

The Housing Crisis and State and Local Government Tax Revenue: Five Channels

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The Crisis in Real Estate and its Impact in Public Finance
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Paper at:

<http://www.federalreserve.gov/pubs/feds/2010/201049/201049abs.html>

Motivation

- The housing market experienced the largest contraction since the Great Depression.
 - House prices plunged by nearly 30 percent from 2006 to 2009.
 - Existing home sales fell by 36 percent.
 - The number of new housing starts dropped by 75 percent.
- State and local tax revenues have been hit hard.
 - State and local tax revenues fell by almost 5½ percent in 2009, the first nominal decline since the Great Depression.

Research Question

- How important is the impact of the housing market downturn on state and local tax revenues relative to the broader impact of the recession?
- Five Channels:
 - Property tax
 - Real estate transfer tax
 - Direct sales tax (e.g. construction material)
 - Indirect sales tax (e.g. housing wealth effect)
 - Personal income tax (e.g. construction workers and real estate agents)
- Rough sense of the magnitude of direct effect of housing, not strictly causal estimates

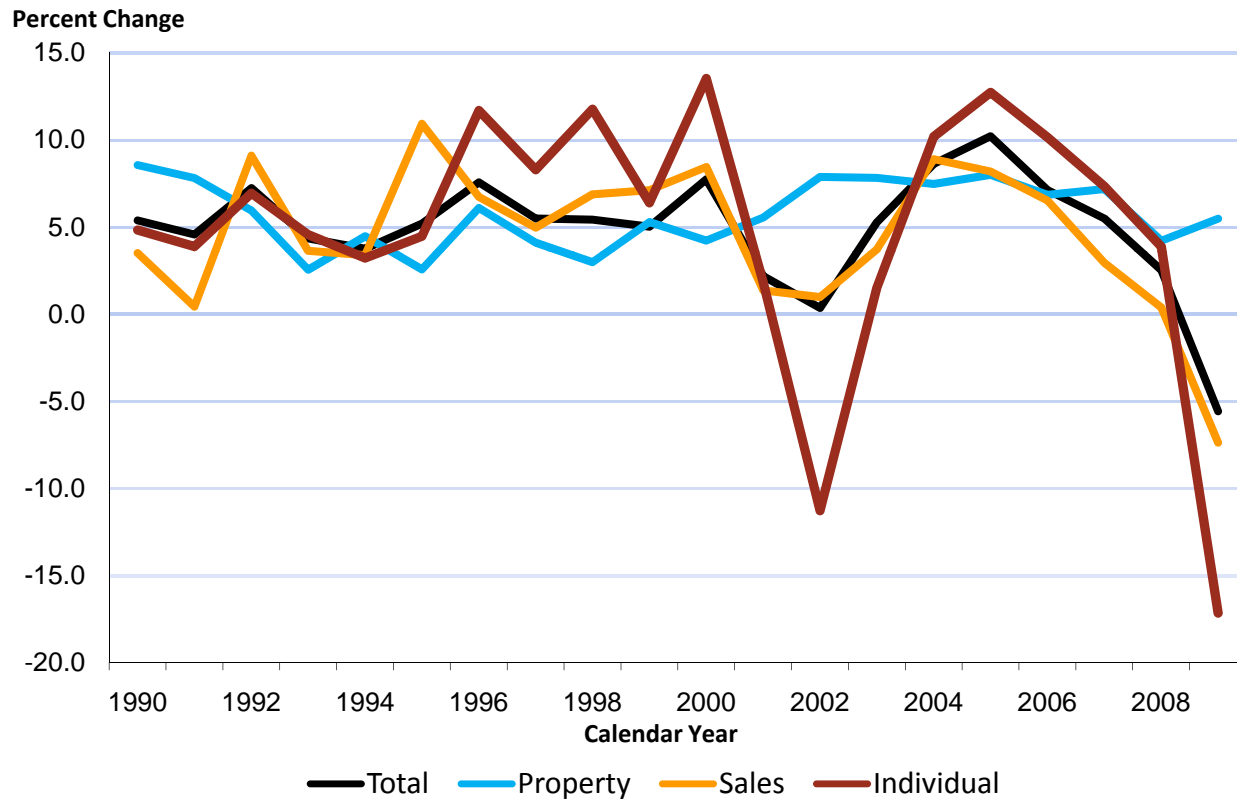
Research Question (cont.)

- We take an aggregate approach
- Strength of approach
 - Important to know average effect
 - Baseline for experiences of individual states and localities
 - Avoids tendency to focus on the most affected states and localities
 - Aggregate data is available on a more timely basis
- Weakness of approach
 - Aggregate data lacks detail
 - Estimates may not be informative for a particular state or locality

Preview of Findings

- We find that property tax collections have been surprisingly resilient for two reasons.
 1. Assessment values lag market values significantly.
 2. Policy makers tend to offset declines in house prices by raising tax rates.
- We find that the direct impact of the housing downturn from remaining four channels on state and local tax revenues is modest relative to the general economic recession.

Figure 2: State and Local Tax Revenues



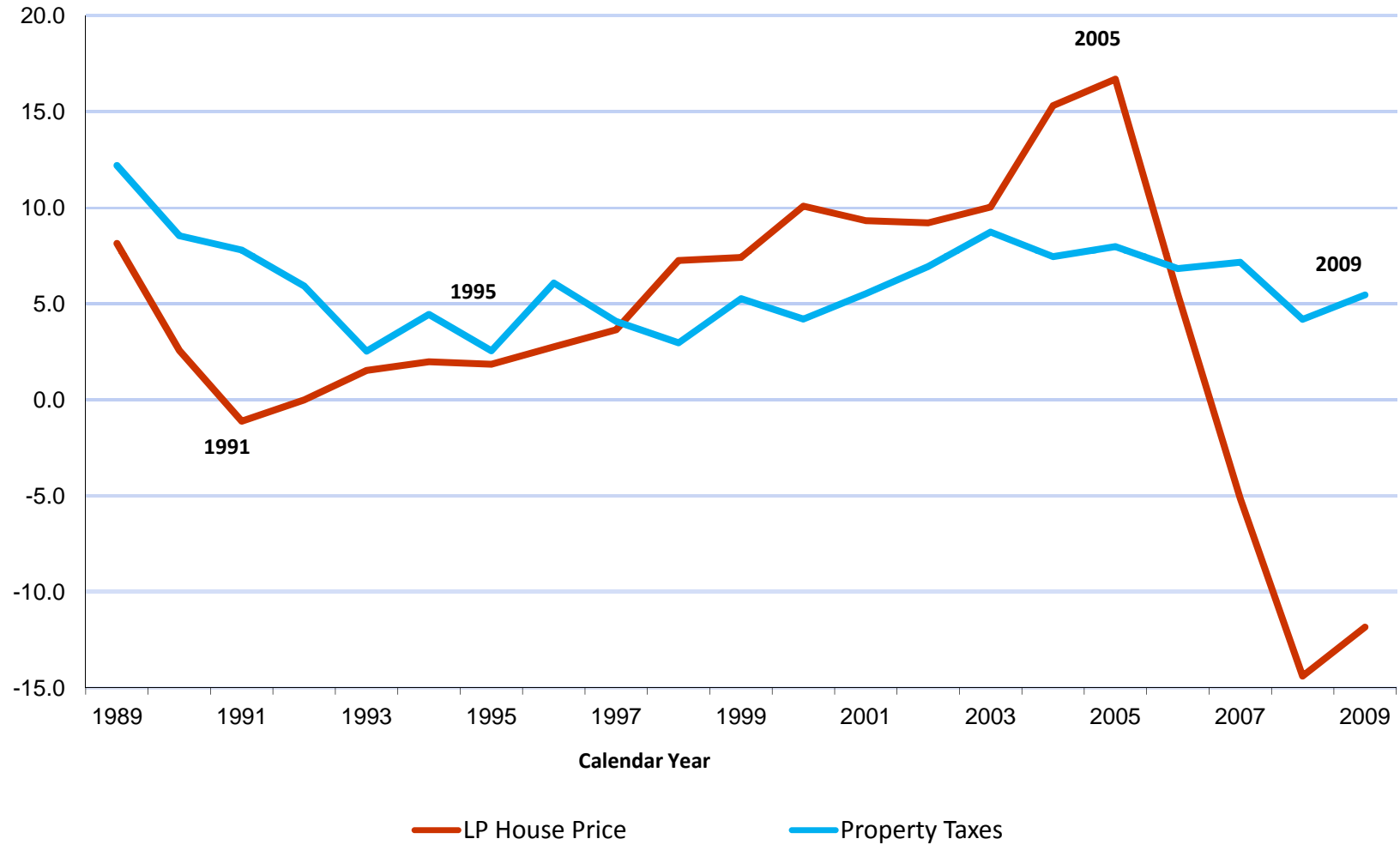
Source. Census Bureau, *Quarterly Summary of State and Local Tax Revenue*.

Property Tax

- Lutz (2008): relationship between home values and property tax collections
- **Timing:** The effect of house price changes on property taxes does not occur until three years following house price changes.
 - Backward looking
 - Assessment practices
 - Property tax caps and limits
- **Magnitude:** The elasticity of property tax revenue with respect to home prices equals 0.4.
 - Policy makers offset house price changes by adjusting property tax rates.

House Price Appreciation and Property Taxes

Percent Change

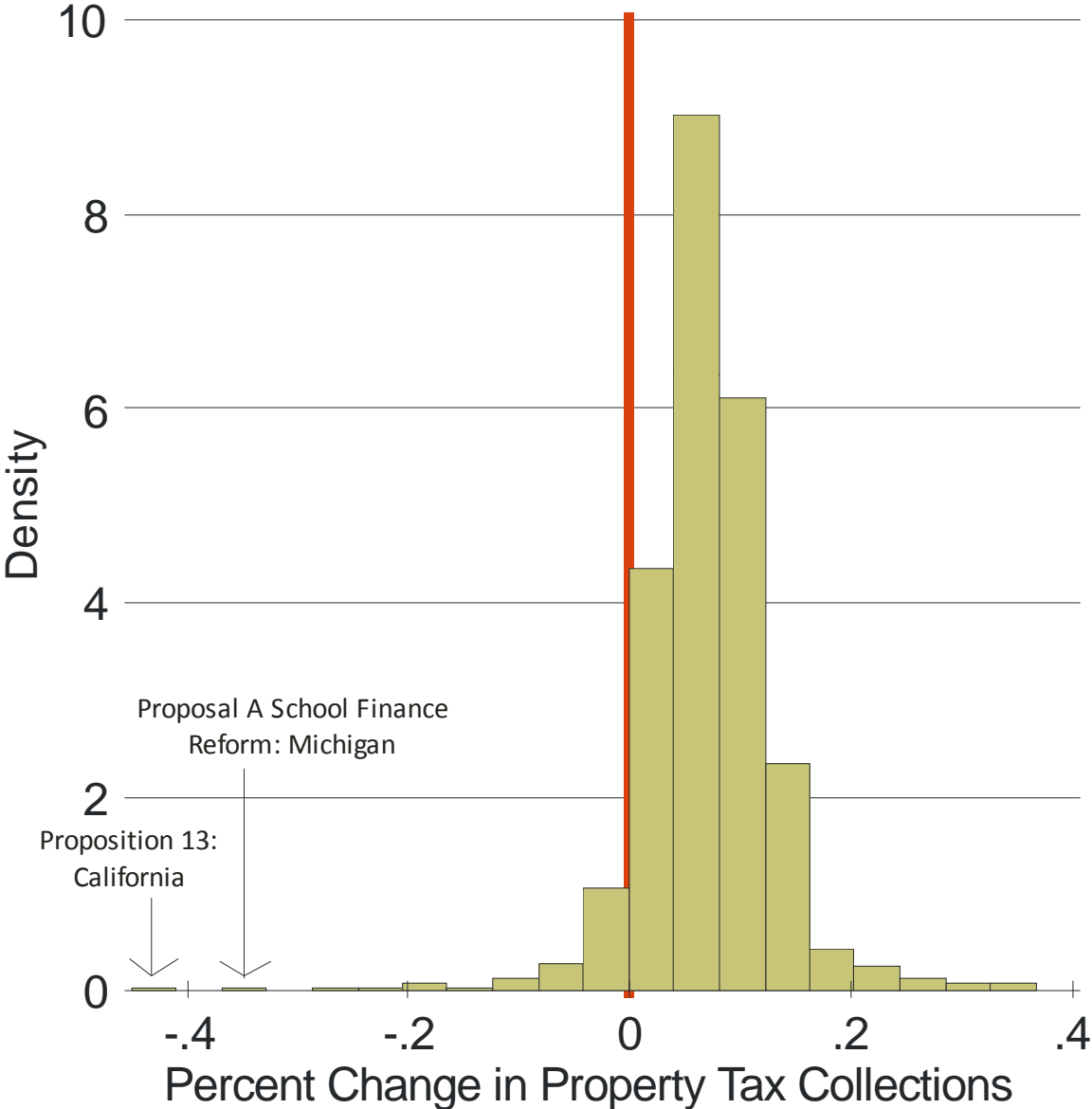


Source. Loan Performance; Census Bureau, *Quarterly Summary of State and Local Tax Revenue*.

Property Tax Analysis

- Analysis focused explicitly on episode of declining home prices
 - Historical event study
 - state-level data on total property tax collections (state and local) and house prices
 - Trace out the evolution of tax collections following house price declines
 - “Stacking the deck” in favor of finding that house price declines cause property tax declines
 - Contemporaneous case studies

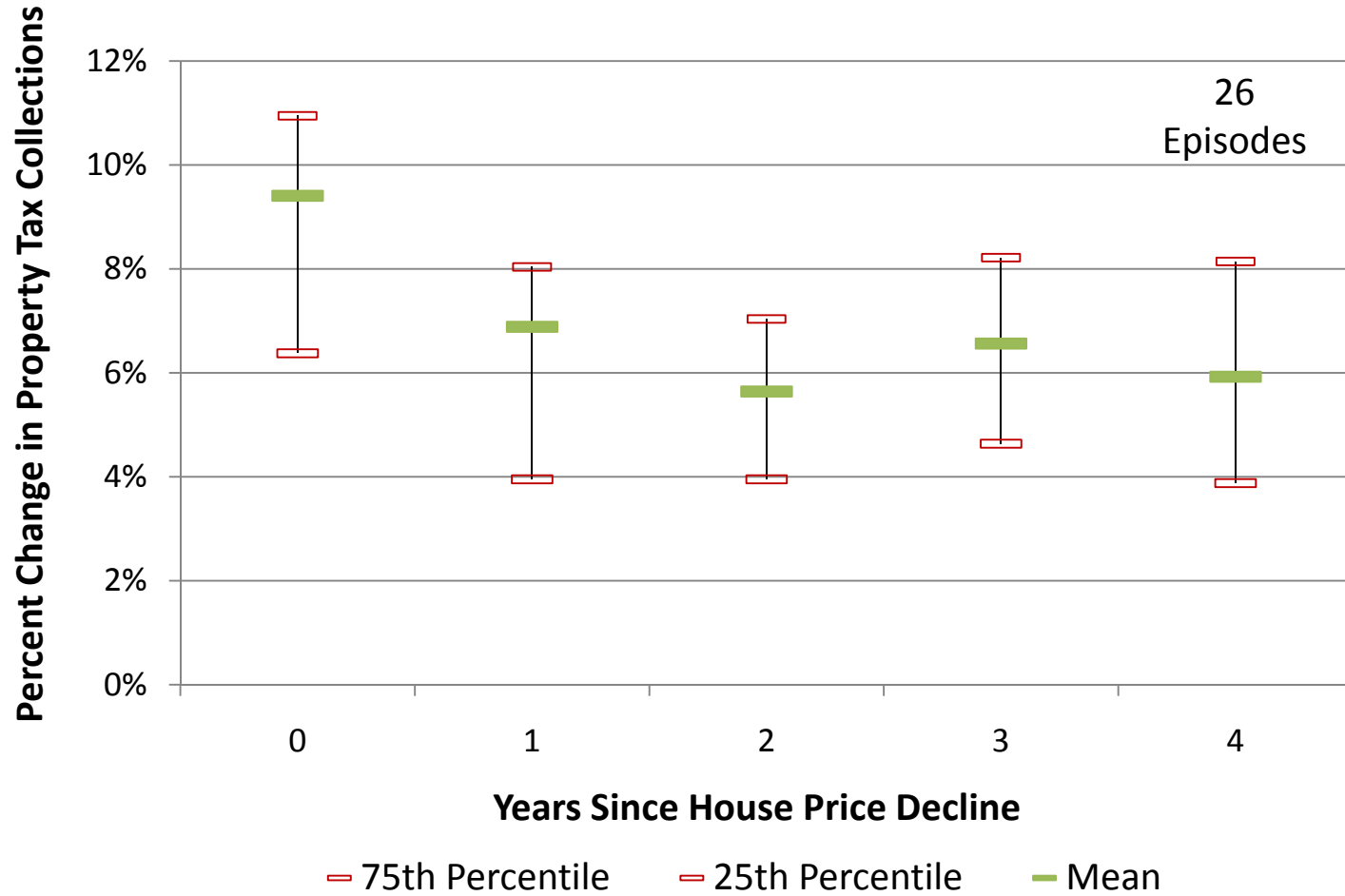
Distribution of Changes in Property Tax Collections 1976-2007



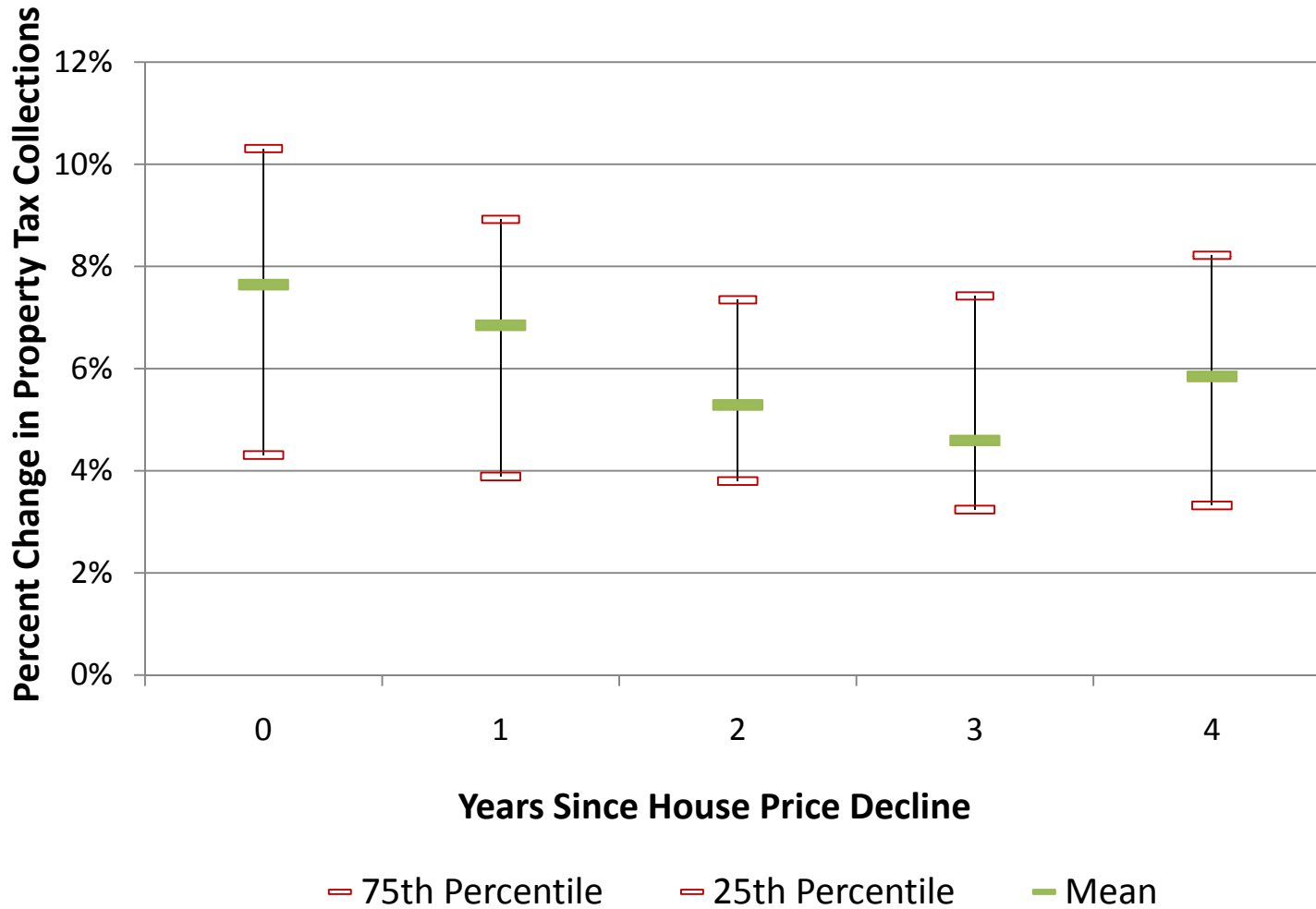
Percent Change in Property Tax Collections Following House Price Declines



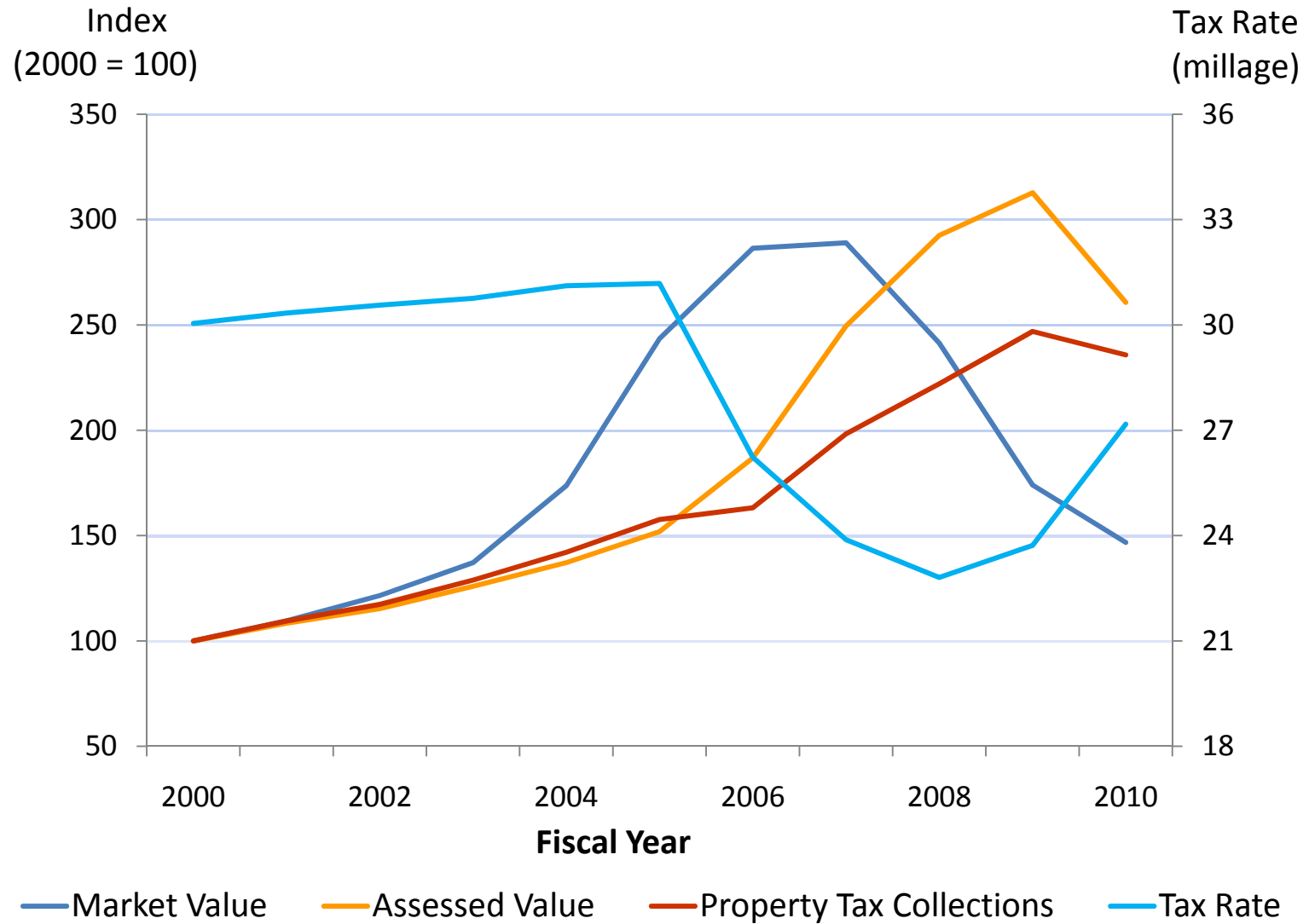
Percent Change in Property Tax Collections Following Large House Price Declines



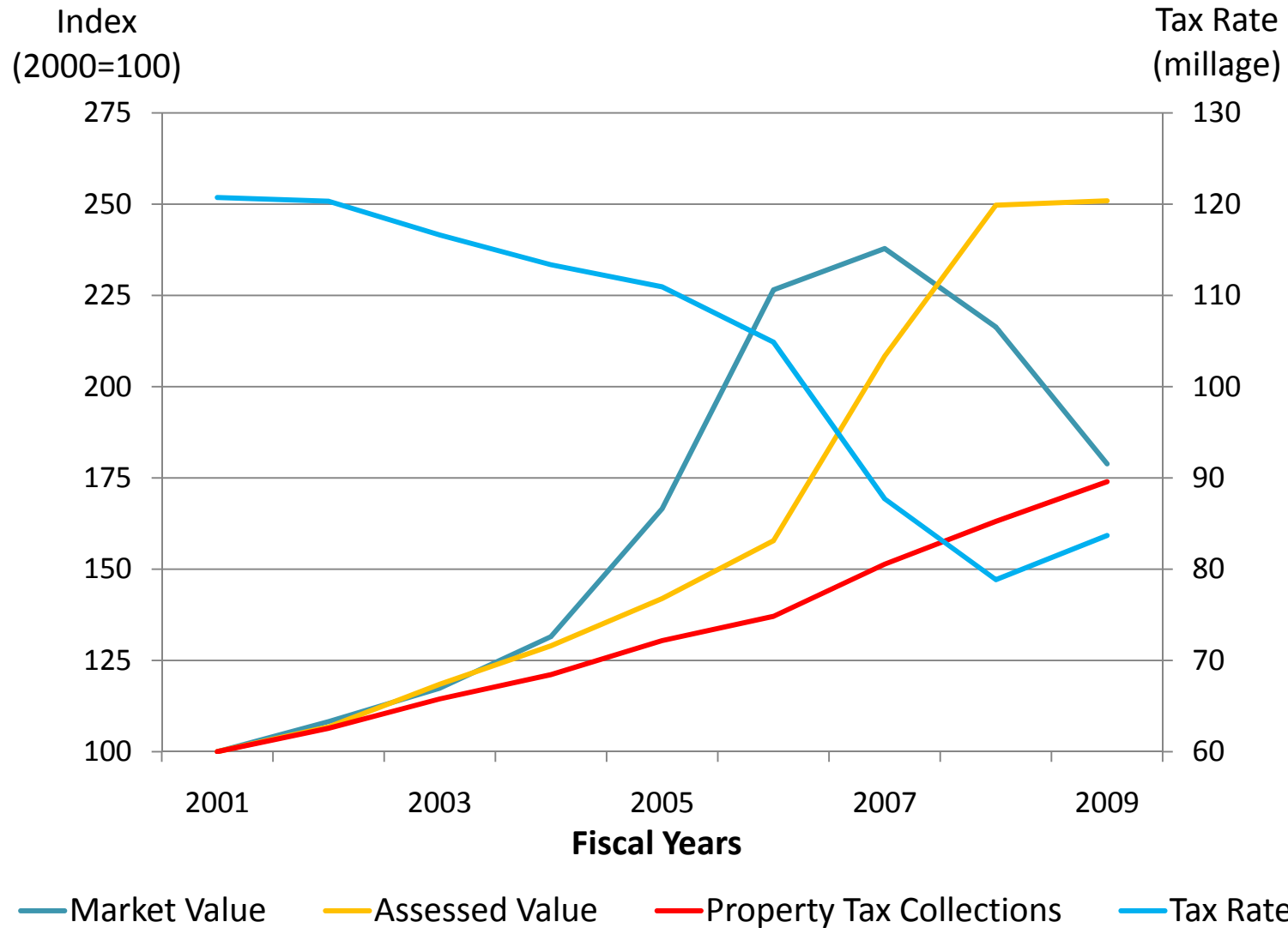
Percent Change in Property Tax Collections Following House Price “Busts”



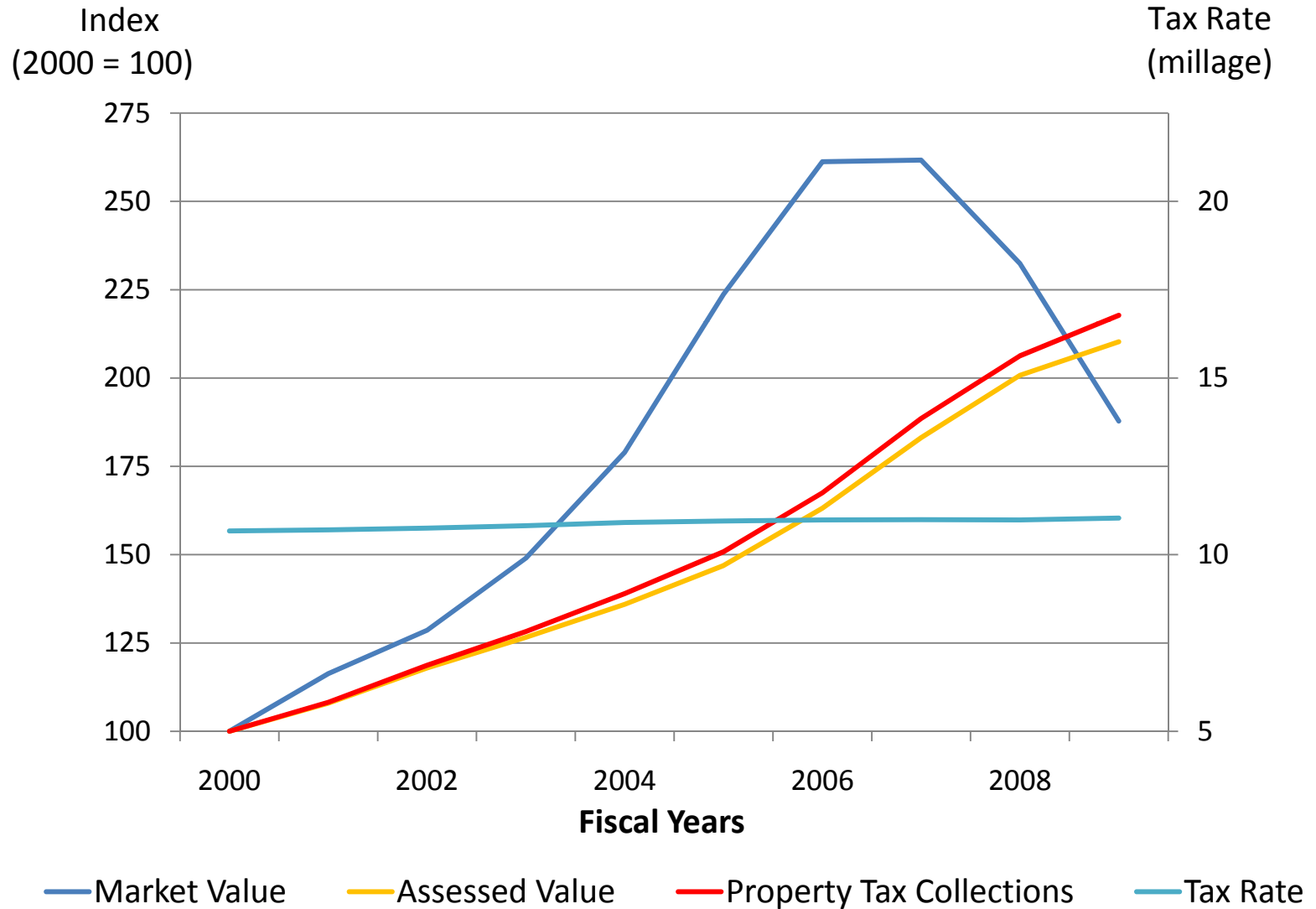
Case Study: Nevada



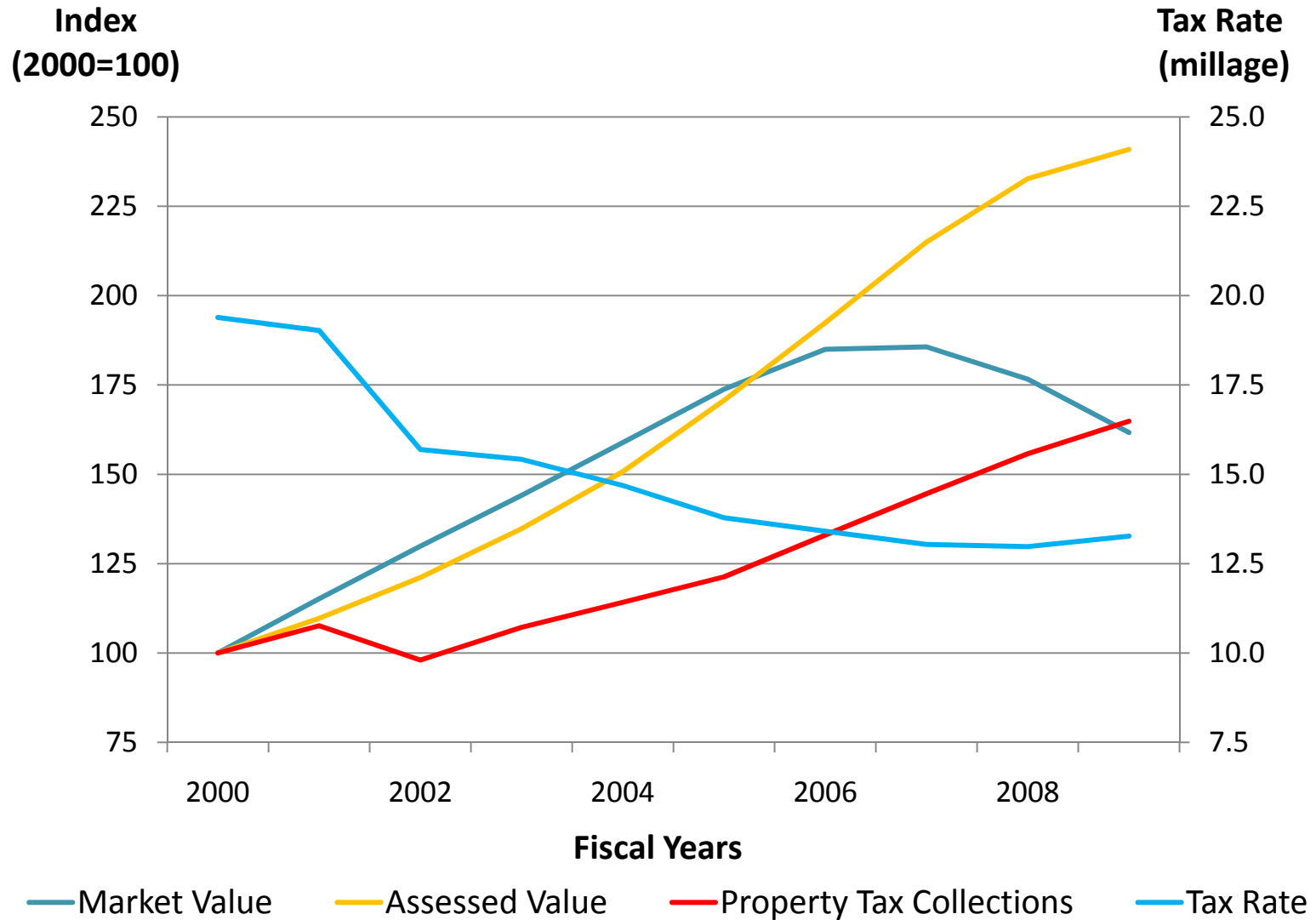
Case Study: Arizona



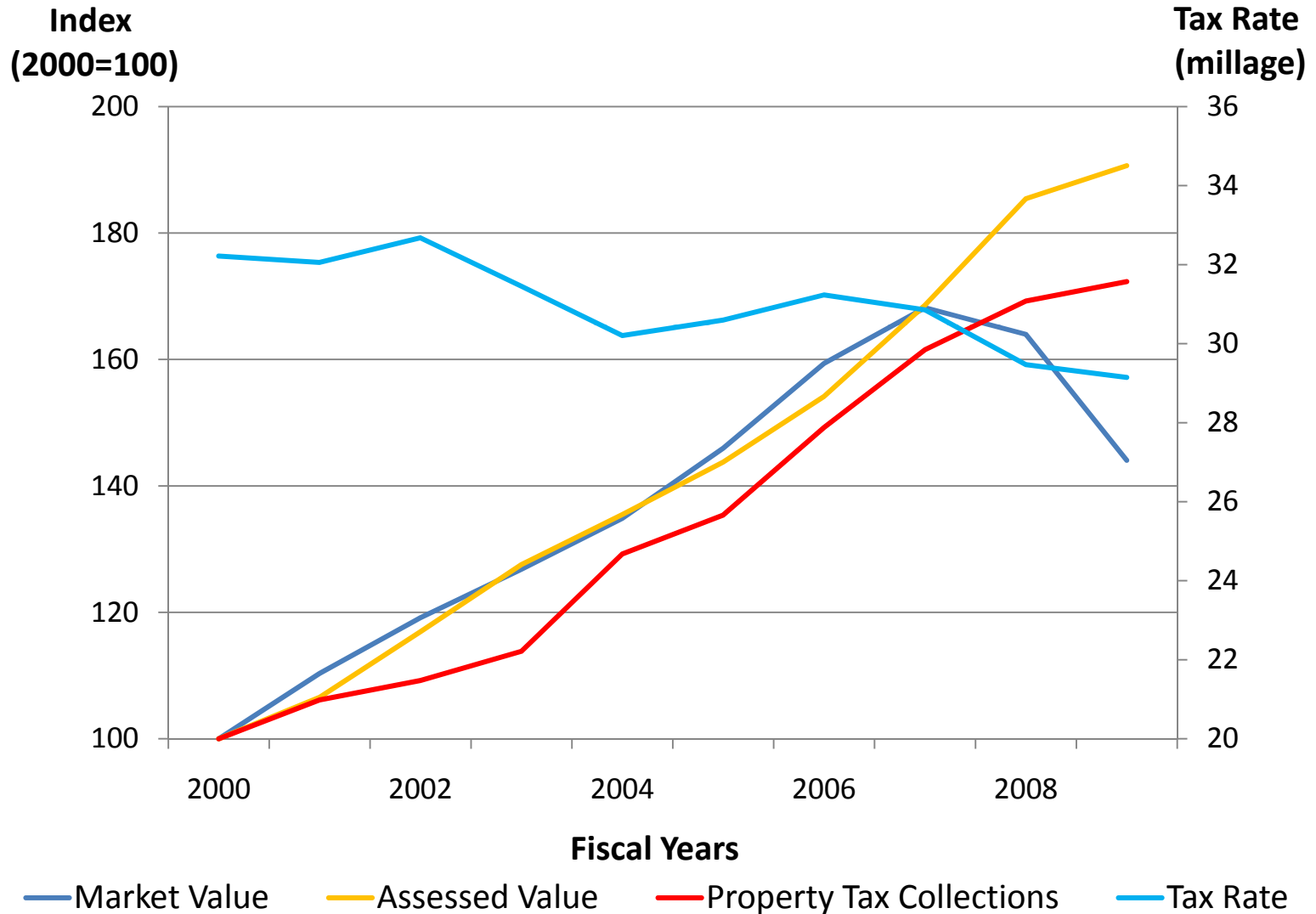
Case Study: California



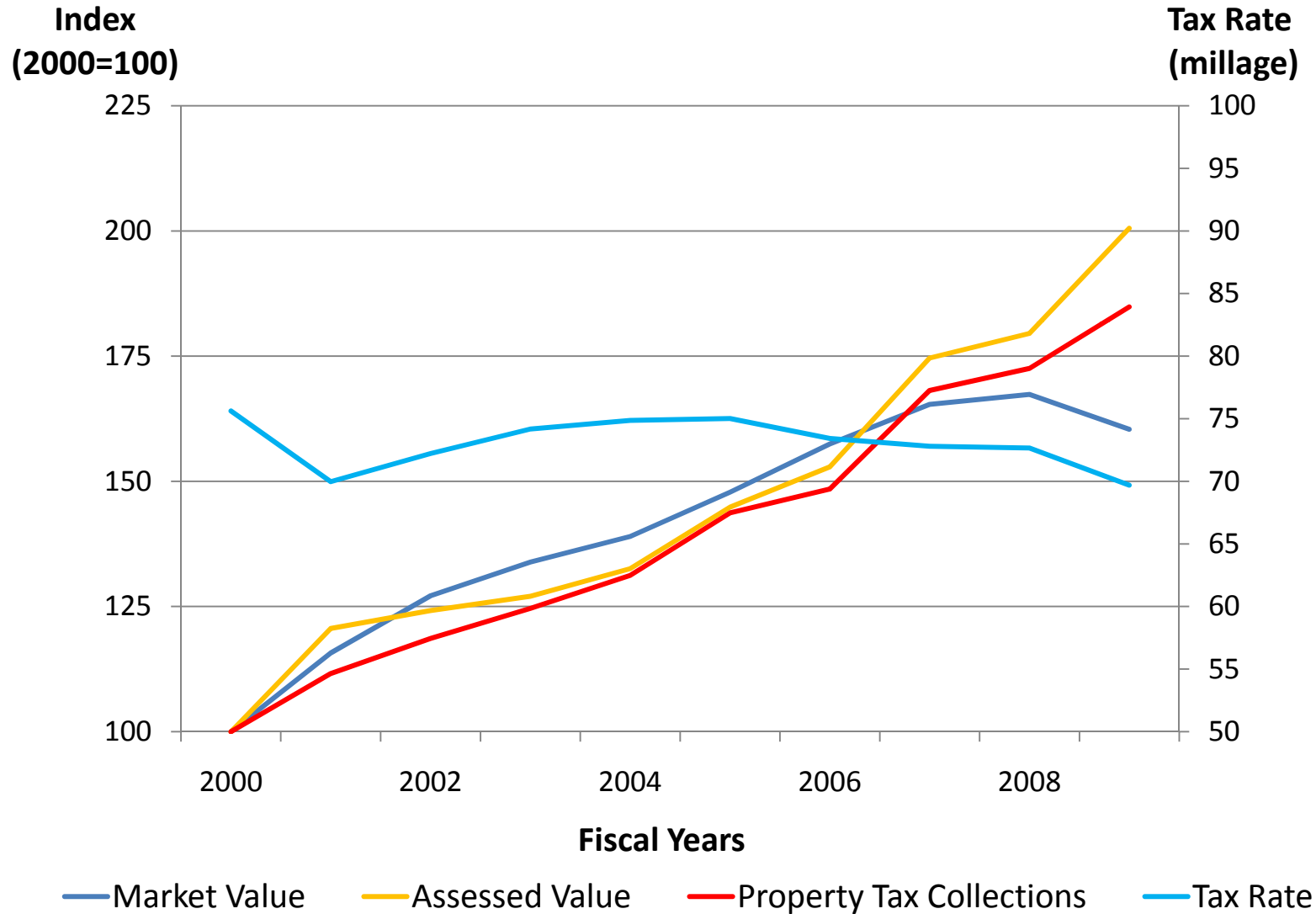
Case Study: Minnesota



Case Study: Georgia



Case Study: Colorado



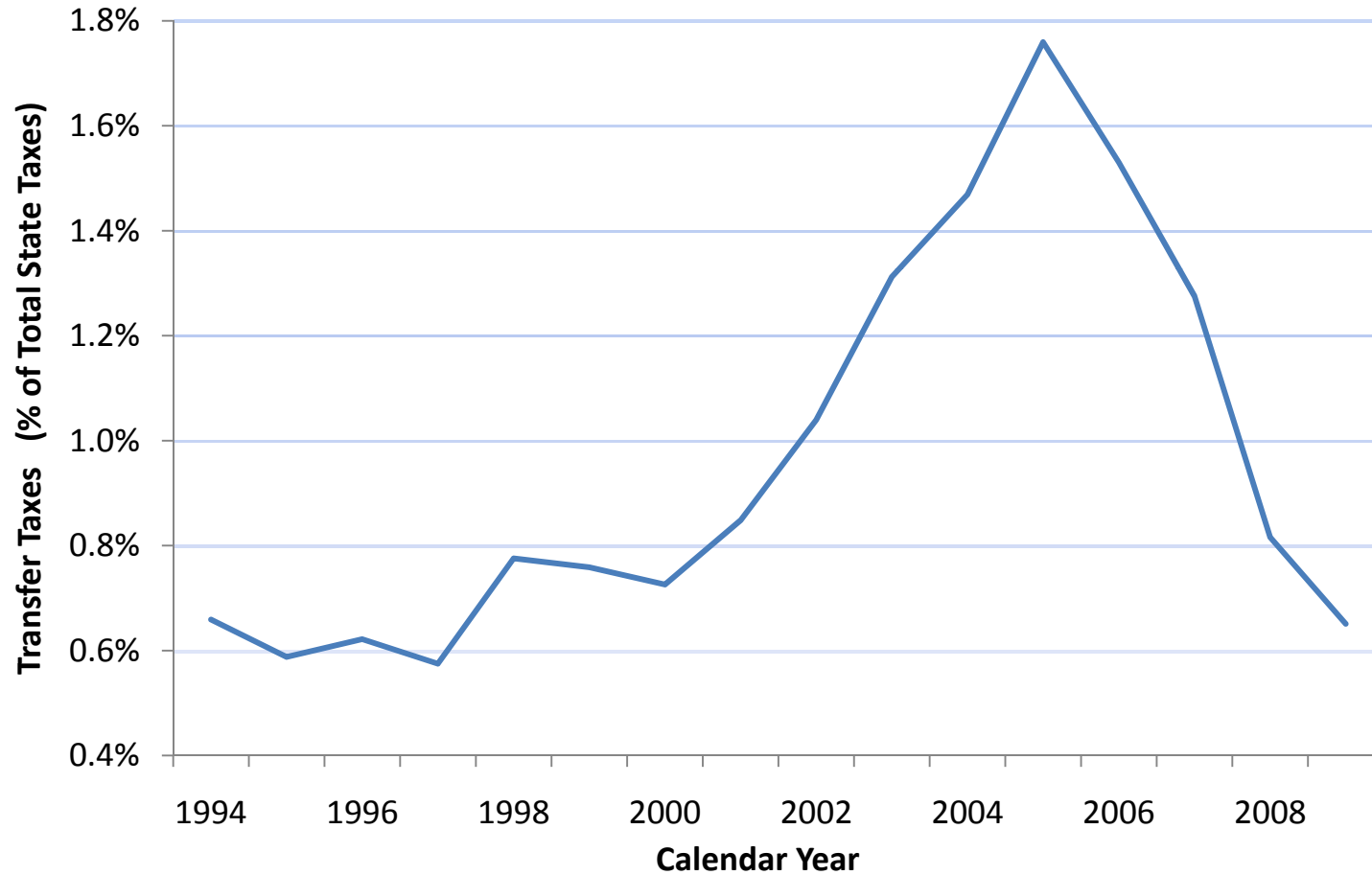
Case Studies: Conclusions

- Lots of Heterogeneity
- Significant lag which has helped insulate local governments from the housing downturn
- Tendency for policy makers to offset decline by raising effective tax rates

Four Non-Property Tax Channels

- We conduct two exercises to gauge the impact of each of the four channels on state tax revenues.
 1. “Peak Year” method:
 - ❖ Compare state tax revenue in 2009 with that in 2005
 - ❖ Calculating change in tax base due to housing market over this period within each state and applying state tax rates
 2. “Trend Growth” method:
 - ❖ Compare state tax revenue in 2009 with the counterfactual level of taxes in 2009 implied by the 1995-2002 trend
- We first focus on national aggregates and then show heterogeneity across states.
- Lots of different data sources and assumptions

Real Estate Transfer Tax



Source. Census Bureau, *Quarterly Summary of State and Local Tax Revenue*.

Real Estate Transfer Tax

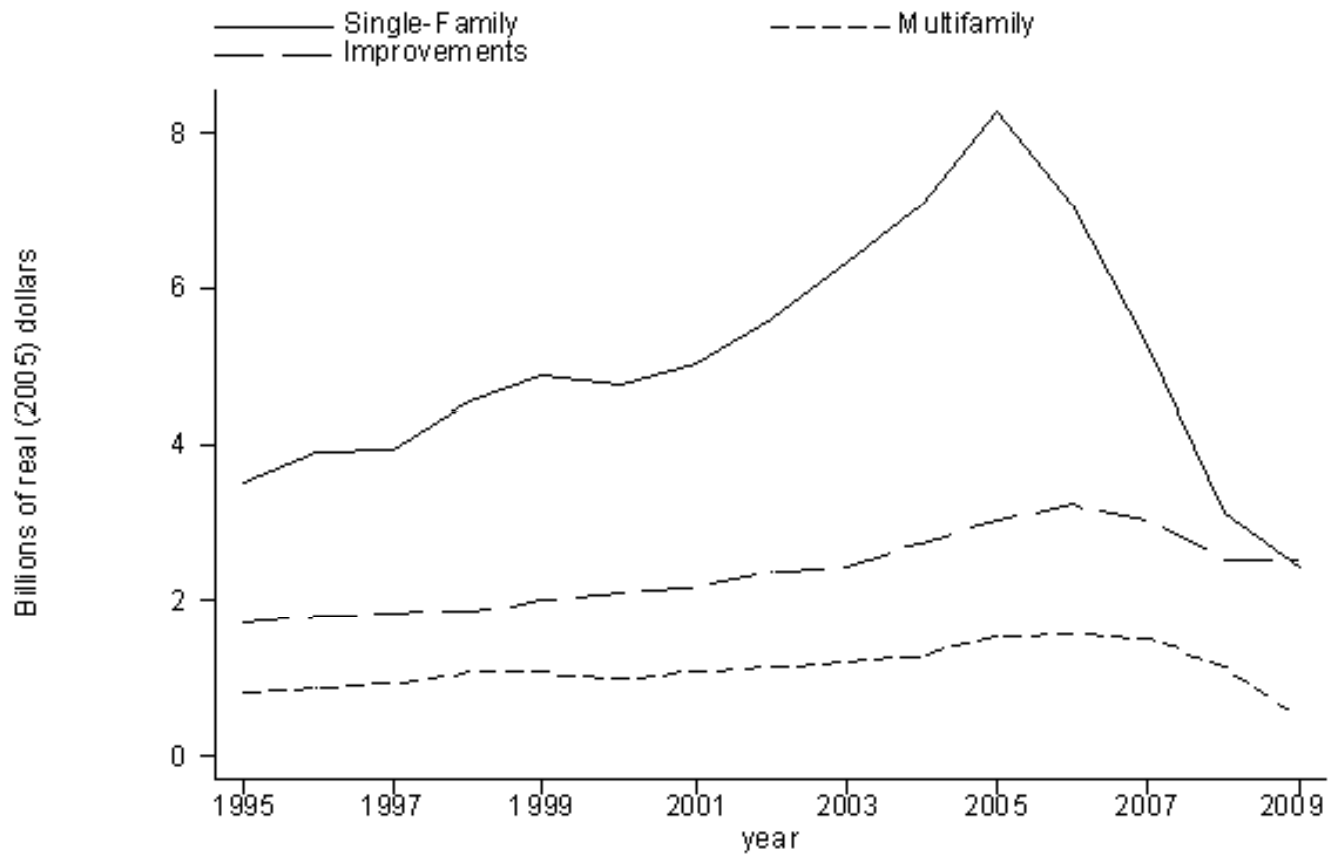
- Use state specific data on housing market volumes and prices
- Peak Year Method:
State government transfer tax revenue declined by \$6 billion (or 53 percent) from 2005 to 2009.
- Trend Growth Method:
State government transfer tax receipts would have been \$5 billion (or 110 percent) higher in 2009 if house prices and transaction volumes continued the 1995-2002 trend.

Direct Sales Tax

- Builders typically pay sales or use tax on materials
- New Construction
 - State specific data on number of new homes, average square footage, average material costs
- Renovations

Direct Sales Tax

State Sales Tax Revenues from Material Inputs to Residential Construction



Direct Sales Tax

- **Peak Year Method:**

State tax revenues from sales of construction materials declined by \$7 billion (or 3 percent) from 2005 to 2009.
- **Trend Growth Method:**

State tax revenues from sales of construction materials would have been \$11 billion (or 6 percent) higher in 2009 had spending continued its 1995-2002 trend.

Indirect Sales Tax

- If housing wealth affects consumption, then a decline in house prices may reduce sales tax revenue
- We assume $MPC=0.03$
- Housing wealth effect to phases-in over three years: 60 percent in the first year, 90 percent in the second year, and 100 percent in the third year.
- Use state-level measures of total housing wealth and sales taxes and exemptions

Indirect Sales Tax



Indirect Sales Tax

- Peak Year Method:

State sales tax revenues due to the housing wealth effect on consumption declined by \$5 billion (2 percent) from 2005 to 2009.

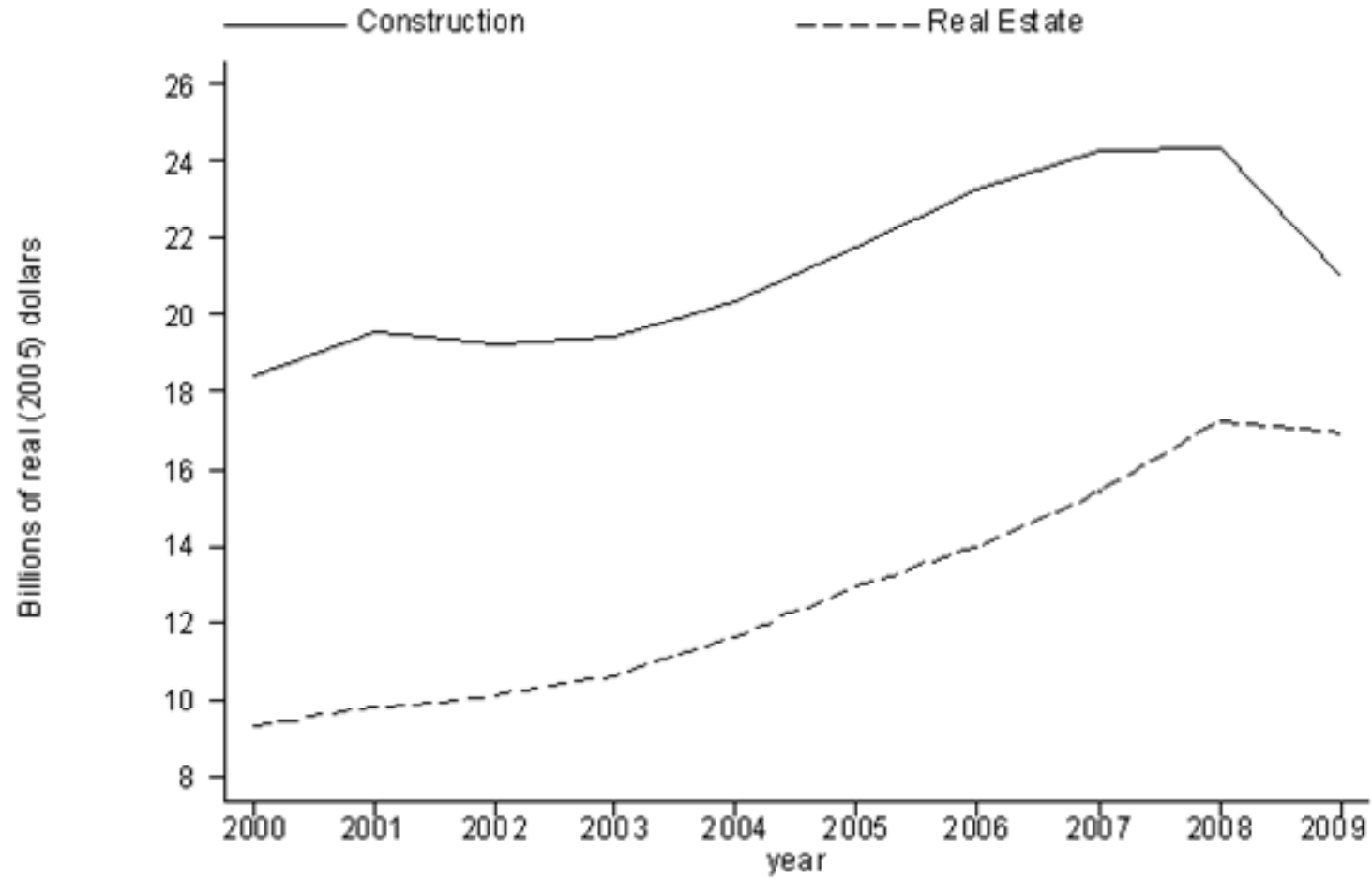
- Trend Growth Method:

State sales tax revenues due to the housing wealth effect on consumption would have been \$6 billion (3 percent) higher had house prices and construction activity continued their 1995-2002 trend.

Personal Income Tax

- We calculate the loss in personal income tax revenue from the construction and real estate sectors
- State data on wages by sector
- We use NBER Taxsim to calculate the average state income tax burden for construction workers and real estate agents in each state in each year
- Then obtain total income taxes by multiplying the average tax burden by the number of employees in the sector

Personal Income Tax



Personal Income Tax

- Peak Year Method:

State personal income tax revenues from housing-related industries *increased* by \$3 billion (or 1 percent) from 2005 to 2009.

- Trend Growth Method

State personal income tax revenues from housing-related industries would be \$9 billion (or 4 percent) higher in 2009 had average wages and employment in these industries continued their 1995-2002 trend.

Peak Year Method

State	2009 housing - 2005 housing (\$millions)					(2009 housing - 2005 housing) / (2005 total) (%)				
	transfer	direct sales	indirect sales	personal income	total	transfer	direct sales	indirect sales	personal income	total
FL	-3,564	-1,476	-535	0	-5,575	-72	-7	-3	.	-14
NV	-105	-264	-119	0	-487	-61	-9	-4	.	-8
AZ	0	-471	-130	-63	-664	.	-9	-3	-2	-6
VA	-405	-120	-138	-118	-780	-58	-4	-4	-1	-5
MN	-150	-158	-127	-166	-601	-47	-4	-3	-3	-4
GA	0	-369	-69	168	-270	.	-7	-1	2	-2
IA	-3	-13	-9	71	46	-19	-1	-1	3	1
MS	0	-22	-11	83	51	.	-1	0	7	1
KS	0	-24	-14	109	72	.	-1	-1	5	1
ND	0	5	1	13	19	.	1	0	5	1
LA	0	-16	3	280	268	.	-1	0	13	3
TOTAL	-6,416	-7,375	-4,753	3,246	-15,297	-53	-3	-2	1	-2

Trend Growth Method

State	2009 housing - predicted 2009 housing (\$millions)					(2009 housing - predicted 2009 housing)/ (2009 total) (%)				
	transfer	direct sales	indirect sales	personal income	total	transfer	direct sales	indirect sales	personal income	total
CO	0	-184	-125	-645	-954	.	-10	-7	-17	-13
FL	-1,800	-1573	-358	0	-3,731	-161	-10	-2	.	-13
MN	-358	-392	-281	-774	-1,805	-235	-10	-7	-13	-12
MI	-394	-348	-591	-820	-2,153	-343	-4	-7	-15	-10
DC	-284	-5	-14	-44	-347	-187	-1	-2	-4	-8
GA	0	-559	-155	-263	-977	.	-10	-3	-4	-7
AK	0	0	0	0	0	0
WY	0	1	-2	0	0	.	0	0	.	0
ND	0	5	-4	9	10	.	1	-1	3	1
LA	0	-33	-21	118	63	.	-1	-1	4	1
HI	2	-16	49	164	200	7	-1	2	14	5
TOTAL	-4,525	-11,359	-6,137	-8,822	-30,844	-110	-6	-3	-4	-5

Conclusions

- Property Tax
 - Historical data and case studies suggest that it is quite unlikely that property tax collections will fall *steeply* in the next a few years.
 - Even if property taxes do decline, the significant lag between this event and housing market downturn provided time for the general economy to recover.
- Four Non-Property Tax Channels
 - The direct impact of the housing market downturn on state tax revenues has been modest.