Local Government Debt Valuation
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MFA Meetings Chicago – Discussion – March 2023

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This Paper

What is the (financial) value of S&L balance sheet
- Present value of revenue and expenditures
  - ▸ What is the equity value of S&L governments

How do we evaluate present value of a public budget
- Forward looking view of revenues and expenditures
  - ▸ VAR model of cash flows to predict future surplus
- Asset pricing model from bond prices (affine term structure)

This Discussion

- My view of the important results
- What I think the paper is missing so far
- My interpretation of the current results

How do they do it?

Data contribution

- *Annual Comprehensive Financial Reports (ACFR):* complete picture of the balance sheet of S&L
  - *Assets:* revenues (not an asset? more like a franchise value) and cash
  - *Liabilities:* current operations, mandatory expenditures (e.g. pensions), and debt

- Bond model ...

- Model of government surpluses (Jiang et al.)
  - Linear model (VAR) of S&L revenues minus expenditures

How do they do it?

Main result

$$PV \text{ (Revenues – Expenditures)} < 0$$

- What gives?
- The authors interpret the result as implicit guarantee from the Federal government

$$PV \text{ (Assets – Liabilities)} + PV \text{ (Fed IG Transfers)} = 0$$

What I would like to know

Sample

- Sample of S&L includes states and other (large) local governments
- Can we exploit the heterogeneity in revenue capacity and expenditures?
    - ▸ "Full faith and credit" means something different when it is the state of Minnesota or a small town with a closed manufactures in rural rust belt.
    - ▸ Taxation power is different: different instruments, different capacity
- Subsample analysis
    - ▸ State and cities have different volatility of revenues (and expenditures): reflected in VAR?
    - ▸ Figure 9a

What I would like to know
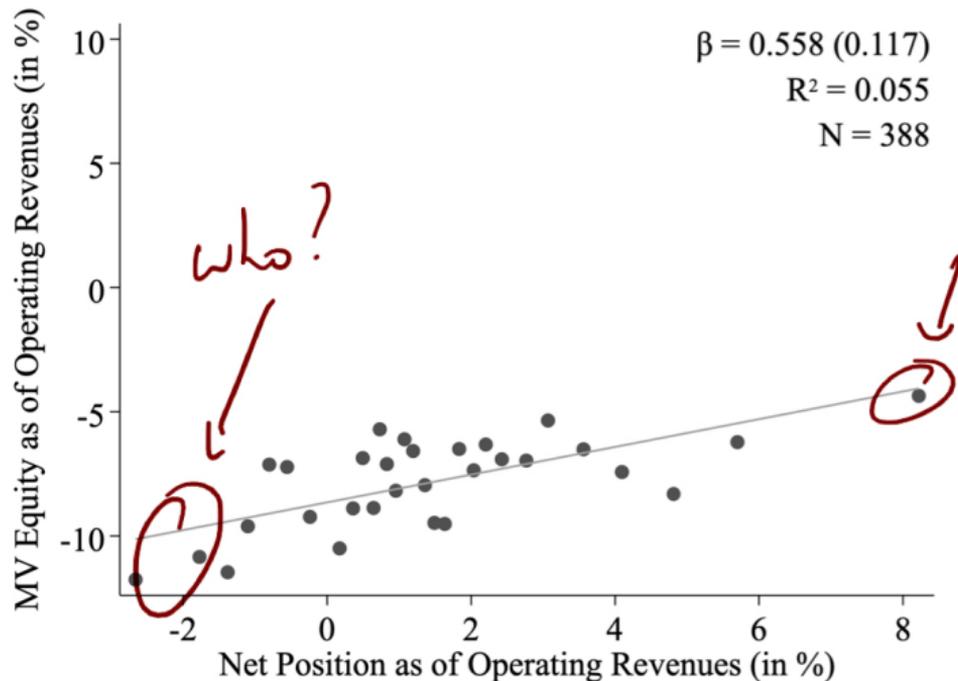
What I would like to know

Cross-sectional analysis

- What shapes the implicit guarantee?
- Many characteristics available in CoG files ...

The VAR

Method

- VAR model to project future revenues and expenditures of S&L

$$z_t = \Psi z_{t-1} + u_t$$
$$\Delta \log w_t = T' z_{t-1} + \epsilon_t$$

- How good is the model? (R^2)
  - ▸ California revenue depends on current debt level of ... California and local economic conditions (demand, industry composition, etc.)
  - ▸ Do we account for structural change in what the municipalities do? Redefining activities to narrow government in face of budget pressure?
- What are the coefficients (T)
  - ▸ Not muni-specific, not time-varying.
  - ▸ Potential for model mis-specification (see below)

Is the VAR misspecified?
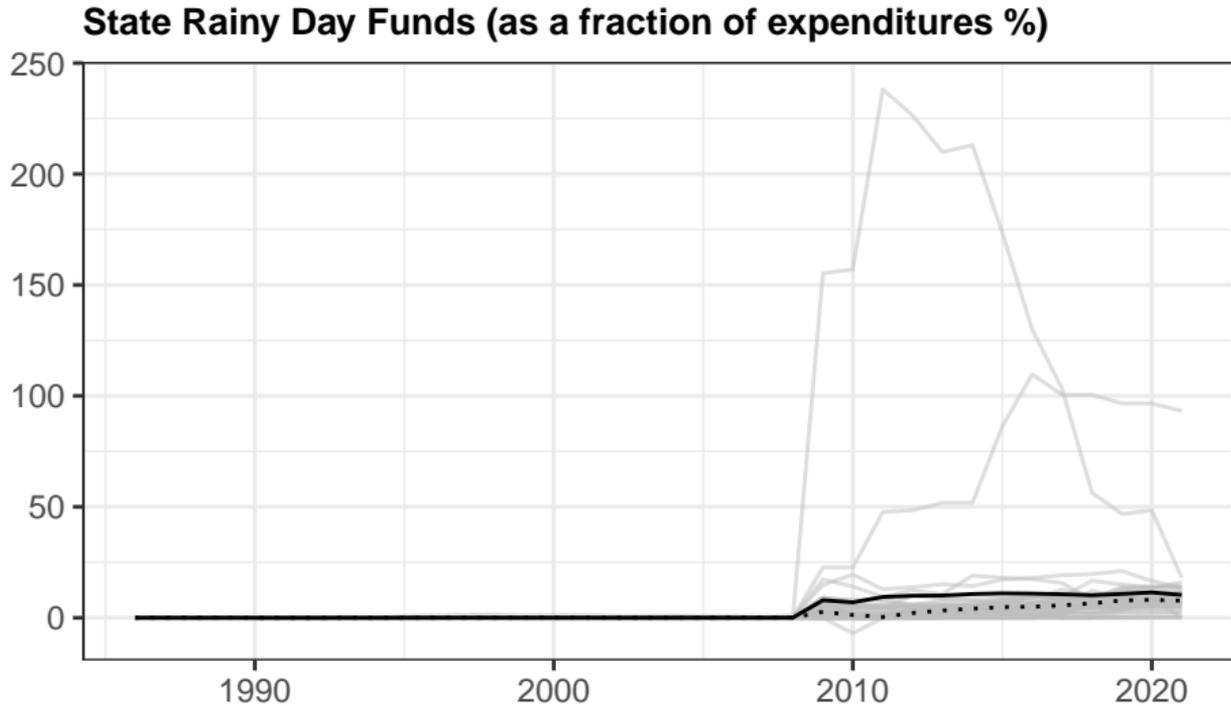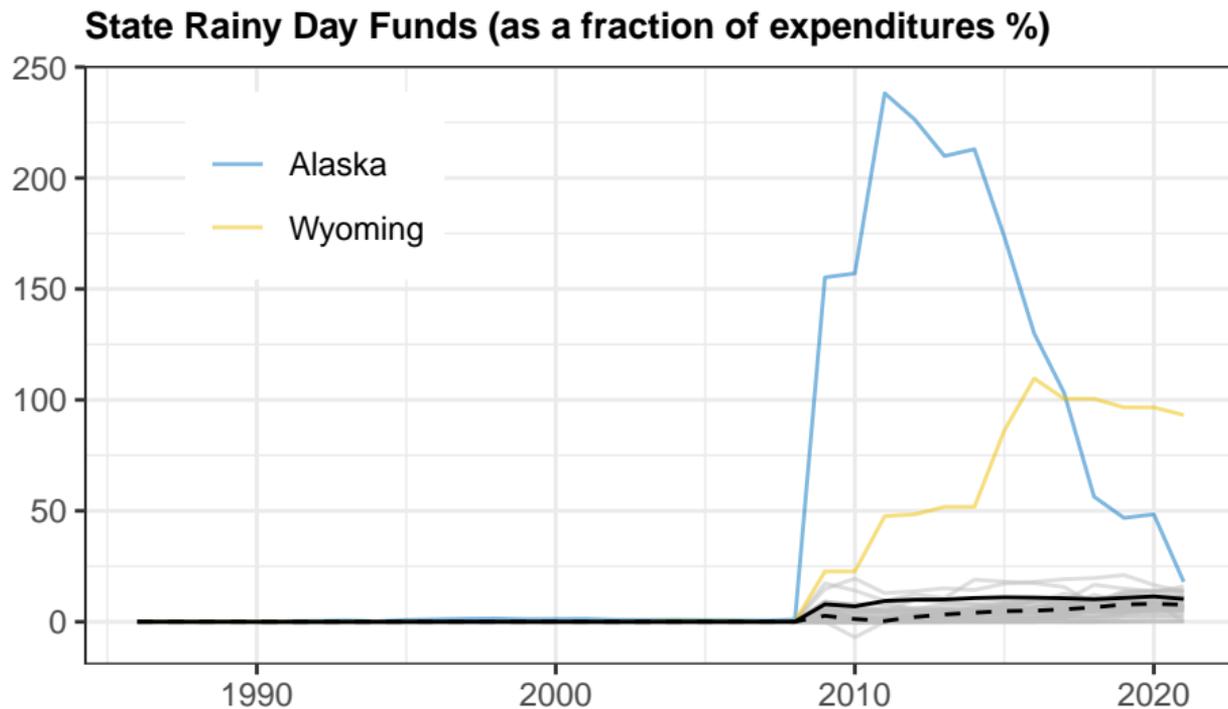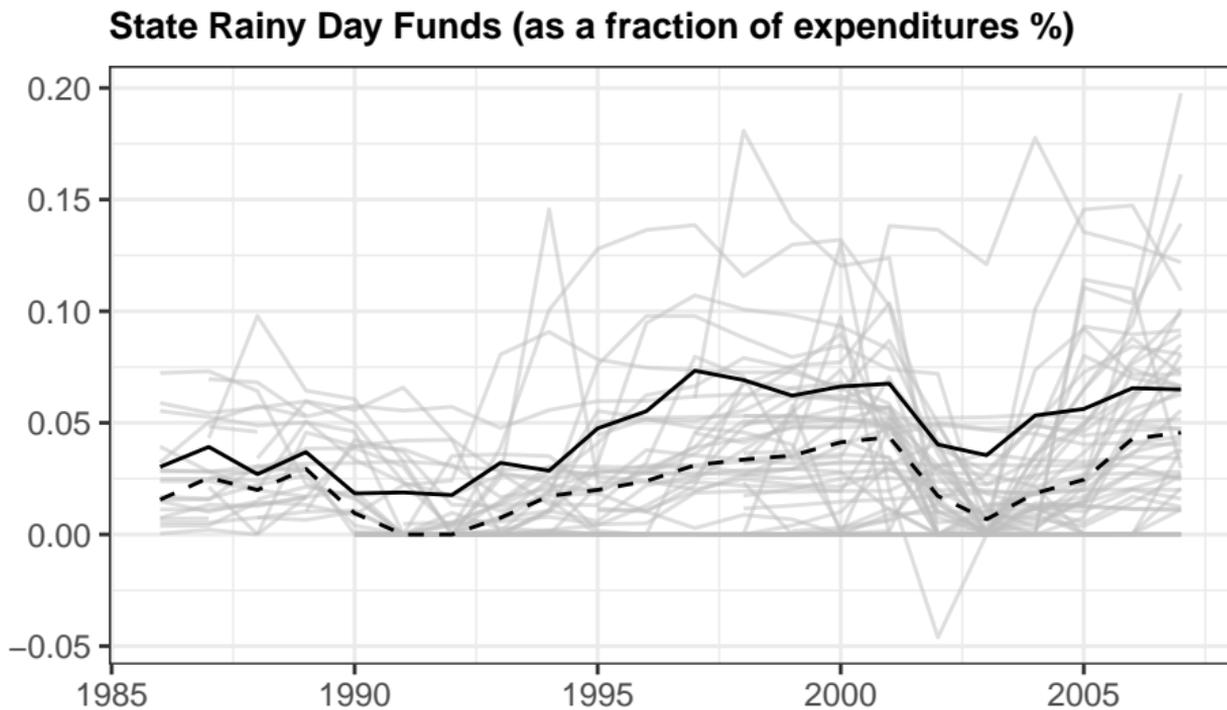
State Rainy Day Funds (as a fraction of expenditures %)

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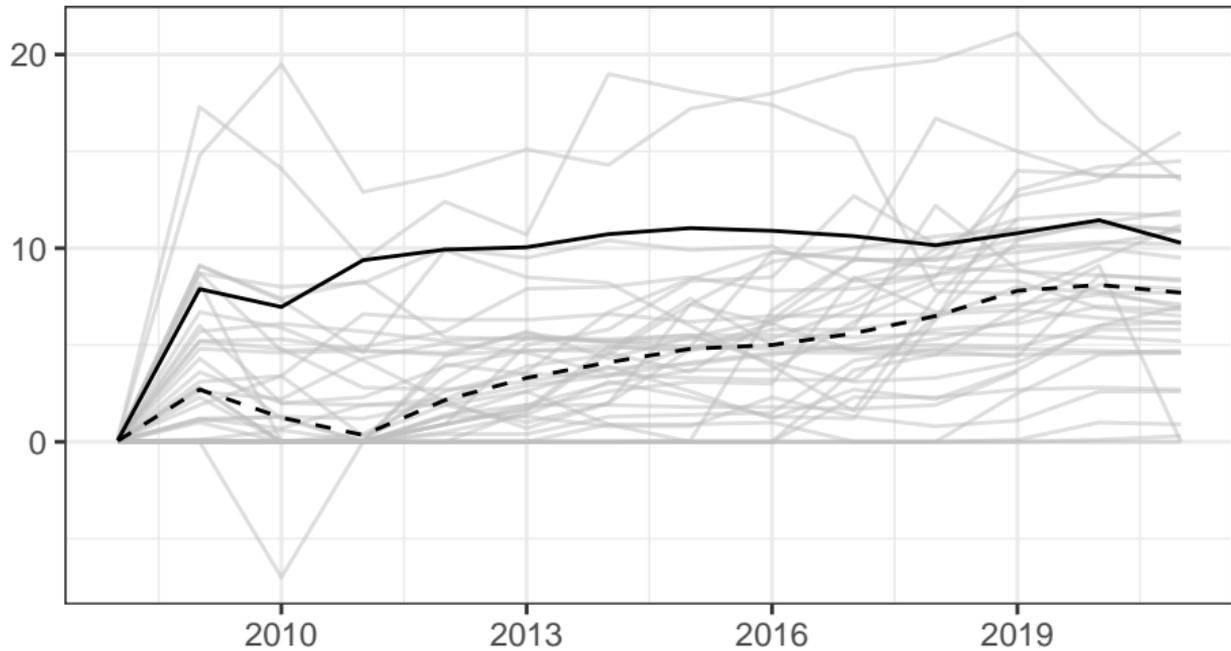
Is the VAR misspecified?

How could Texas spend its record $32.7 billion surplus?

> If Texas' budget surplus were distributed directly to Texans, it could pay for 12 years of school lunches, seven months of rent or 11,000 miles of travel. Here's how to put the big number into perspective.

BY **KAREN BROOKS HARPER**, **YURIKO SCHUMACHER** AND **ALEX FORD**   MARCH 13, 2023
5 AM CENTRAL

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Is the VAR misspecified?

State Fed IG Transfers (as a fraction of revenues %)
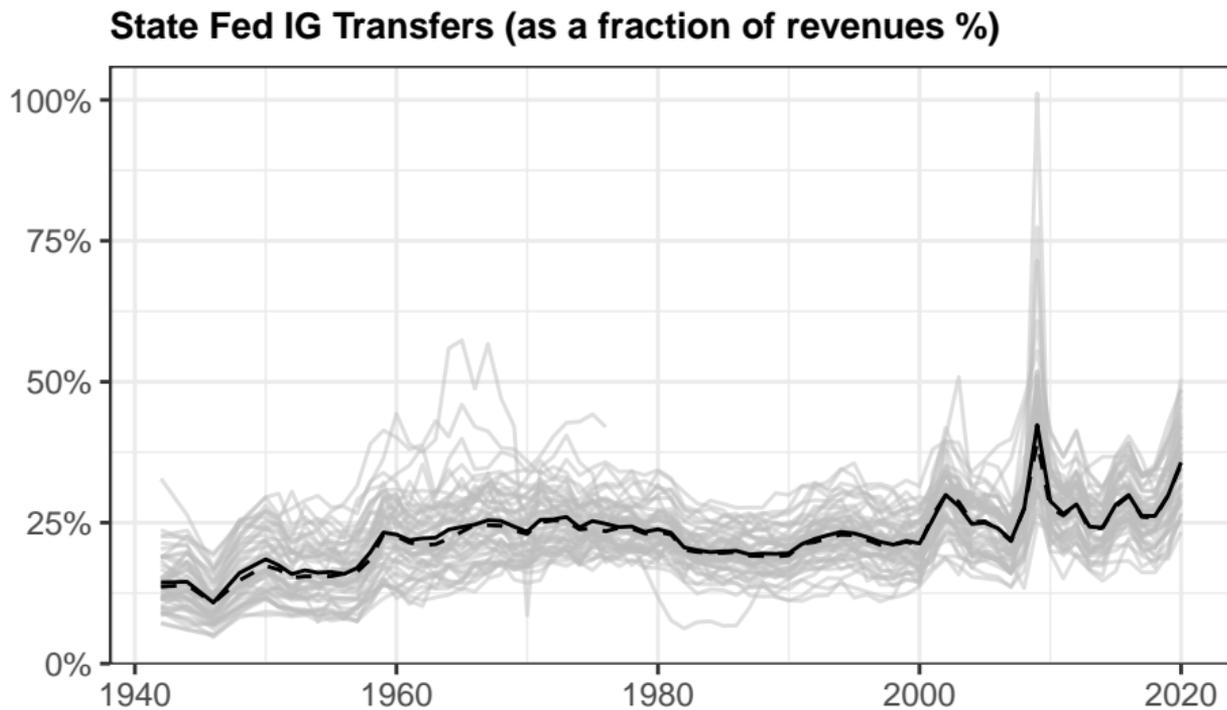
Is the VAR misspecified?

State Fed IG Transfers (level, detrended (pre 2008))
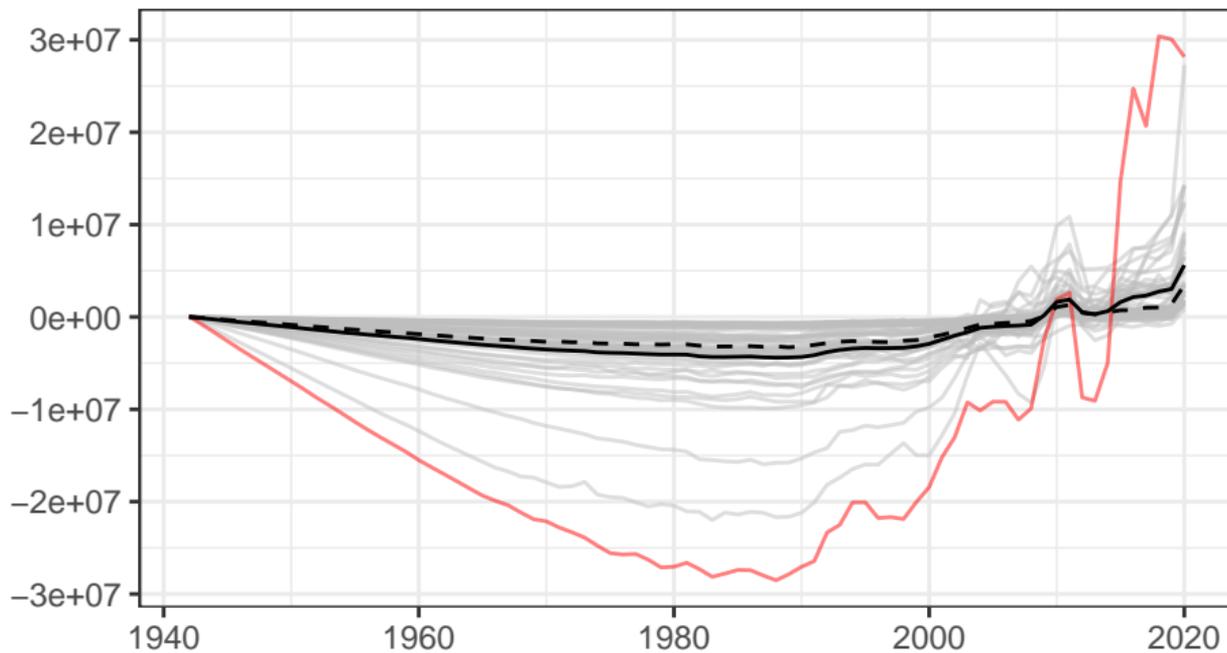
The new interest rate environment

CBO projection of Federal Government budget in a rising interest environment

- Same calculation for states?
- How does Fed rising liabilities affect the guarantees?

The new interest rate environment

Outlays, by Category of Spending

Percentage of Gross Domestic Product
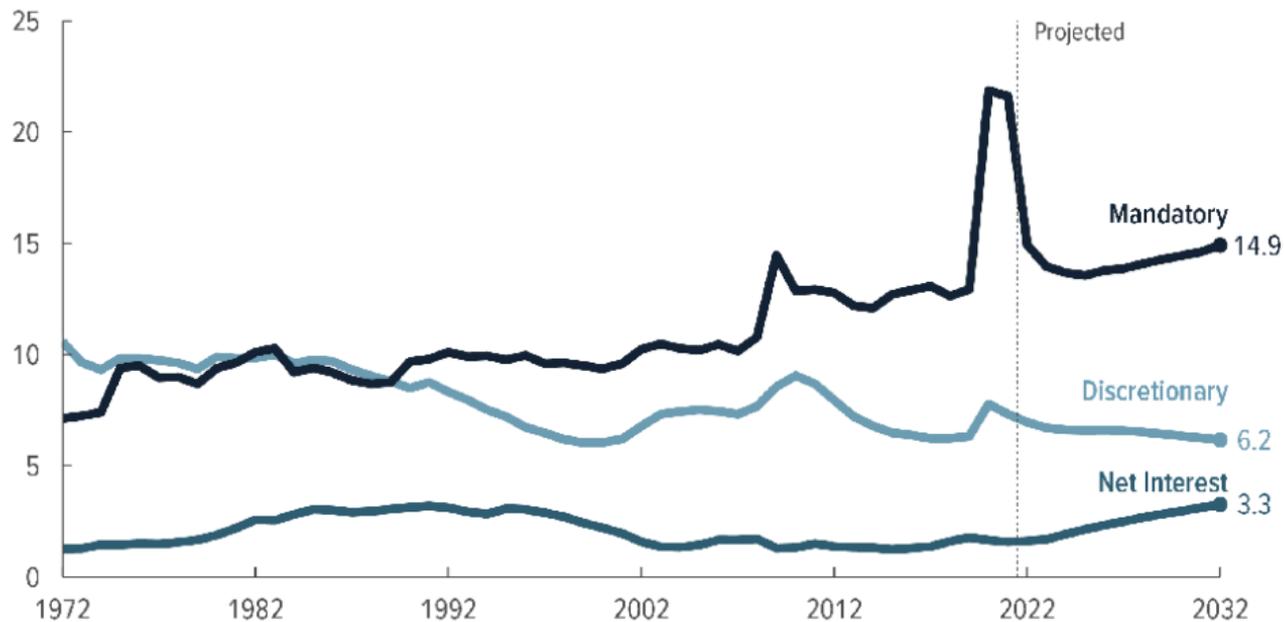
The new interest rate environment

Major Changes in Projected Outlays From 2022 to 2032

Percentage of Gross Domestic Product

	Outlays		Change		Major Reasons for Change
	2022	2032			
Social Security	4.9	5.9	1.0		Cost-of-living adjustments; aging of the population
Major Health Care Programs	5.8	6.8	1.0		Rising costs of health care; aging of the population
Other Mandatory Spending	4.3	2.2	−2.1		Waning pandemic-related spending; inflation rate is less than nominal GDP growth
Discretionary Spending	7.0	6.2	−0.8		Inflation rate is less than nominal GDP growth; waning pandemic-related spending
Net Interest	1.6	3.3	1.6		Rising interest rates; accumulating debt

Change axis: -2.0 -1.5 -1.0 -0.5 0 0.5 1.0 1.5

The new interest rate environment

Table 3.

How Changes in Interest Rates and Inflation Might Affect CBO's Baseline Budget Projections

Billions of Dollars

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Total 2023–2027	Total 2023–2032
Interest Rates Are 0.1 Percentage Point Higher Each Year													
Changes in Revenues	-4	-5	-5	-5	-4	-3	-1	*	1	2	2	-23	-20
Changes in Outlays													
Higher interest rates[a]	4	9	13	16	19	22	25	27	30	33	35	79	229
Debt service	*	*	1	1	2	3	4	5	6	7	8	7	36
Total Change in Outlays	4	9	14	17	21	25	28	32	36	39	43	86	265
Increase (-) in the Deficit	-8	-15	-19	-23	-25	-28	-30	-32	-35	-38	-41	-109	-285
Inflation and Interest Rates Are 0.1 Percentage Point Higher Each Year													
Changes in Revenues	-1	3	7	12	19	26	33	41	49	57	66	67	313
Changes in Outlays													
Mandatory spending	*	3	6	9	13	17	22	26	32	37	42	47	207
Discretionary spending	0	1	2	4	6	7	9	11	15	18	23	19	95
Net interest													
Higher interest rates	4	9	13	16	19	22	25	27	30	33	35	79	229
Higher inflation[b]	2	1	2	1	1	1	1	1	1	1	1	7	13
Debt service	*	*	1	1	2	2	3	4	5	6	7	6	31
Subtotal, net interest	6	11	15	19	22	26	29	33	36	40	44	92	274
Total Change in Outlays	6	14	22	31	41	50	60	70	83	96	109	159	575
Increase (-) in the Deficit	-7	-11	-15	-19	-22	-24	-26	-29	-34	-38	-43	-92	-262

Final Thoughts

Interesting Paper! Go read it.

Take away

- Accounting for present value of S&L surpluses
- Federal government guarantee ... for which munis?