The Evolution of State and Local Balance Sheets in the United States

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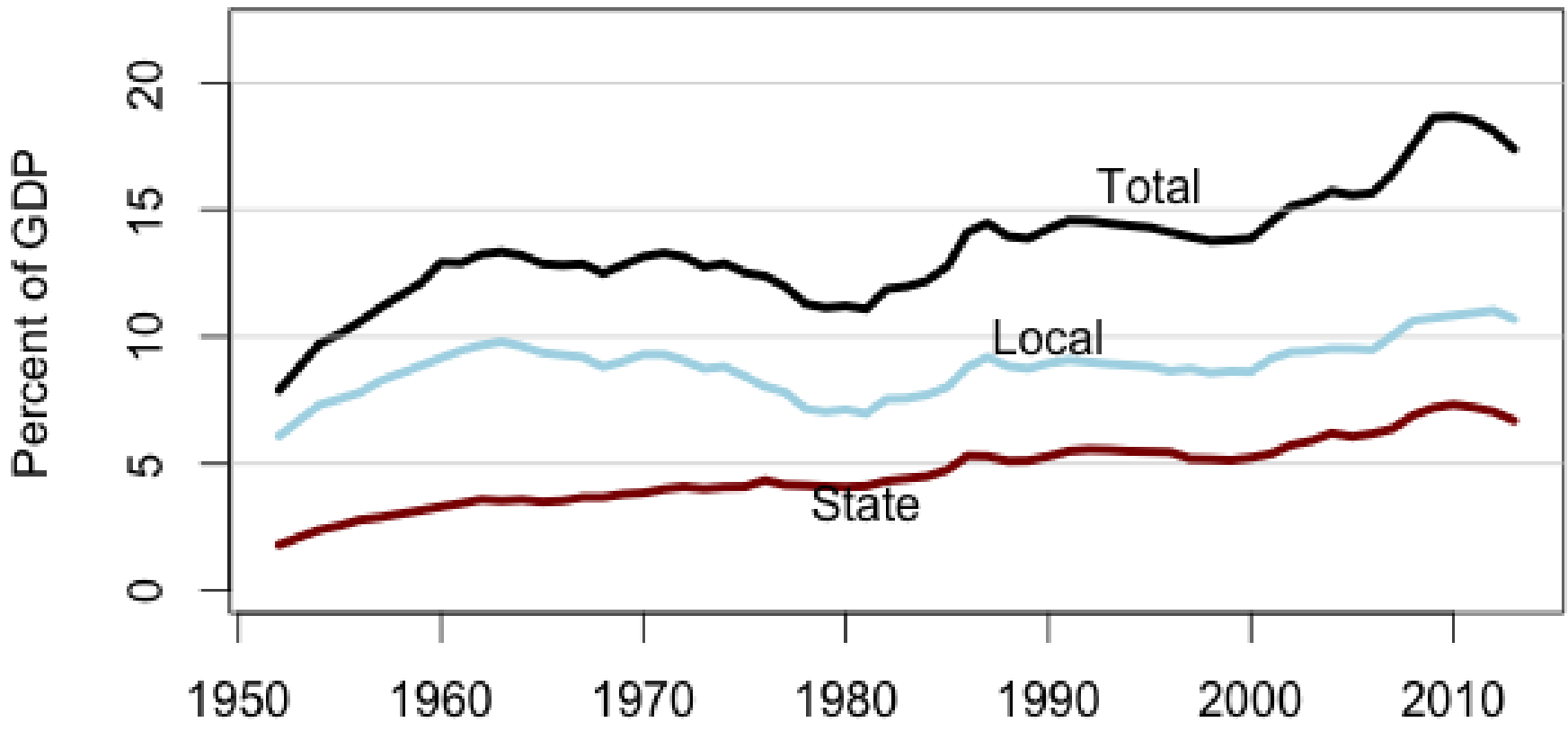
Overview

- Between 1950s and great recession, substantial expansion in state-local balance sheets
  - Aggregate debt rose from 8 to 18 percent of GDP
  - Aggregate assets rose from 10 to 35 percent of GDP
  - State-local sector substantial net creditor in financial markets
- Rise in state/local debt reflects mix of slower nominal income growth, faster asset accumulation as well as fiscal deficits
- State-local fiscal imbalances mainly accommodated on asset side of balance sheet, not by borrowing
- Conclusion: No close link between state budgets and state debt burdens

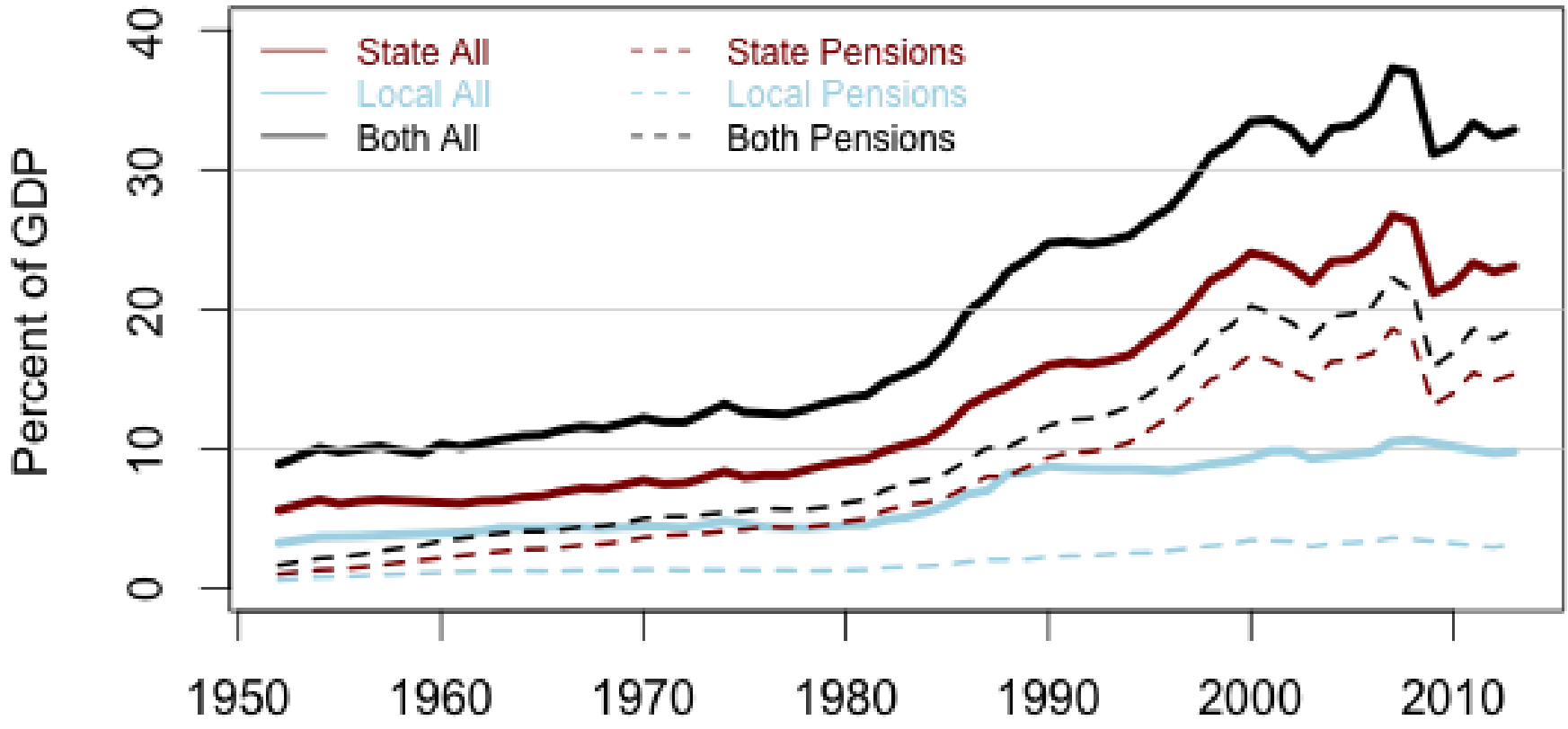
Data and Methodology

- Based on data from Census of Governments
  - Contains both income/expenditure and balance sheet data
  - Income and expenditure reported on cashflow basis
  - Annual data for all 50 state governments; local government data absent or sample-based in some years
  - Pensions and other trust funds consolidated with sponsoring gov't; we break them out
- Based on accounting identity: sources of funds = uses of funds
- Regression analysis not appropriate here; variance decomposition instead

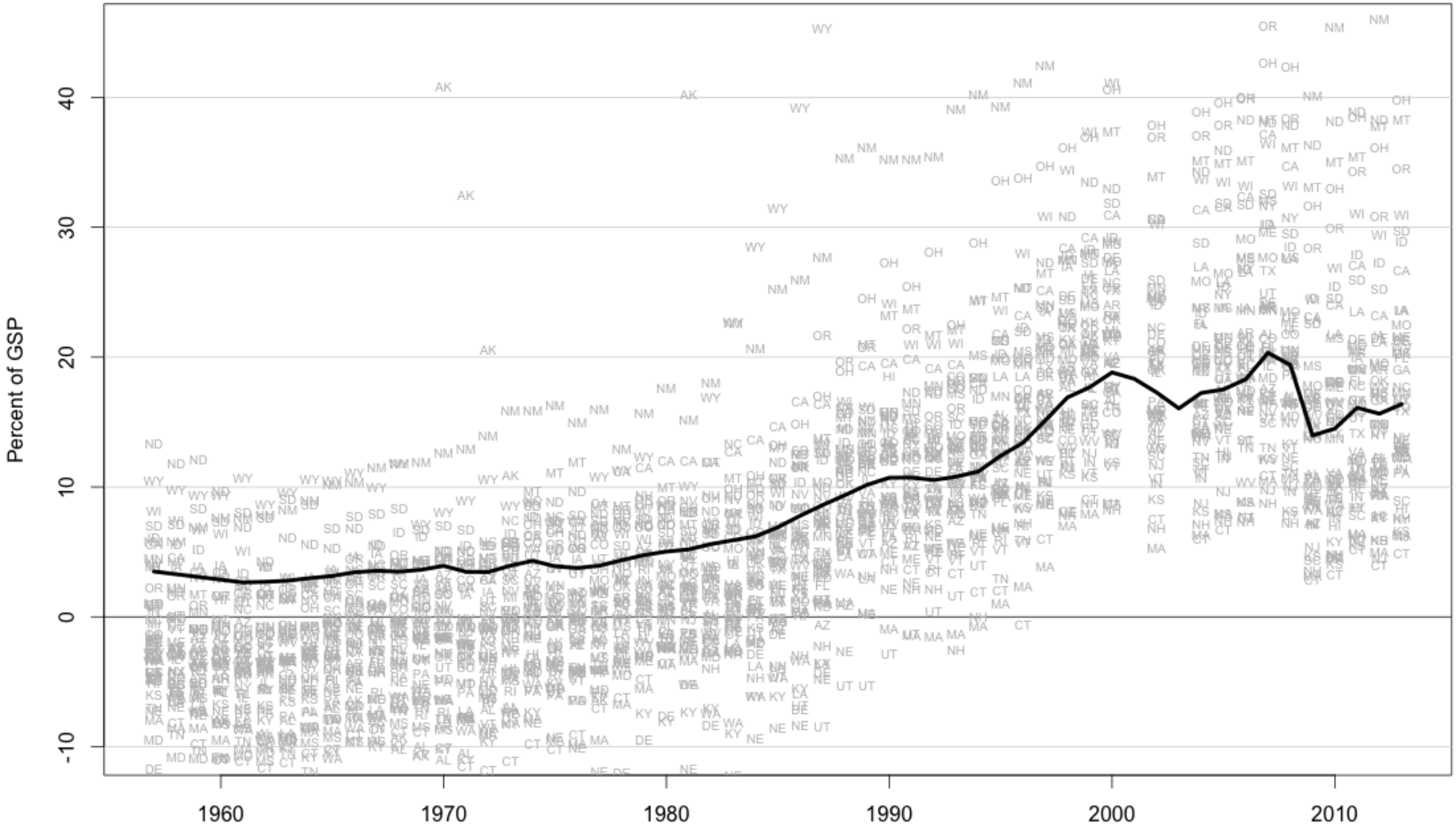
State and Local Debt



State and Local Assets

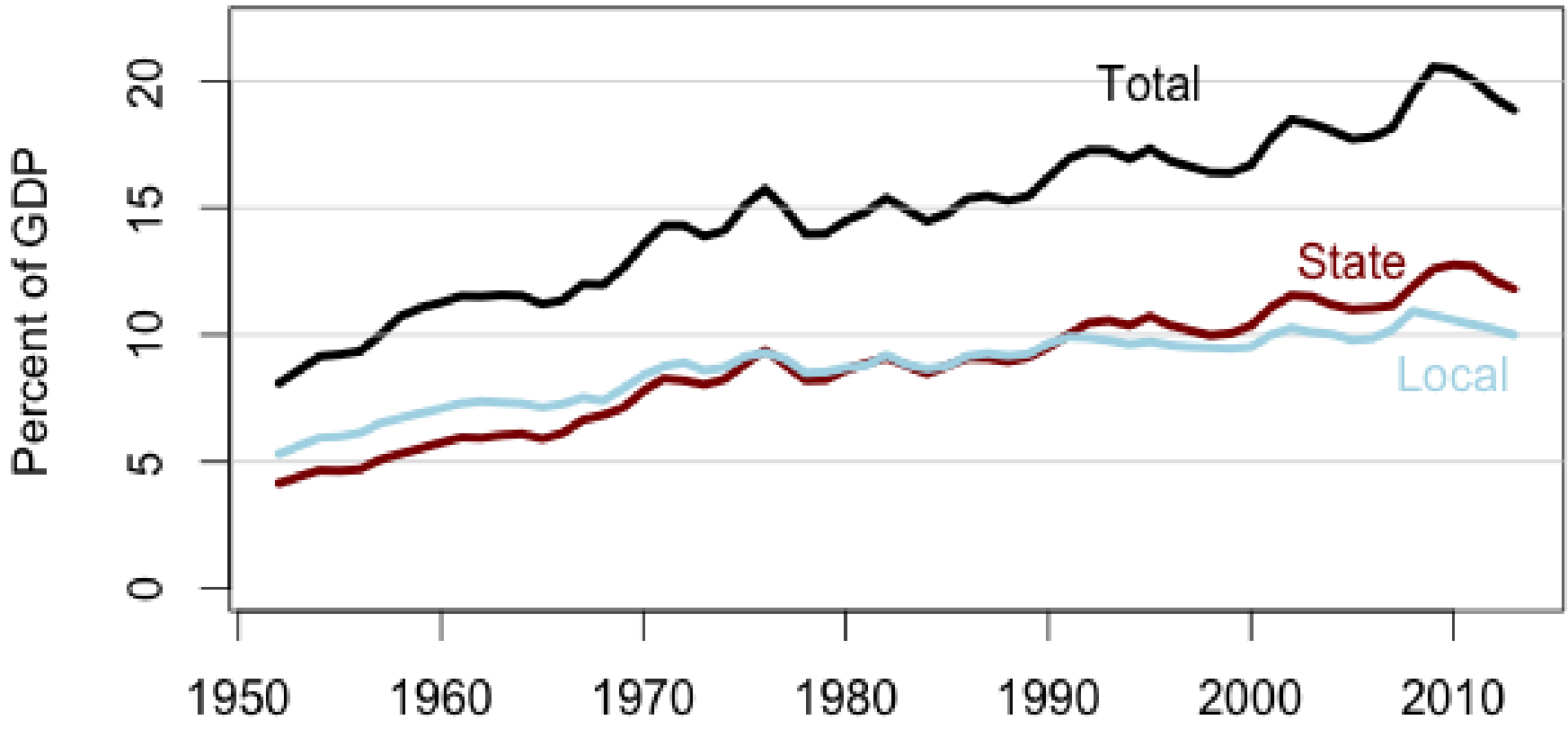


State and Local Net Financial Wealth



		Debt	Total Assets	Pensions	Other Trusts	Nontrust Assets
1957						
State	Median	3.1	7.5	1.6	2.5	3.0
	St. Dev.	2.8	2.9	0.9	1.0	2.6
	Total	2.9	6.4	1.7	2.1	2.6
Local	Median	8.9	3.8	0.3	0.0	3.3
	St. Dev.	3.4	1.6	0.8	0.0	1.1
	Total	8.3	3.8	1.0	0.0	2.8
2013						
State	Median	8.0	27.0	17.0	0.4	8.0
	St. Dev.	4.0	28.1	6.2	1.4	26.0
	Total	6.7	23.1	15.4	0.7	7.0
Local	Median	10.4	8.8	1.0	0.0	7.4
	St. Dev.	4.4	3.5	2.4	0.0	2.5
	Total	10.7	9.8	3.2	0.0	6.6

State and Local Expenditure



Debt Dynamics

- Discussions of debt-income ratios often assume change in debt ratio = net borrowing (or dissaving)
- Wrong!
  - Debt ratio has numerator *and* denominator - faster nominal growth reduces debt ratio
  - Borrowing finances more than current expenditure - esp. asset accumulation and interest payments
  - Debt level can be reduced through default (not important here, but for households yes)
- To describe/explain historical changes in debt ratios, need complete accounting

Debt Dynamics

$$\Delta D = -B + A - g_N D - dD \tag{1}$$

$$\Delta D = -B_P + iD + A - g_N D - dD \tag{2}$$

$$\Delta D = -B_P + iD + A - (g + \pi)D - dD \tag{3}$$

D debt ratio
B is fiscal balance, B_P is the primary balance
A is net acquisition of assets
all three are normalized by some measure of income, such as GDP
g_N and g are nominal and "real" growth rates of that income measure
π is inflation
i is the average interest rate on outstanding debt
d is fraction of debt written off through default

State-Local Debt Dynamics by Period

Period	Debt Ratio Change	Growth Contrib.	Fiscal Balance	Interest	Trusts & NAFA
1955 to 1964	0.40	-0.67	-0.51	0.33	0.50
1964 to 1982	-0.13	-1.16	-0.04	0.51	0.91
1982 to 1987	0.61	-0.91	0.38	0.83	1.80
1987 to 2002	0.03	-0.81	0.01	0.89	0.80
2002 to 2005	0.40	-0.85	-0.72	0.76	0.47
2005 to 2007	-0.03	-0.91	0.01	0.69	0.84
2007 to 2011	0.75	-0.36	-0.39	0.77	0.70
2011 to 2013	-0.43	-0.67	-0.17	0.76	0.06
1955 to 2013	0.13	-0.86	-0.14	0.64	0.79

Debt Growth $\neq$ Deficits

- Biggest rise in state-local debt (0.6 points/year) came during 1980s
  - Also period of largest average state-local government budget *surpluses*
  - Same period saw by far fastest pace of net asset accumulation - 1.8 percent of GDP/year, vs. 0.8 points longrun average
  - Driven by legal, institutional pressure to prefund pension and other expense previously handled as pay-as-you-go
- Another rapid rise in Great Recession period (2007-2011)
  - State-local sector did run larger deficits in this period, but explains only one-third (0.2 out of 0.6 points) of excess debt growth
  - Slower nominal income growth more than twice as important

Variance Decomposition

if

$$a_i = \sum_n b_{n,i}$$

then

$$var(a) = \sum_n covar(a, b_n)$$

Variance Decomposition

Apply this to debt dynamics equation:

change in debt ratio = *expenditure* - *revenue* + *NAFA* -
nominal growth rate * *current debt ratio*

or to sources and uses of funds:

revenue - *expenditure* = *fiscal balance* = *NAFA* - *net borrowing*

Covariance Matrix, Aggregate State-Local Sector

	Debt Ratio Change	Nominal Growth (-)	Borrow	Fiscal Bal. (-)	Rev. (-)	Exp.	Interest	Trusts & NAFA
Debt Ratio Change	0.18	0.10	0.09	0.03	-0.08	0.11	0.01	0.06
Nom. Growth (-)	0.10	0.11	-0.01	0.04	-0.24	0.28	0.01	-0.05
Borrowing	0.09	-0.01	0.09	-0.00	0.12	-0.13	-0.00	0.10
Fiscal Bal. (-)	0.03	0.04	-0.00	0.13	0.12	0.01	-0.02	-0.13
Revenue (-)	-0.08	-0.24	0.12	0.12	5.98	-5.86	-0.42	0.01
Expenditure	0.11	0.28	-0.13	0.01	-5.86	5.87	0.40	-0.14
Interest	0.01	0.01	-0.00	-0.02	-0.42	0.40	0.04	0.02
Trusts & NAFA	0.06	-0.05	0.10	-0.13	0.01	-0.14	0.02	0.23

Aggregate Variance Decomposition: Results

1. Variation in aggregate debt ratio driven about equally on variation in borrowing and in income growth
2. One third of variation in borrowing comes from fiscal imbalances, two thirds from net acquisition of financial assets
3. Variation in state-local fiscal balances is driven almost entirely by variation in revenue, not expenditure
4. Fiscal imbalances are accommodated almost entirely on asset side
5. Variation in interest payments does not account for a significant variation in either debt ratio growth or fiscal balances

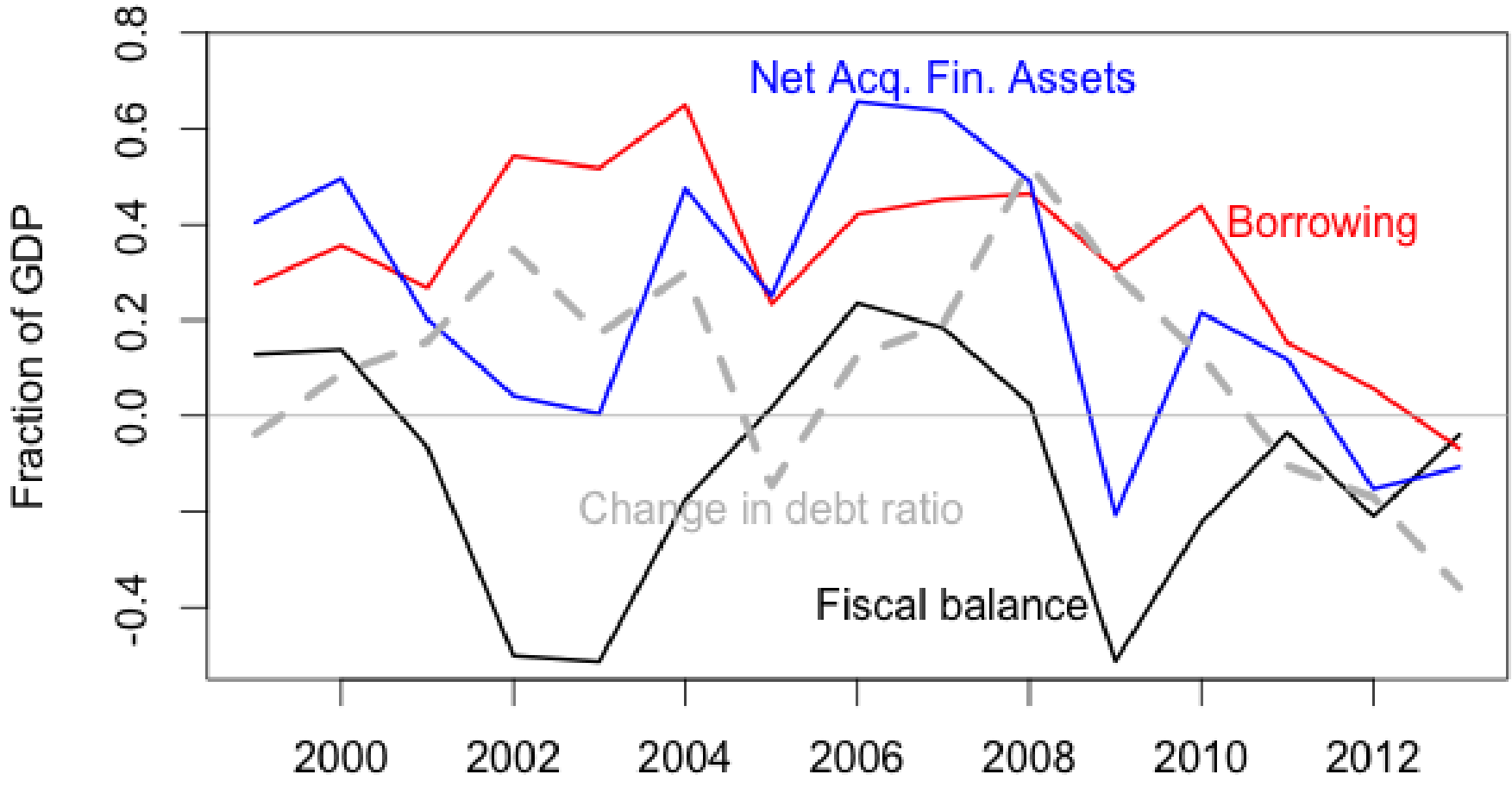
Variance Decomposition of State-Local Debt Ratio Growth

Component	State + Local	State Only
Nominal Growth (-)	0.52	0.30
Fiscal Balance (-)	0.17	0.31
Revenue (-)	-0.41	0.07
Expenditure	0.58	0.24
Interest	0.06	0.03
Trusts & NAFA	0.33	0.37
Pensions	0.01	0.02

Variance Decomposition of State-Local Fiscal Balance

Component	State + Local	State Only
Revenue	0.94	1.01
Taxes	0.50	0.93
Intergovernmental	0.18	-0.04
Expenditure (-)	0.06	-0.01
Trusts & NAFA	1.04	0.92
Pensions	0.10	-0.49
Borrowing (-)	-0.04	0.08

State Financial Balances, 1999-2013



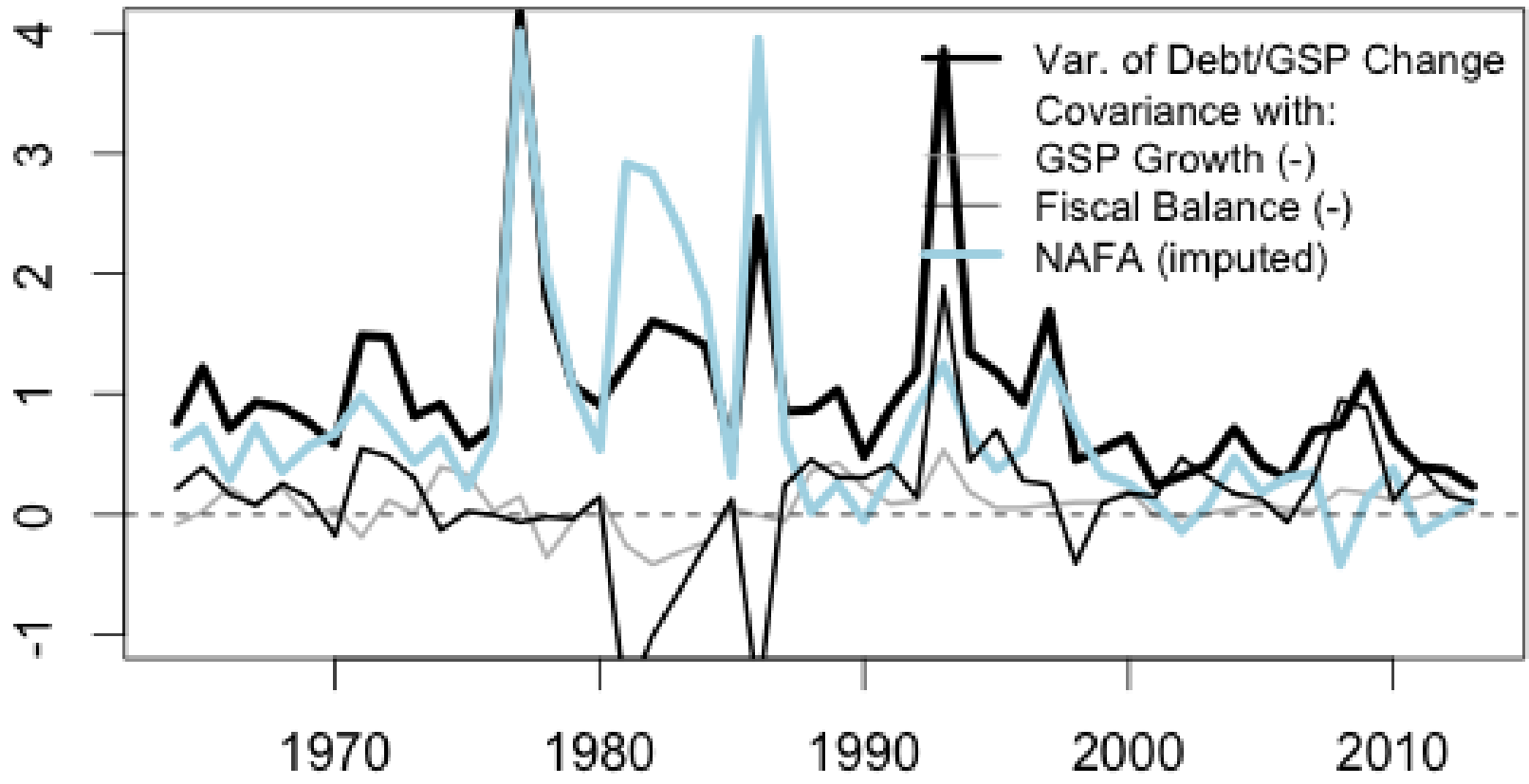
State Finances during Great Recession Period

- During 2007-2011, state budgets moved sharply into deficit. And state debt-GDP ratio rose.
- Natural to see a direct link between these two developments. But there is not.
  - Fiscal deficits entirely financed by lower accumulation (or decumulation) of financial assets
  - No increase in state borrowing during this period
  - Rise in state debt-GDP ratio fully explained by slower nominal growth in GDP

Variance Decomposition - Cross-Section

- Next look at variation across states in given period
  - In this section focus on state governments only
- Logic of decomposition same as for time-series data
- Results similar but not identical

Cross-State Variance Decomposition by Year



Cross-State Variance Decomposition, Debt Ratio Growth

	1981-1986	2008-2010
St. Dev. of Debt Ratio Change	0.44	0.29
Share of variance attributable to...		
Nominal Growth (-)	-0.11	0.05
Borrowing	1.06	0.94
Fiscal Balance (-)	-0.47	0.77
Revenue (-)	-2.18	1.38
Expenditure	1.71	-0.61
Trusts and NAFA	1.53	0.16

Cross-State Variance Decomposition: Results

1. In both 1980s and great recession period, cross-state variation in debt ratios all explained by variation in borrowing
   - Variation in growth rates across sates do not contribute to variation in debt ratio
   - Difference from time-series results
2. In 1980s, more than all cross-state variation in debt growth explained by asset accumulation
   - States with higher debt growth in 1980s also had bigger fiscal surpluses
   - Same result as for aggregate state debt
3. In great recession period, three quarters of variation in state debt growth explained by fiscal balance
   - Different from time-series results, consistent with conventional view
   - Higher NAFA, slower income growth contribute small part of cross-state variation
   - More than all the fiscal contribution to debt growth is explained by revenue differences

Cross-State Variance Decomposition, Fiscal Balance

Revenue	1.13
Taxes	0.69
Intergovernmental	0.34
Expenditure (-)	-0.13
Interest	0.01
Borrowing (-)	0.06
Trusts and NAFA	0.94

Cross-State Variance Decomposition: Results

- All variation in fiscal balances in great recession period explained by differences in revenues
  - Higher deficit states actually have somewhat lower expenditure as share of GSP
  - Differences in interest expenses play no role
- Nearly all (94%) of variation in fiscal balances accommodated on asset side of balance sheet
  - Fiscal balance and borrowing basically uncorrelated across states
- Same patterns as we see in aggregate date

Conclusions

1. Deficits $\neq$ debt : Fiscal balance explains little variation in aggregate state-local debt growth, and only some variation in cross-state debt growth
   - Rise in state-local debt in 1980s all explained – both aggregate and across sates – to more rapid asset accumulation
     - In this period, state governments with fastest debt growth also had highest savings
   - In 2007-2011, fiscal balances explain more variation in debt growth across states, but not rise in aggregate debt ratio
2. State and local governments do not use debt to bridge gaps between current expenditure and revenue
   - Short-term budget imbalances entirely financed through variation in pace of asset accumulation
   - Debt used to finance specific capital projects
3. Pressure to increase asset holdings can be important source of pressure on state-local budgets
   - For state-local finances, terms on which they can borrow less important than degree to which they must prefund future expenses