Fiscal Consequences of NATURAL DISASTERS

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Natural Disasters – Who pays, and how much?

- Outline of Talk.

- 1. Federal Costs
- 2. State Estimates
- 3. Effects on Local Areas.
- NYC: 9/11 attack, 2012 Superstorm Sandy
  New Orleans: Hurricane Katrina

  4. SALT deductibility
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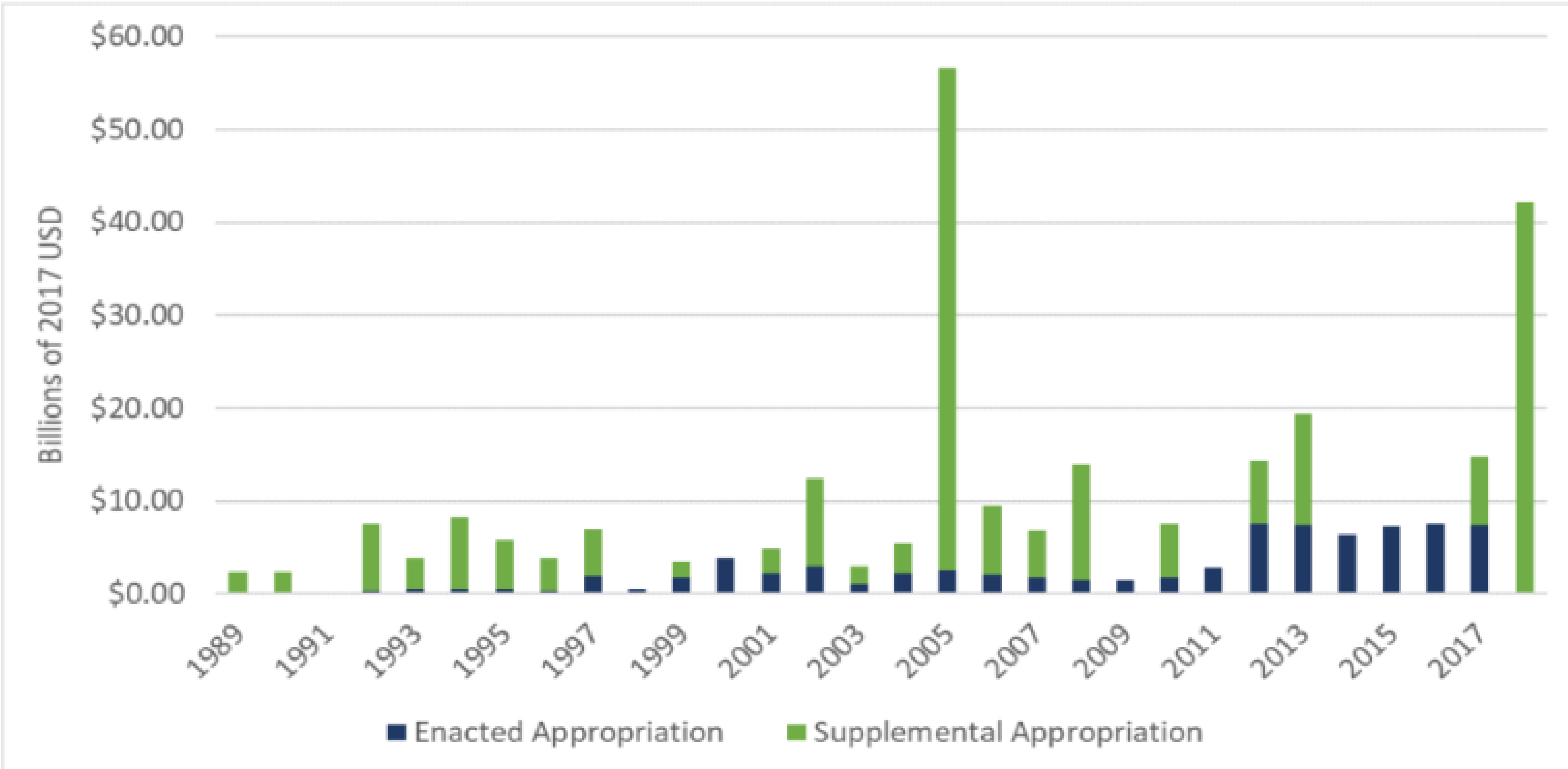
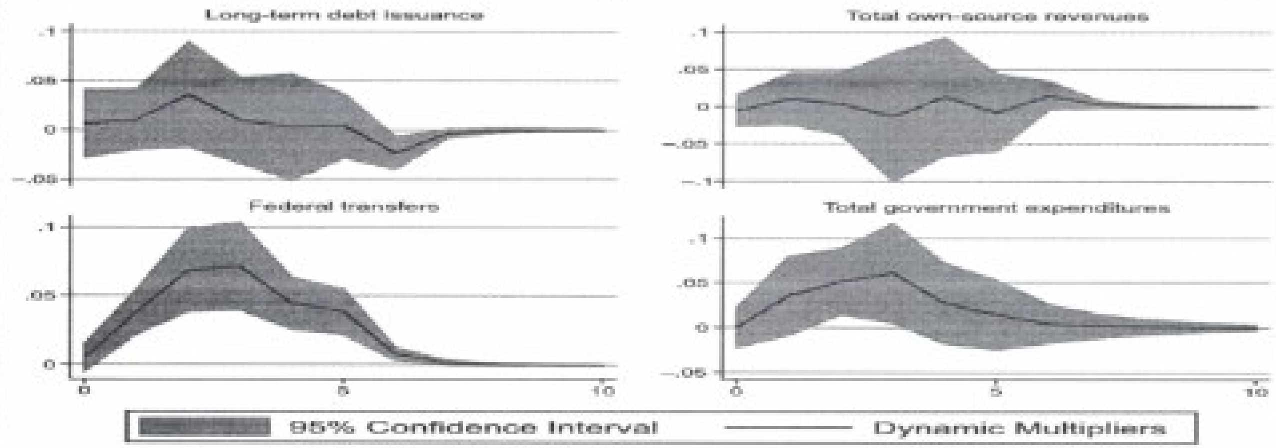

$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$0.00
Billions of 2017 USD
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
Enacted Appropriation
Supplemental Appropriation

State-Local Costs and Spending post natural disaster

- Debt: rises then back to original levels within a few years
- Government Spending rises.
- Federal Transfers Costs borne primarily by federal gov’t
- Own Source revenues stable

Figure 2

Dynamic Multiplier Functions: Aggregate Fiscal Responses to Natural Disasters



Notes: Both disaster damage and the fiscal variables are normalized as percentage of a state's total GSP in the previous year. The x-axis presents the fiscal years 0–10. The y-axis indicates the changes in the state fiscal outcomes from a one-unit increase in its natural disaster damage (i.e., ratio of total disaster damage in GSP goes up by 1 percent) in year 0. Shaded area indicates the 95 percent confidence interval for the relevant dynamic multiplier function.

becomes statistically significant in year $t + 2$ and peaks in year $t + 3$ (0.06 percent of GSP with respect to 1 percentage point increase in disaster damage as share of GSP in year t), and declines thereafter. The five-year cumulative effect is roughly 0.2 percent of GSP.[26] The federal-to-state transfer ratio increases more than state total spending in each period; it remains statistically significant through year $t + 5$ and totals to 0.27 percent of GSP over the five-year post-shock period. In tandem, the observed changes in the two variables suggest that disaster-induced increased state expenditures are largely covered by federal transfers. This implies that the fiscal burden of the disaster-affected states is shifted to the rest of the nation, and the federal government plays a leading role in reallocating resources to address states' post-disaster needs.

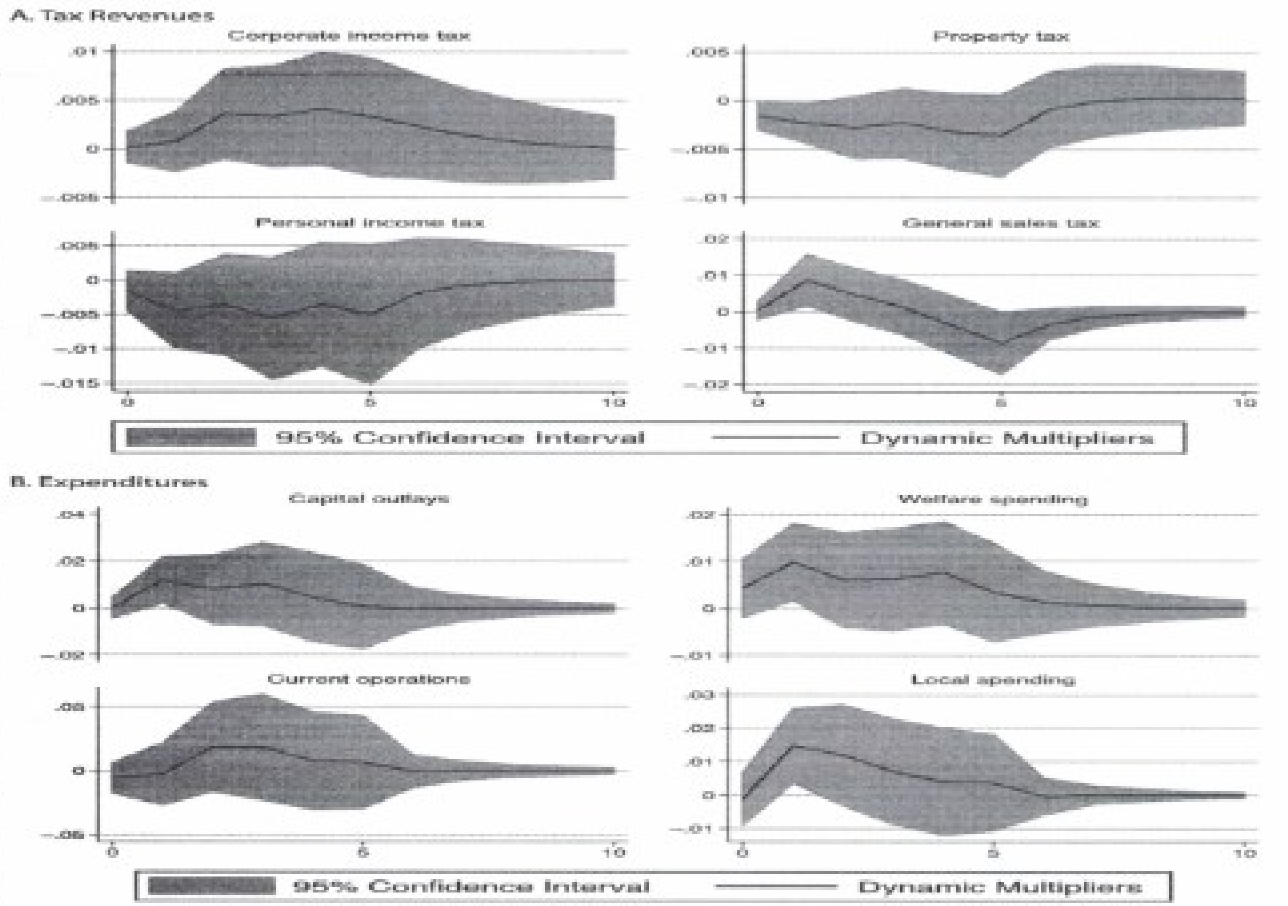
[26] The significant increase in government spending following disasters is consistent with the findings of previous cross-country studies (e.g., Melecky and Raddatz, 2011; Ouattara and Strobl, 2013).

Breakdown of Revenues and Spending

- Own-source Revenues:
  - Biggest Negative Effect on Sales Tax
  - Smaller Negative Effect on Income Tax, Property tax

1. Spending Effects. Biggest positive Effects on Welfare, Current Spending; small capital spending increase

Figure 4
Dynamic Multiplier Functions: Disaggregate Fiscal Responses to Natural Disaster Damage



NYC and New Orleans

- Little or no increase in state aid
- Increased revenue comes from increased taxes, increased federal spending

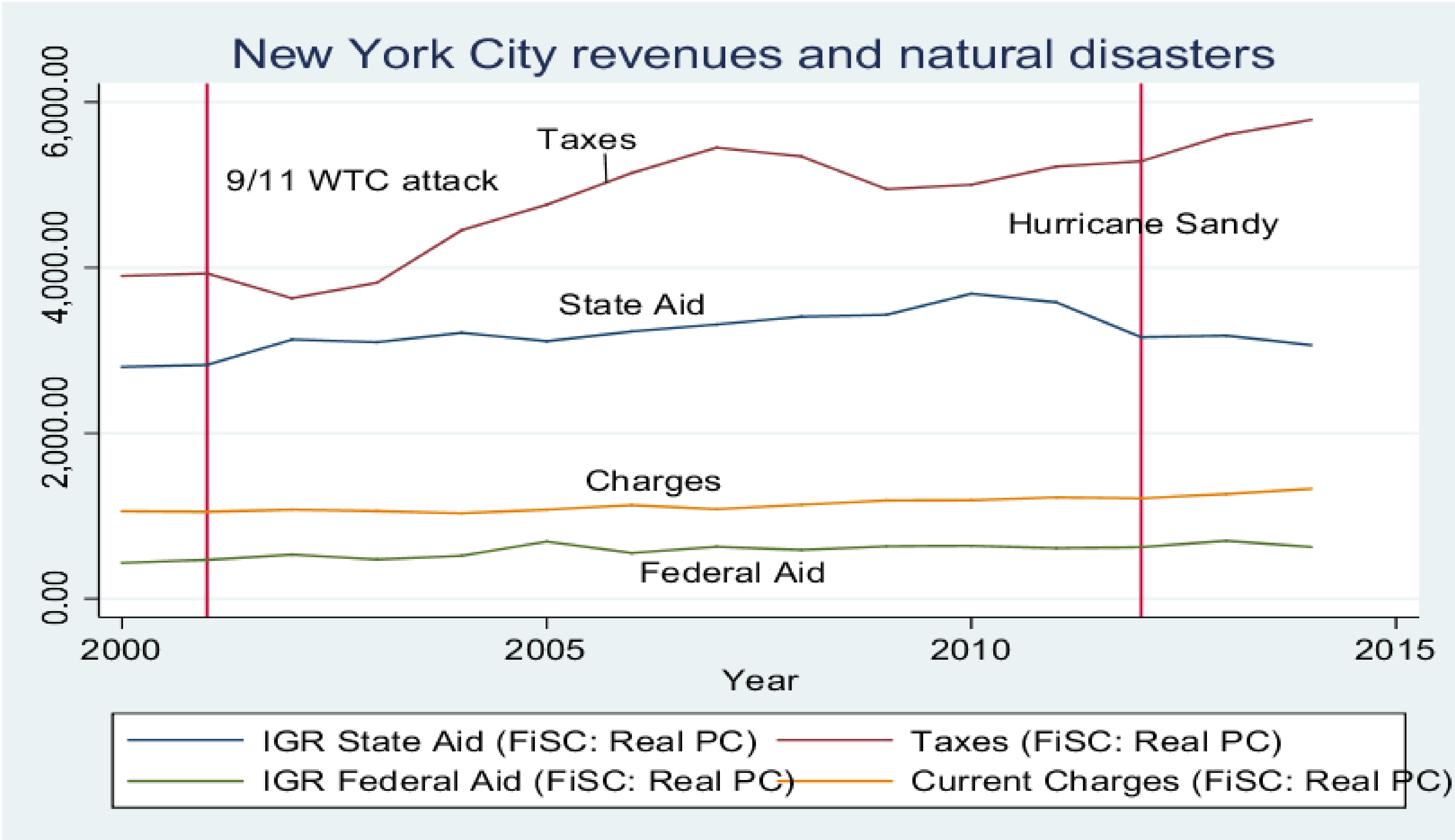
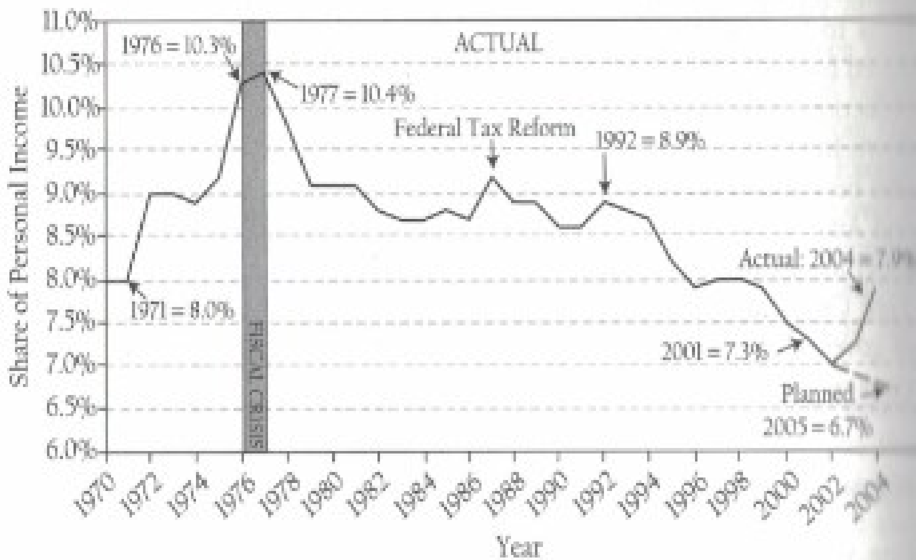
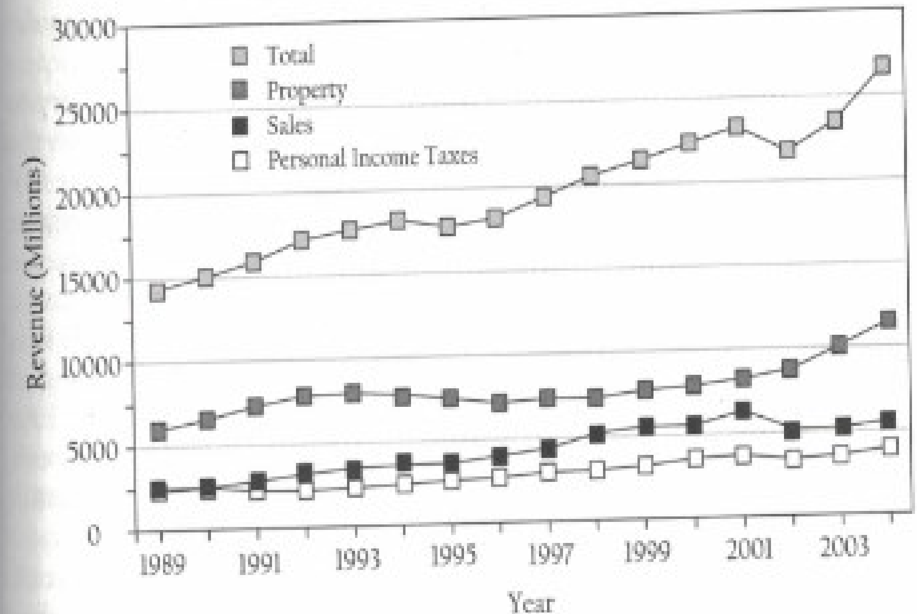

New York City revenues and natural disasters
6,000.00
4,000.00
2,000.00
0.00
Taxes
9/11 WTC attack
Hurricane Sandy
State Aid
Charges
Federal Aid
2000
2005
2010
2015
Year
IGR State Aid (FiSC: Real PC)
Taxes (FiSC: Real PC)
IGR Federal Aid (FiSC: Real PC)
Current Charges (FiSC: Real PC)

FIGURE 10.1 NEW YORK CITY TAX REVENUE AS THE SHARE OF PERSONAL INCOME, 1970 TO 2005



Source: City of New York (Office of Management and Budget 2001).

FIGURE 10.2 NEW YORK CITY REVENUES FROM PROPERTY, SALES, AND PERSONAL INCOME TAXES, 1989 TO 2004

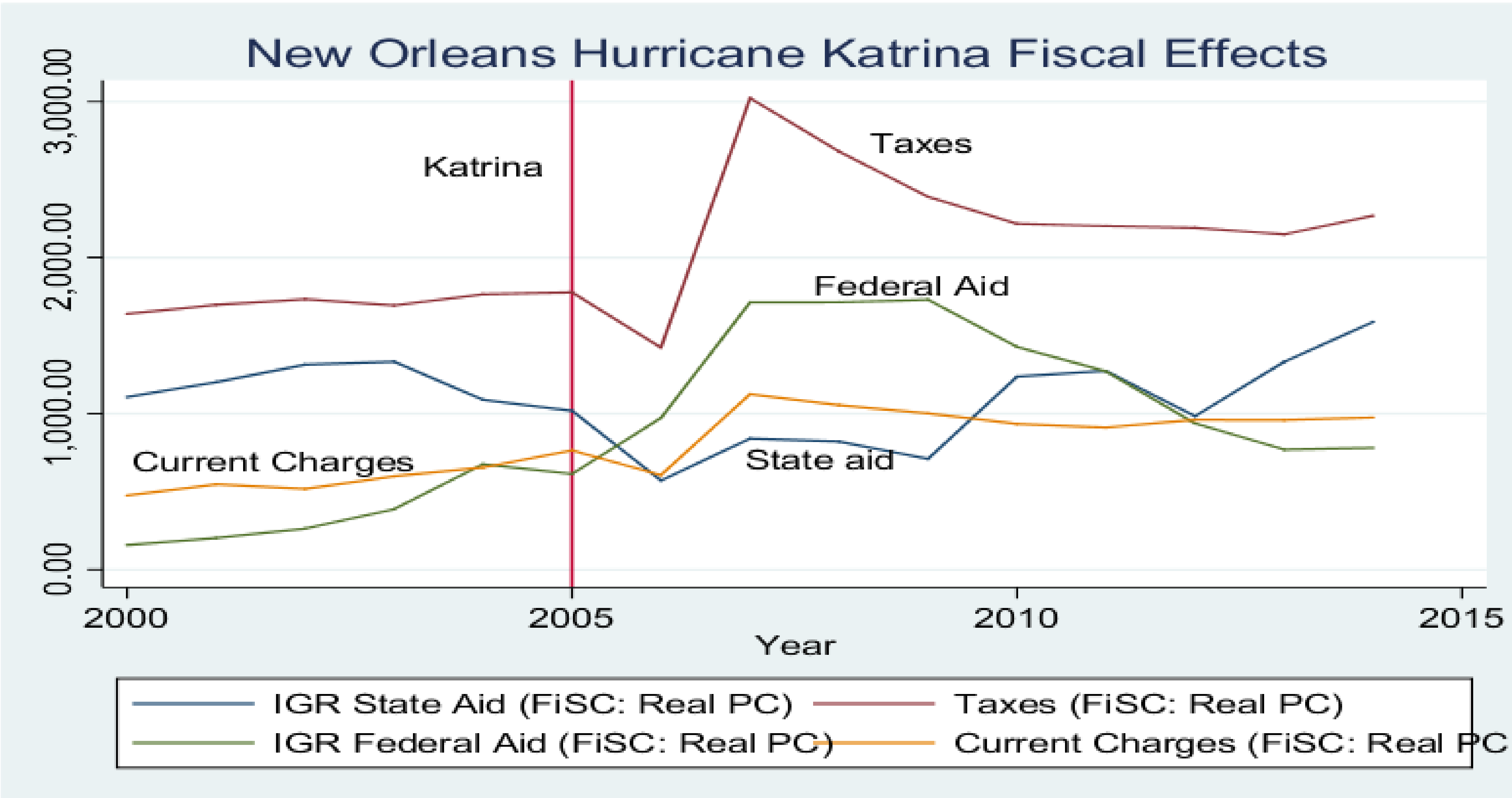


Source: New York State Comptroller (2003), New York State Division of Budget (2004), Comptroller, City of New York (2003), New York City Independent Budget Office (2004d).

the magnitude of the increase, which exceeds substantially the increase associated with the previous economic downturn of the early 1990s, suggests the crucial role played by tax increases in closing the large budget deficits caused by the 9/11 attack and the recession.

Figure 10.2 shows New York City tax revenues for the major taxes and total tax revenues from 1989 to 2004. Differences in the cyclical behavior of the property tax and personal income tax can be seen from the figure. As of January 2003, the projected budget gap for fiscal year 2004 was \$6.4 billion, or about 14 percent of total expenditures. To address this deficit the city imposed a substantial array of tax increases. The tax increases are scheduled to sunset (automati-

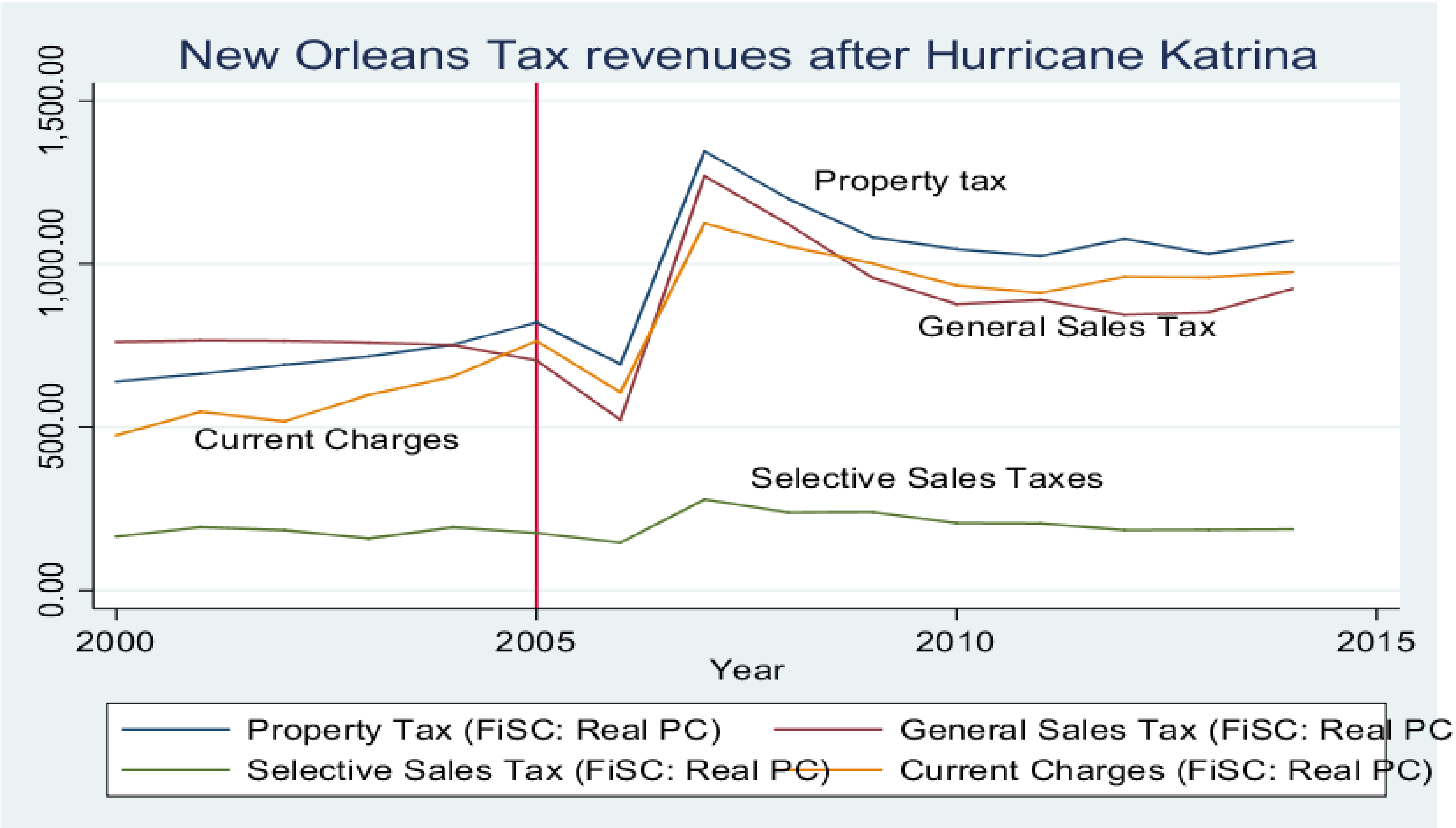
tax revenues in 2004 ended up about 6 percent higher than projected at the start of the fiscal year. Projected revenues for 2005 are also above forecasts. A major source of this increase has been the strength of New York City's real estate-related taxes: the mortgage recording tax (MRT), the real property transfer tax (RPTT), and the commercial rent tax. These three taxes reached all-time highs in 2003, and yields for the first two, a function of the volume of transactions, have been extraordinarily robust in the past few years. Revenues from the real estate-related taxes equaled 14.3 percent of the real property tax



New Orleans Hurricane Katrina Fiscal Effects
3,000.00
2,000.00
1,000.00
0.00
Katrina
Taxes
Federal Aid
Current Charges
State aid
2000
2005
2010
2015
Year
IGR State Aid (FiSC: Real PC)
Taxes (FiSC: Real PC)
IGR Federal Aid (FiSC: Real PC)
Current Charges (FiSC: Real PC)

New Orleans

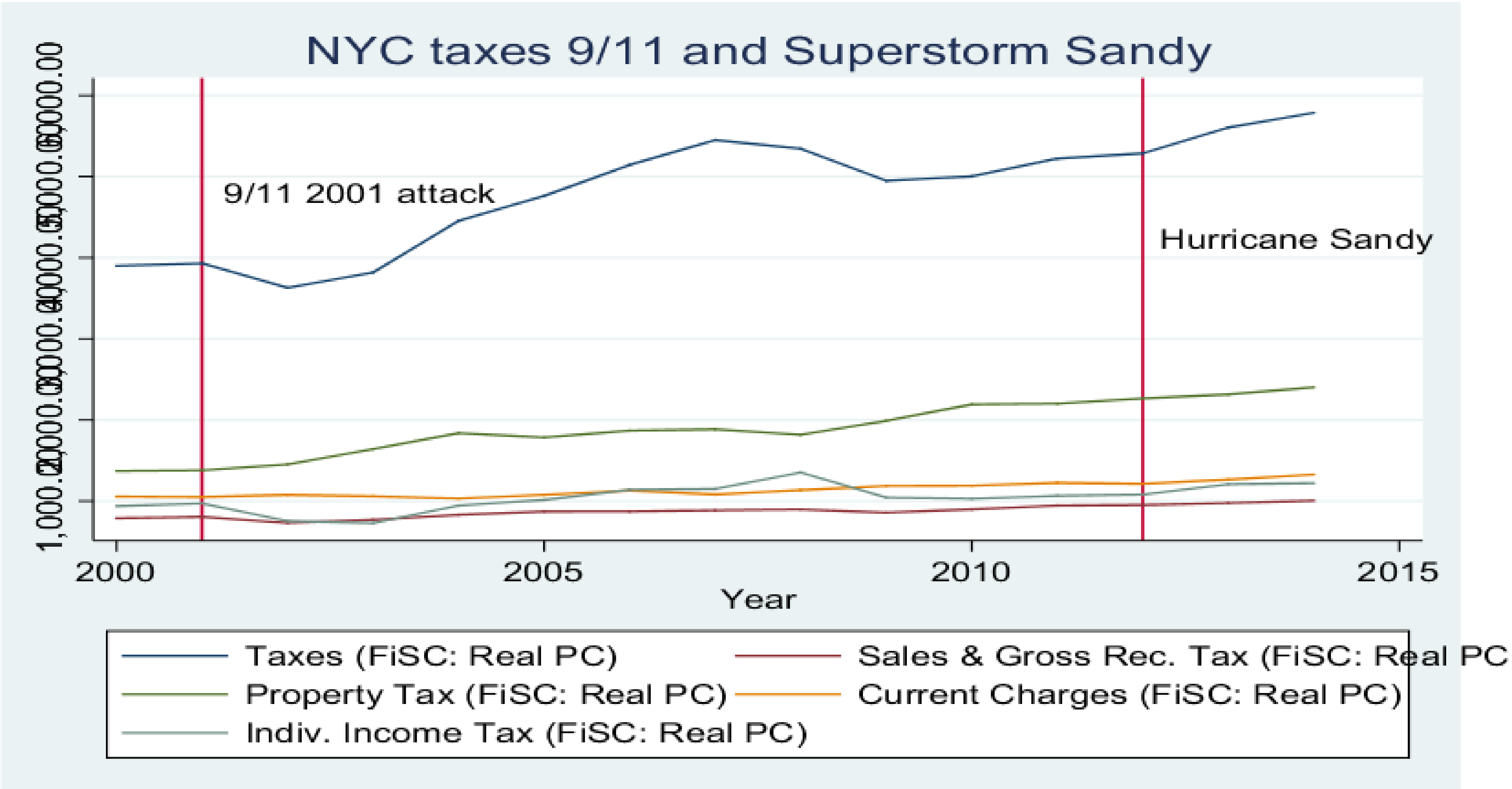
- No immediate increase in state aid to New Orleans
- Initial Decline in all tax sources
- After a year, sharp increase in per capita local taxes; (due in part to sharp drop in population)


New Orleans Tax revenues after Hurricane Katrina
1,500.00
1,000.00
500.00
0.00
Property tax
General Sales Tax
Current Charges
Selective Sales Taxes
2000
2005
2010
2015
Year
Property Tax (FiSC: Real PC)
General Sales Tax (FiSC: Real PC)
Selective Sales Tax (FiSC: Real PC)
Current Charges (FiSC: Real PC)

NYState Response

- 9/11: Gave greater tax setting power to city;
  - Allowed temporary increase in PIT rate, sales tax rate.

  - Little or no direct fiscal sharing of burden


NYC taxes 9/11 and Superstorm Sandy
9/11 2001 attack
Hurricane Sandy
1,000.00
2000.00
3000.00
4000.00
5000.00
6000.00
2000
2005
2010
2015
Year
Taxes (FiSC: Real PC)
Sales & Gross Rec. Tax (FiSC: Real PC)
Property Tax (FiSC: Real PC)
Current Charges (FiSC: Real PC)
Indiv. Income Tax (FiSC: Real PC)

SALT deductibility as insurance

- Deductibility of State and Local Taxes Allowed states and localities to shift some of the burden to the federal government.

- 9/11 tax increases in NYC: 20 percent sharing of cost.
  - gross increase in tax burden: $389 per capita
  - Net increase: $311 per capita.
  -

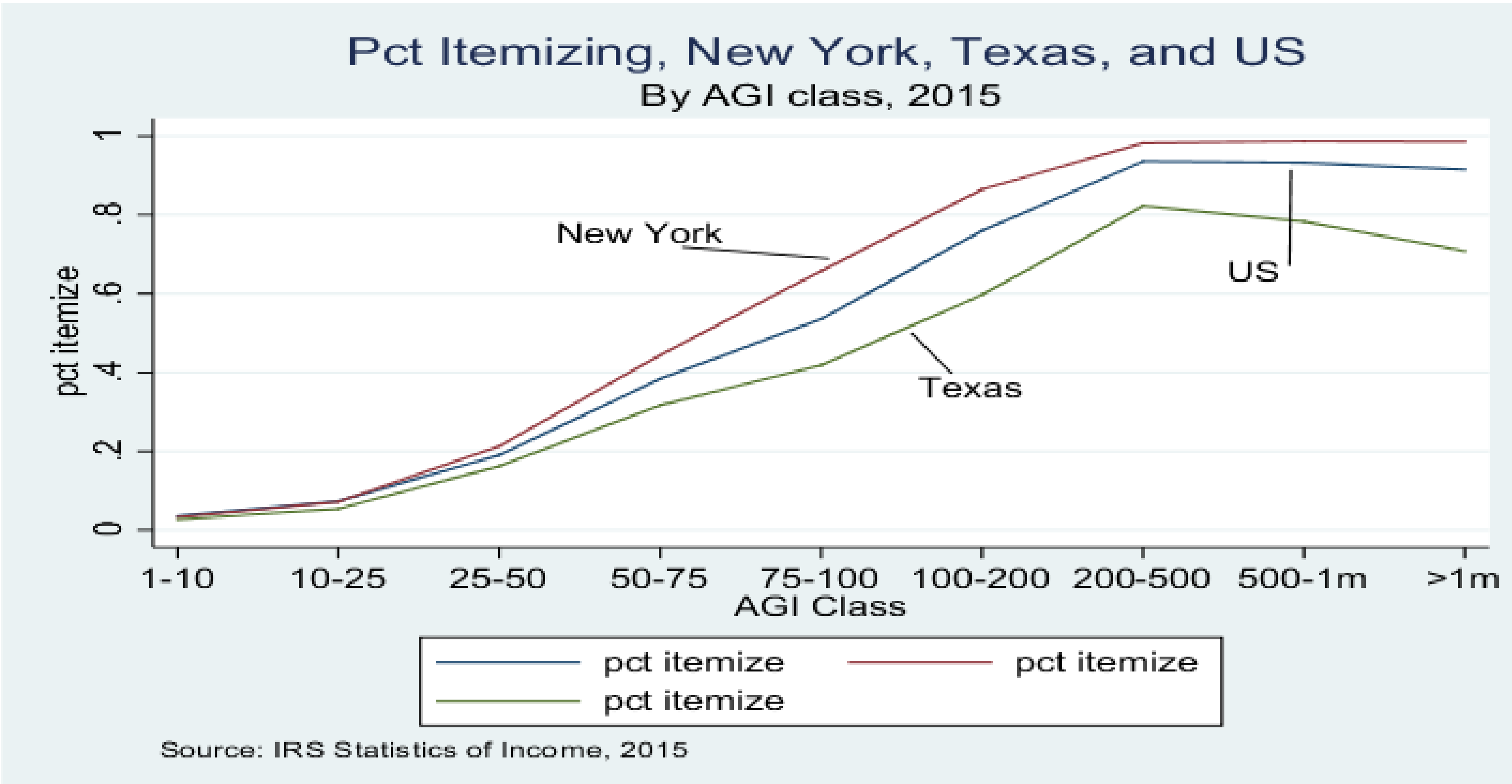
TCJA (2017) and SALT deductibility

- Limited SALT deduction to $10,000 per filing unit
- Reduces SALT tax expenditure by 75%: from $101B (2017) to $24B (2020)
- Raises marginal cost to cities and states of increasing taxes in response to natural disasters.
  - Raises price of an additional dollar of taxes for itemizers; hits high income taxpayers, with high rates of itemizing, the hardest.

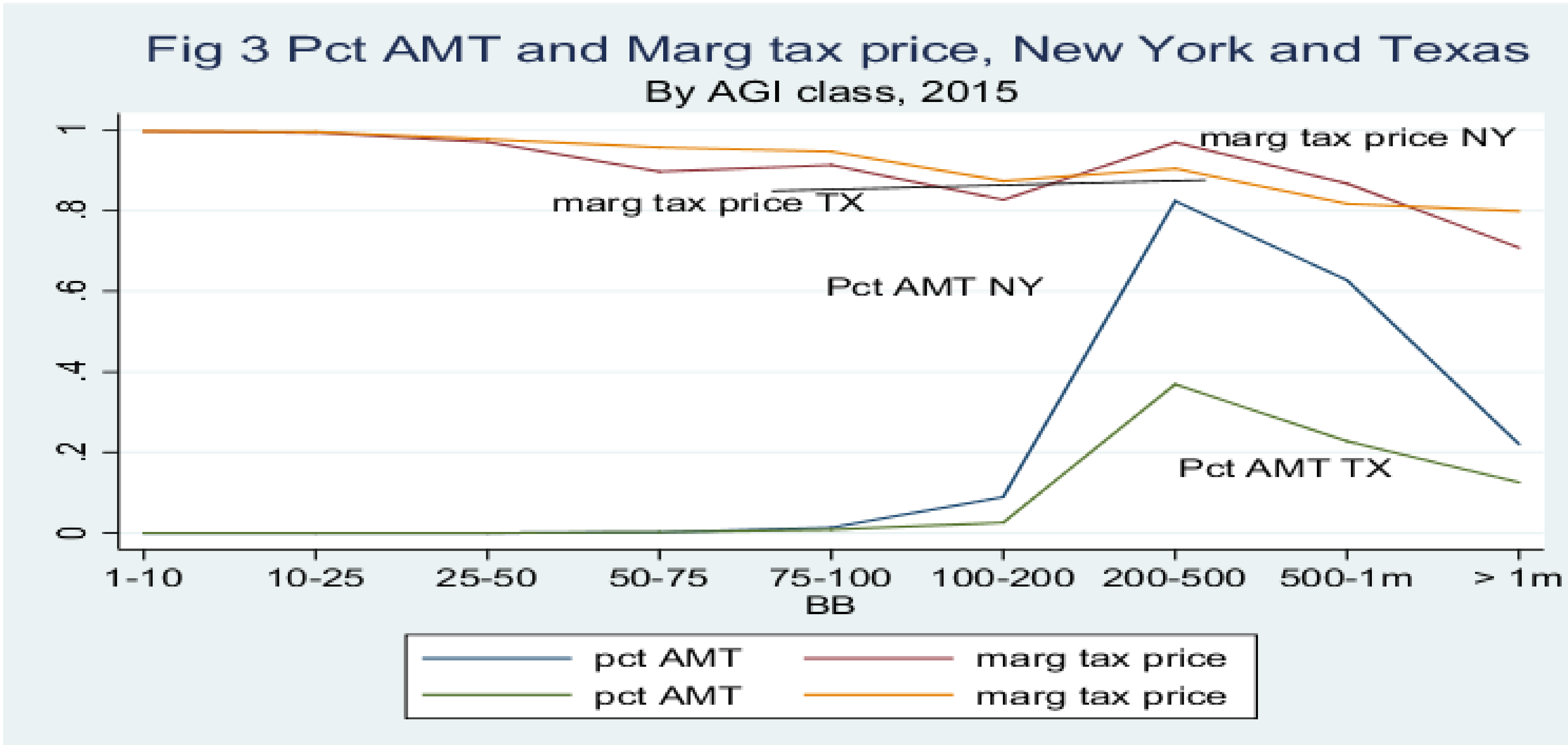
Percent Itemizing by Income Class, before TCJA (2017)

- High proportion of high income filers
- Differences across states.
- Show marginal tax price = federal sharing rate for tax increases.

Percent Itemizing by AGI class, NY and CA, 2015



Marginal Tax Price for High tax state (NY) and low tax state (TX)



Conclusions

- Natural Disasters are Increasing in Frequency, and in Costs

- Cities and counties have borne most of the direct costs initially
- State fiscal response in terms of state aid has been limited

Federal Response

- Eventually covers most of direct costs.
  - 55% after 9/11
- Policy Question: Is this sharing rate optimal, or can states and localities do more Before disasters occur (damage mitigation)

Incentives

- How to incentive disaster mitigation?
  - Raise threshold for federal relief
  - Deductible, which would vary with mitigation efforts

State Cost Sharing

- Data difficult to collect

- Varies widely across states

- Sample from Pew study (2019)

Table 2

8 Respondents Made Substantially Different Investments in State Programs

State expenditures for own activities as a share of total disaster spending, state FY 2012-16

State	State programs (% of total disaster spending)
Arizona	81
Arkansas	-10*
Delaware	93
Maryland	53
Ohio	52
Pennsylvania	18
Wisconsin	58
Wyoming	0

* Arkansas reported receiving more federal reimbursements than its combined state program and federally related spending during fiscal 2012-16, which resulted in a negative percentage. The discrepancy is a function of the timing of the federal reimbursement process: The state was refunded during the study period for federally related spending that occurred before the start of the period.

Notes: Percentages reflect state program spending as a share of total state disaster spending. State program spending refers to states' expenditures for their own programs and for state disaster declarations. Total disaster spending is the sum of state program spending and state cost shares for federal programs, which are calculated by subtracting federal reimbursements received from state spending related to federal programs. Because of the timing of the federal reimbursement process, some included reimbursements are for federally related spending that occurred before fiscal 2012, and some federally related spending was not yet reimbursed at the end of fiscal 2016.

- Thank you.