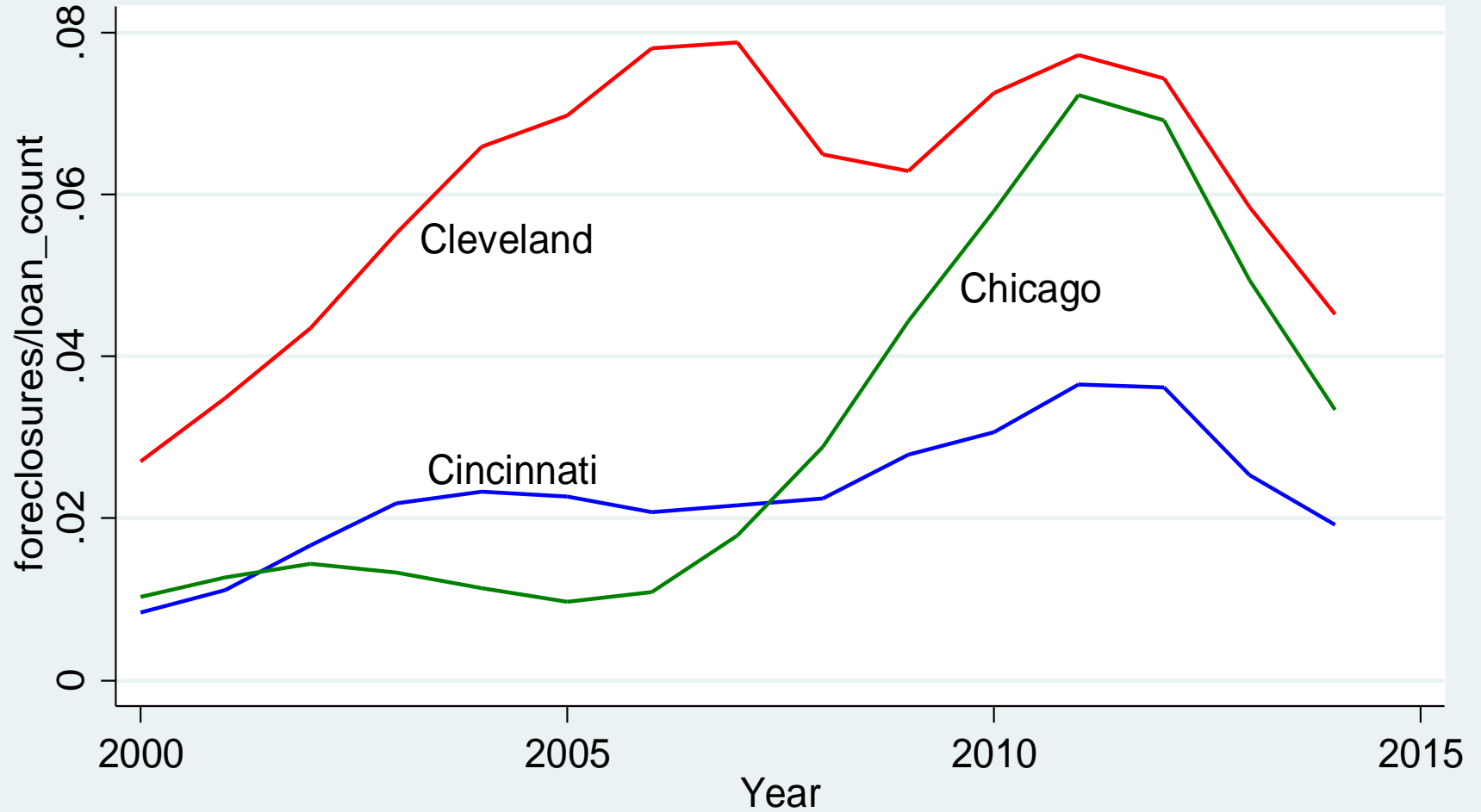
- Strong independent effect of foreclosure rates
- Rise in foreclosure rates significantly contributes to the reduction in per capita property tax revenue

Property Tax Revenue (dashes) and Foreclosure Rates (solid line)

Average in Florida and California Fiscally Standardized Cities



Annual Foreclosure Rates, Cleveland, Cincinnati, and Chicago



Source: Corelogic

General Revenue Results

- Approximately 1/3 of post-2009 decline in the per capita general revenue of FiSCs was attributable to housing market stress, i.e. the fall in housing values and the rise in foreclosures
 - High foreclosure rates serve as a proxy for general economic decline, further reducing general revenues
- State aid has a large impact on general revenues
 - 1/3 to 1/2 of the drop in general revenue from 2007 to 2013 was due to reduced state aid
 - a \$1 cut in state aid reduces general revenues by from 60 to 88 cents

City Spending

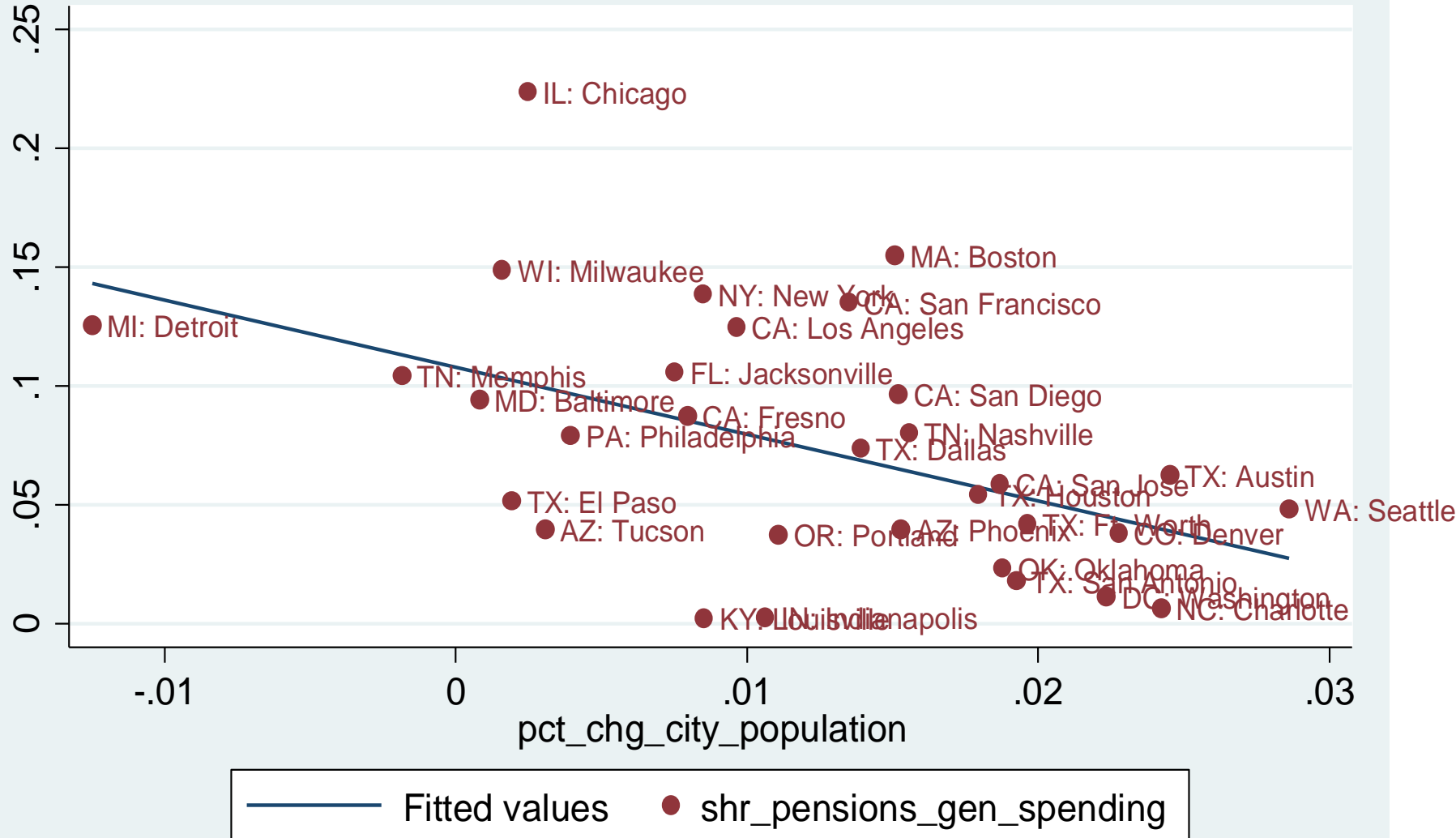
- Per Capita Spending Rises in Cities with Declining Population
 - Labor as Quasi Fixed Cost
 - Pension Share Rises

Spending Higher in Denser Cities

-

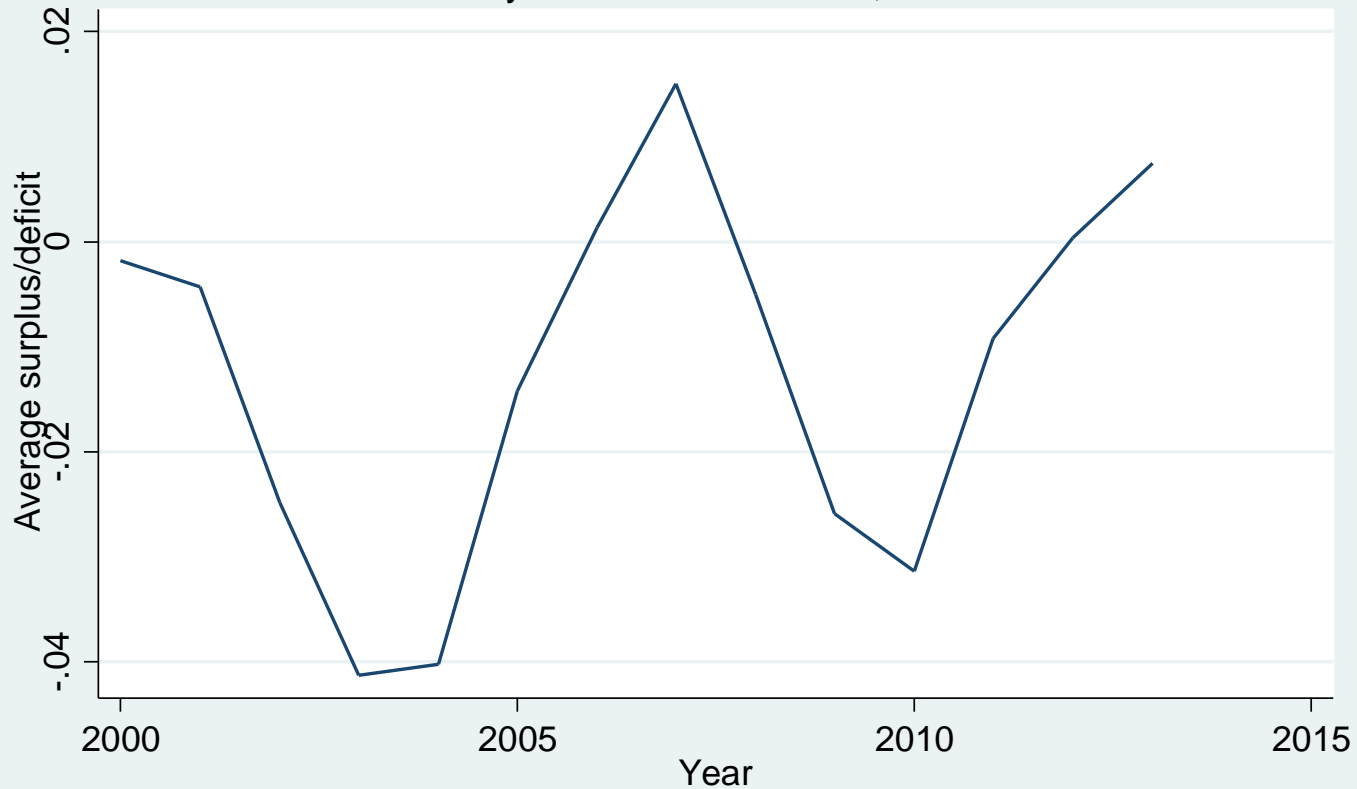
Pension Share vs. Population Change, 2014

Excludes Cities with State Run Pension Plans



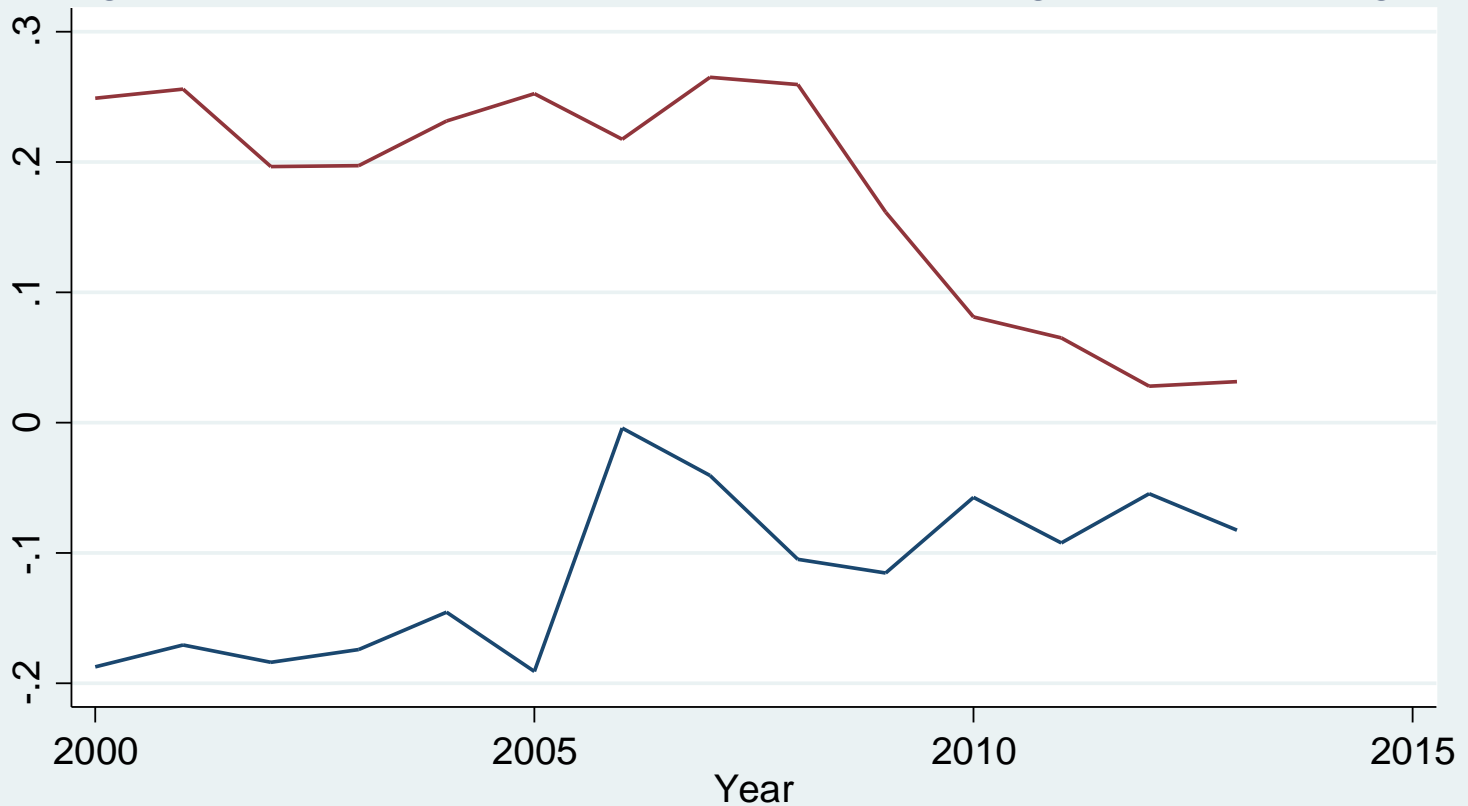
Pension Share = Benefit Payments Plus Employee Withdrawals, as share of general spending.

Fig. 5. Predicted Surplus/Deficit, Share of General Revenue
90 Fiscally Standardized Cities, 2000-2013



Surplus = Revenue - Predicted Spending. See text for spending model.

Fig. 6. Predicted Surplus or Deficit: Chicago and Las Vegas



Chicago Las Vegas

Predicted Surplus = (Predicted Spending - Actual Revenue)/Actual Revenue

Predicted Deficit (Surplus) NYC



(General Revenue - Predicted Spending)/Gen Rev

Representative Tax System

$$\square \bar{t}_{property,t} = \text{mean}_t \left(\frac{p.c. tax_{property,i,t}}{\text{Average Sale Price}_{i,t}} \right)$$

Measuring Fiscal Capacity

$$\begin{aligned} FC \text{ Local}_{i,t} &= (\text{tbar property}_t * \text{Avg Home Value}_{i,t}) \\ &+ (\text{tbar other tax}_t * \text{Income}_{i,t}) \\ &+ \text{Charges}_{i,t} \end{aligned}$$

$$FC \text{ Local} + \text{State}_{i,t} = FC \text{ Local}_{i,t} + \text{State Aid}_{i,t}$$

$$FC \text{ IGR}_{i,t} = FC \text{ Local} + \text{State}_{i,t} + \text{Federal Aid}_{i,t}$$

Table 10. Disparities* in Fiscal Capacity, Various Years, 91 Fiscally Standardized Cities

	2000	2005	2010	2013
Local**	0.39	0.45	0.48	0.48
Local** + State Aid	0.3	0.36	0.36	0.37
Local** + State Aid + Federal Aid	0.3	0.35	0.36	0.37

Notes

* Disparities Measured by the coefficient of variation

**Local Fiscal Capacity = Local tax capacity + charges. See text for details.

Table 11. High and Low Relative Fiscal Capacity 2013

2013 rel. fiscal capacity*

Five Highest

CA: Fremont	2.11
NY: Yonkers	2.13
CA: Oakland	2.32
NYC	2.5
San Francisco	3.2

Five Lowest

KY: Louisville	.74
AL: Birmingham	.75
MI: Warren	.77
OK: Oklahoma Cty	.77
MO: St. Louis	.79

* Fiscal Capacity / Median Fiscal

Capacity

Median FC = Hypothetical FC, given median values for all components

Some Policy Recommendations

- ❑ State and local governments should prepare for the next downturn by increasing the level of fund balances (rainy day funds)
 - Cities with rising housing prices should build up reserves, or pre-pay future obligations.
 - Don't wait until it is obvious that there is a housing bubble
 - **Easy to say, hard to do**
 - States/cities/non-profits develop coordinated policies to reduce/prevent foreclosures
- ❑ Federal aid is important, but timing should be spread out over a larger number of years

Thank You

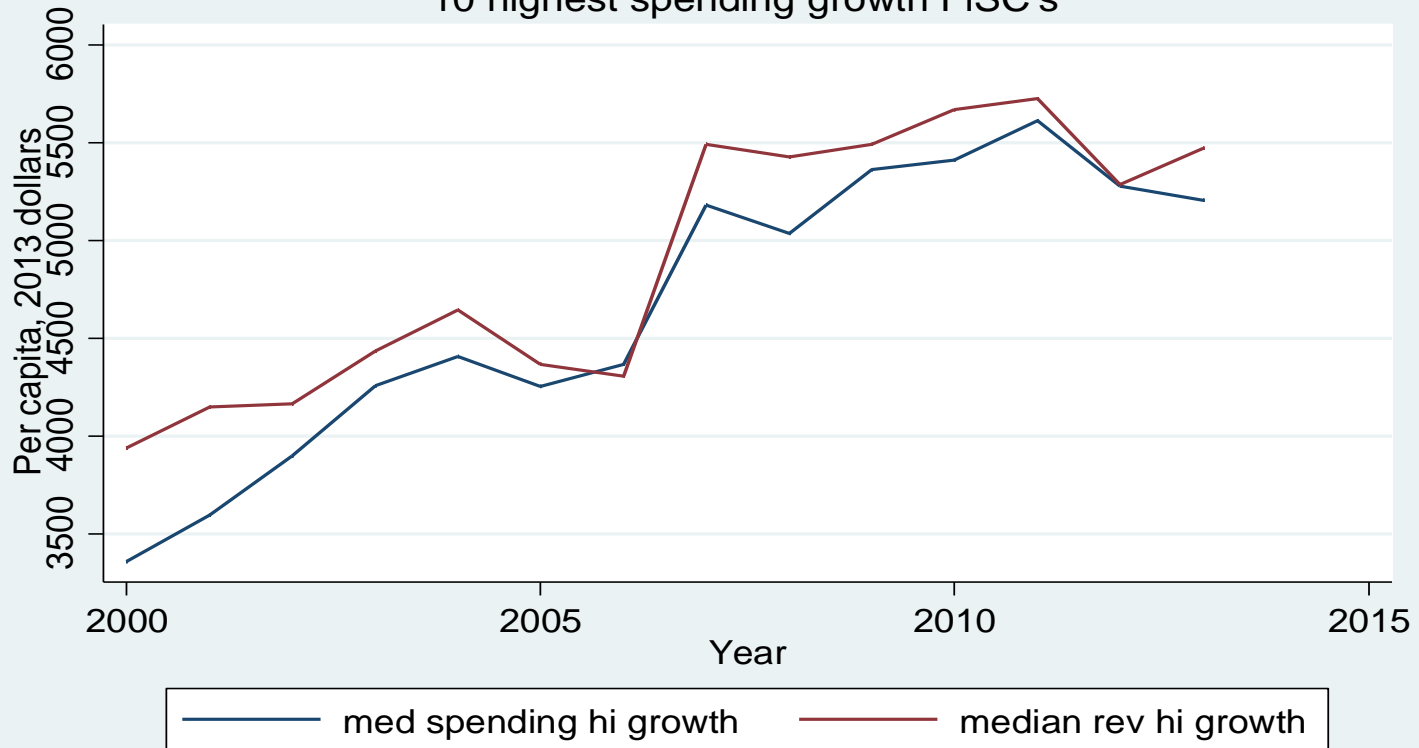
Pensions and Population Change

- Pension share = $-1.5 + .000005(\text{density}) - .08(\text{pct change in population}) + .0008(\text{year})$.

Explaining the Property Tax Results

- Why weren't property tax reductions even larger?
 - In some states, assessment limits constrained downward adjustments of the property tax base
 - e.g. California's Proposition 13: NYC's assessment phase-in rules
 - Non-residential property values much more stable than residential values

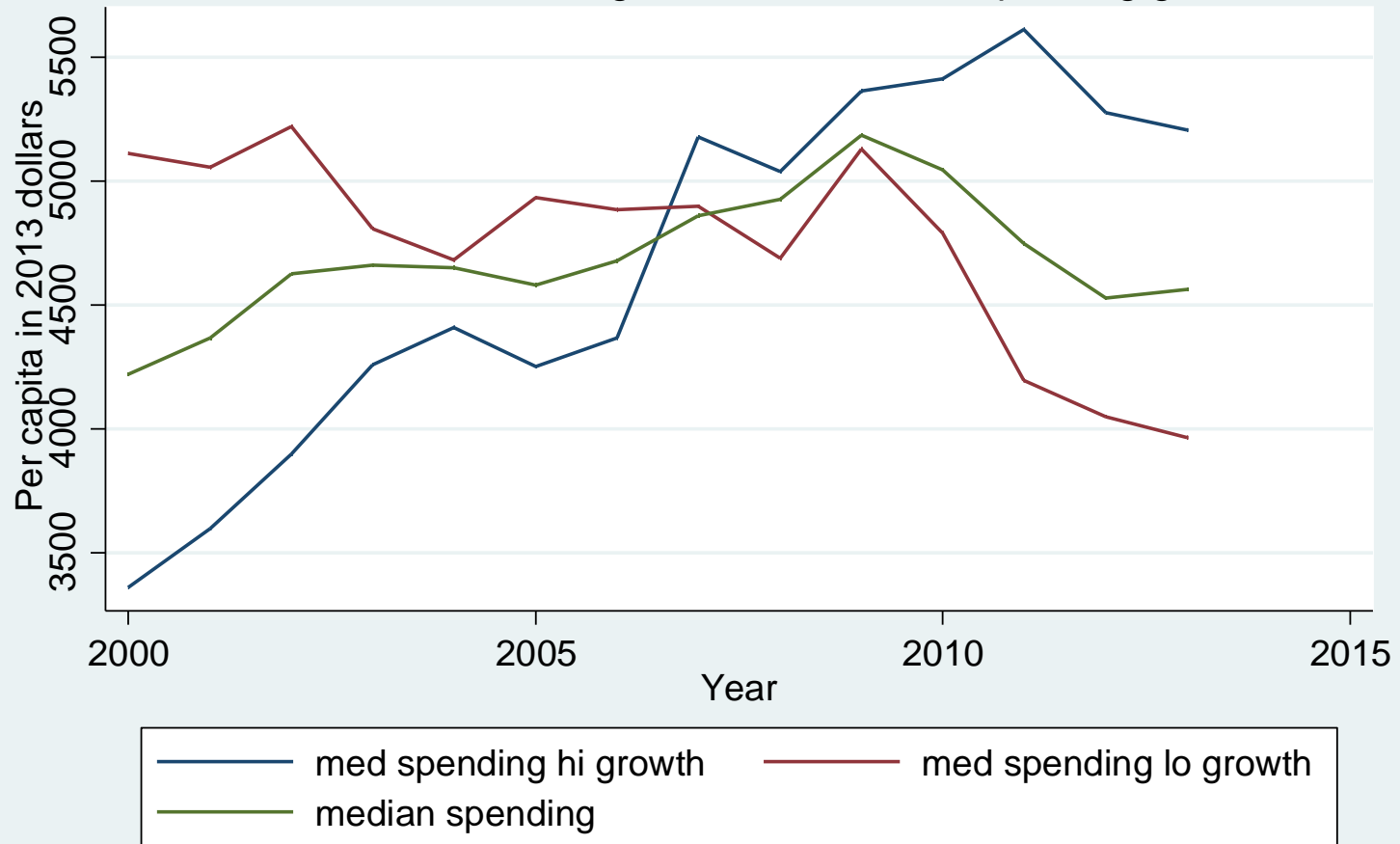
Fig. 3 Median spending and revenue 2000-2013
10 highest spending growth FiSC's



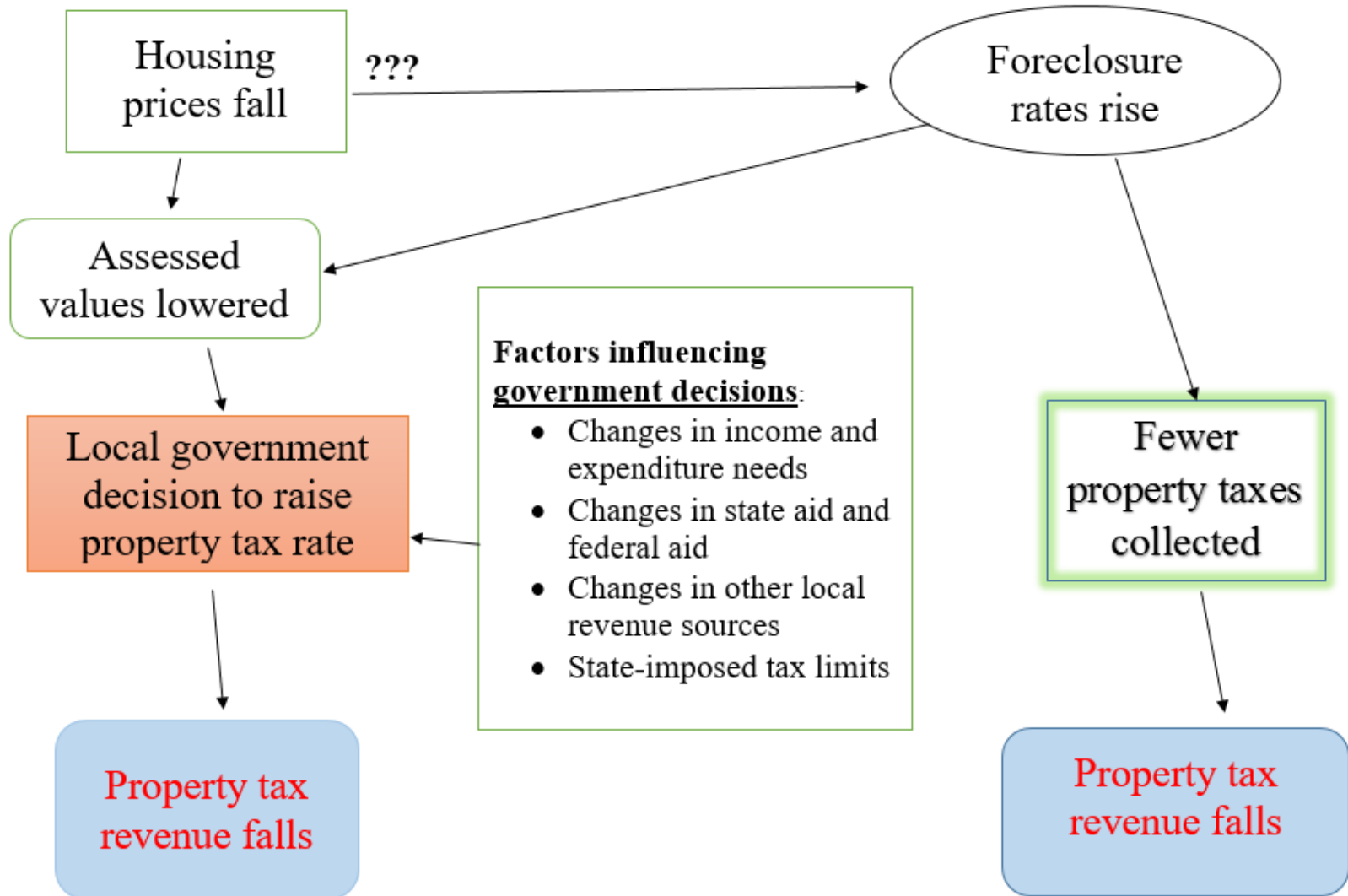
Cities: Balt, Prov, Syr, Burl, Cedar Rapids, Montgomery, New Orl., Baton Rouge, Cheyenne, Wash DC

Fig. 4. FiSC General Spending, 2000-2013

Median for all cities, and 10 highest and 10 lowest spending growth cities



How the Housing Market Crisis Influenced Property Tax Revenue



Explaining the Property Tax Results

- Why didn't local government raise rates enough to limit revenue declines?
 - Falling incomes and rising unemployment made raising rates politically infeasible
 - New York City is a counter-example
 - In CA and FL, even a 25% increase in property tax rates would have led to revenue declines of 10% to 15%
 - State-imposed rate limits and property tax levy limits placed constraints on local governments

	(1)	(2)
	igr_state	ln_igr_state
L.to-g_price	-0.00109*** (-5.93)	
L.hh_med-eal	-0.0100*** (-5.13)	
L.igr_fed-al	0.164* (2.22)	
ln_city_po-n	-25.52 (-1.16)	0.00417 (0.31)
density	0.0347*** (6.99)	
pct_chg_ci-r	-823.9*** (-4.57)	-0.467*** (-4.18)
L3.pct-n_2yr	-688.1*** (-3.77)	-0.435*** (-3.87)
state_dum_CA	1254.2*** (25.53)	0.599*** (20.47)
state_dum_FL	-464.8*** (-8.46)	-0.243*** (-7.04)
state_dum_TX	-458.4*** (-8.45)	-0.406*** (-12.17)
state_dum_NY	1611.9*** (22.53)	0.640*** (14.90)

City Income, spending, and state aid

$$\begin{aligned} \Delta \text{Spending} / \Delta \text{Income} = .01 = & a_0 (\Delta \text{Demand} / (\Delta \text{Income})) \\ & - a_1 (\Delta \text{Cost} / \Delta \text{Poverty Rate}) * \left(\frac{\Delta \text{Pov Rate}}{\Delta \text{Income}} \right) \\ & + ([\Delta \text{Spending} / (\Delta \text{StAid}) = \sim .8]^*) \left(\frac{\Delta \text{StAid}}{\Delta \text{Income}} = \sim - .01 \right) \end{aligned}$$

Conclude that $a_0 \sim .02$.

Half of additional spending from higher income is offset by decline in state aid. (high implicit tax rate?)

Calculating Fiscal Capacity

- Representative tax system
- Add charges
- Add intergovernmental aid

Table 1. Per capita general spending and state aid, 2000-2013.

	(1) spending	(2) spending	(3) spending	(4) spending	(5) spending	(6) spending	(7) state aid
City Population	-0.0000289 (-0.56)	0.000117** (3.60)	0.000154** (4.78)	0.0000231 (0.72)		0.0000627 (1.92)	-0.00000756 (-0.38)
L2.pop change ~)	-2060.8** (-3.48)	-414.1 (-1.11)	-670.7* (-2.04)	-770.5* (-2.42)	-783.0* (-2.47)	-874.2** (-2.59)	-379.2* (-1.98)
L3.pop change ~)	-2339.7** (-3.91)	-447.6 (-1.19)					
pop change (pct)			-620.8 (-1.90)	-787.3* (-2.47)	-800.1* (-2.52)	-795.4* (-2.35)	-507.9** (-2.66)
density	0.186** (15.30)	0.0438** (5.42)	0.0444** (5.46)	0.0588** (6.80)	0.0624** (8.74)	0.0479** (5.62)	0.0116* (2.17)
state aid		0.843** (24.65)	0.873** (29.80)	0.642** (13.61)	0.642** (13.61)	0.781** (21.79)	
federal aid		2.558** (54.23)	2.595** (54.61)	2.427** (50.79)	2.425** (50.86)	2.534** (51.18)	-0.269** (-9.54)
median income				0.0101** (4.04)	0.0103** (4.13)	0.0109** (5.14)	
L.median income							-0.0107** (-7.06)
Constant	3659.9** (24.03)	1834.1** (16.41)	2450.3** (47.25)	2029.4** (11.47)	2026.8** (11.46)	2320.5** (18.48)	1670.6** (20.50)
Observations	2094	2094	2094	1270	1270	1270	1180
Adjusted R-squ~d	0.320	0.732	0.712	0.782	0.782	0.746	0.610

t statistics in parentheses

Models (1), (2), and (3) estimated for 149 Fiscally Standardize Cities. Model (4)-(7) estimated for 90 Fiscally Standardized Cities. Washington, DC excluded from all models. Models (1) -(6) include census division and year indicator variables. Model 7 includes only division indicators.

* p<.05, ** p<.01