

# ***Direct vs. Indirect Federal Bond Subsidies: New Evidence on Cost of Capital***

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# Author Backgrounds

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  - ▶ Previously public finance investment banker (Bear Stearns) and currently a registered municipal advisor to state and local governments
- ▶ **Peter Orr, CFA**
  - ▶ President, Intuitive Analytics
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Registered municipal advisor to state and local governments
  - ▶ Previously public finance investment banker (JP Morgan, Bear Stearns)
- ▶ **Richard Ryffel**
  - ▶ Professor of Practice, Washington University in St. Louis
  - ▶ 25 years of public finance investment banking experience

# Research Background

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- ▶ The federal government subsidizes capital finance activities either through *indirect* or *direct* subsidies
- ▶ Federal income tax exemption on municipal bond interest represents the *indirect* approach
- ▶ Providing direct subsidy to offset the interest cost of taxable municipal bonds represents the direct approach
  - ▶ The Build America Bond (BAB) program exemplifies a direct subsidy program
- ▶ The indirect approach has historically been used far more than the direct approach

# Debate on Indirect vs. Direct Federal Bond Subsidies

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- ▶ The indirect subsidy approach has been criticized for decades based on the following:
  1. Inefficient
  2. Inequitable
  3. Not transparent
  4. Reduced access to capital
- ▶ The BAB program was designed to correct all these deficiencies

# BAB Program

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- ▶ Allowed for a 35% subsidy of the interest cost of BABs issued by state and local governments
- ▶ Program was in effect from February 2009 through December 31, 2010
- ▶ More than \$181 billion in BABs were issued
- ▶ Since 2013, direct BAB subsidies have been “haircut” between 8.7% and 5.5% each year due to the federal budget sequester
- ▶ President Obama proposed several extensions of a direct subsidy bond program (e.g., America Fast Forward Bonds), but none were passed
- ▶ Presidential candidate Trump signaled an interest in direct subsidy bonds, but no provision was provided in his 2018 infrastructure proposal

# House Democrats Moving Forward Act (June 2020)

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- ▶ Permanently reinstate BAB program for “qualified infrastructure bonds”
  - ▶ Taxable bonds that would otherwise qualify for tax exemption
  - ▶ 100% of the net proceeds are to be used for capital expenditures or operation and maintenance expenditures used in connection with capital expenditures
- ▶ Direct subsidy ramp down
  - ▶ 42% of interest paid from 2020-2025
  - ▶ 38% of interest paid in 2025
  - ▶ 34% of interest paid in 2026
  - ▶ 30% of interest paid in 2027 and thereafter
- ▶ Subsidy protected from budget sequestration

# Missing Component of Previous Research

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- ▶ Traditional tax-exempt bonds are usually sold with a ten-year par call, which makes them eligible for refinancing (refunding) if interest rates decline or to capitalize on a shorter yield curve over time (duration shortening)
- ▶ Taxable municipal bonds are sold with a make-whole call option, which makes it difficult to refinance (almost impossible) for savings, if rates decline
- ▶ Most municipal bonds are refunded prior to maturity for interest cost savings
- ▶ Previous research did not fully account for this call optionality difference (e.g., TIC assumes the debt service is paid to maturity)

# Refunding Adjusted Yield (RAY); (Orr and Luby, 2019)

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- ▶ RAY is an alternative cost of capital metric that does not necessarily assume debt service is paid to maturity
- ▶ RAY incorporates the possibility that a municipal issuer will refinance a new municipal security sometime in the future based on a realistic modeling of future bond refinancings (refundings)
- ▶ RAY is the yield that recovers the market price from the average of simulated debt service adjusted for future refunding activity
- ▶ Based on 5,000 simulations of current refundings using an opportunity cost index for when to refund debt



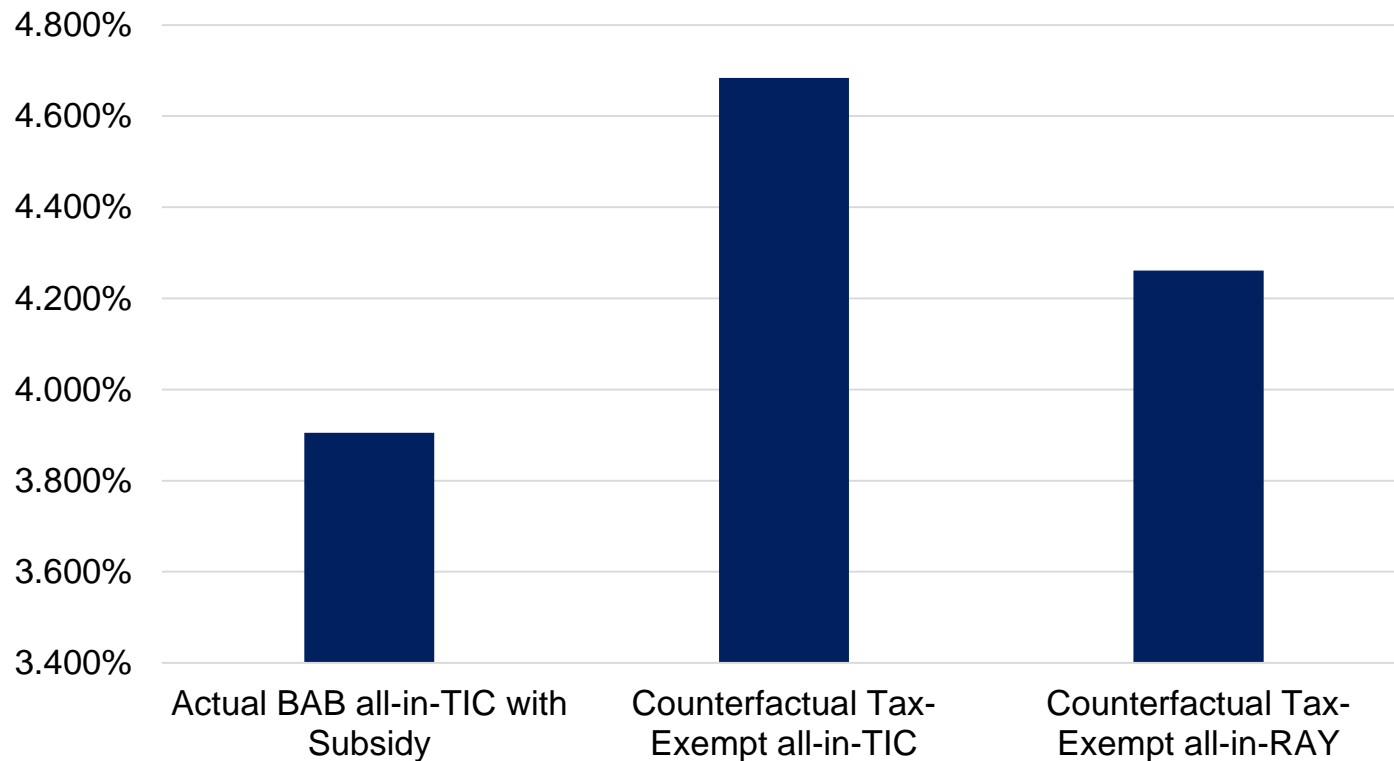
# Estimation Step-by-Step

Step	Action	Result	Calculation
Step 1	Calculate BAB TIC before 35% subsidy	10%	
	Calculate BAB TIC after 35% subsidy	6.5%	$(10\% * (1-35\%))$
Step 2	Calculate counterfactual TIC	8.0%	
	Calculate counterfactual RAY	7.5%	
Step 3	BAB benefit over counterfactual tax-exempt TIC	1.5%	$(8.0\% - 6.5\%)$
	BAB benefit over counterfactual tax-exempt RAY	1.0%	$(7.5\% - 6.5\%)$
	<b>% overstatement of BAB benefit by using TIC instead of RAY</b>	<b>33.33%</b>	<b><math>((1.5\% - 1.0\%) / 1.5\%)</math></b>
Step 4	Neutral subsidy rate based on TIC	20%	$1 - (8.0\% / 10\%)$
	Neutral subsidy rate based on RAY	25%	$1 - (7.5\% / 10\%)$
	<b>% understatement of neutral subsidy rate by using TIC instead of RAY</b>	<b>25%</b>	<b><math>((25\% - 20\%) / 20\%)</math></b>

# Estimation Benefit of BABs Based on All-in-TIC and All-in-RAY: One Issue

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**\$486,100,000 Regents of the University of California  
Limited Project Revenue Bonds, 2010 Series F (BABs)**



# Estimation of Benefit of BABs Based on All-in-TIC and All-in RAY: Average of all 43 Issues

			(A)	(B)	(C)		
	BAB Par Amount (\$ in millions)	Actual BAB all-in TIC without Subsidy	Actual BAB all-in TIC with Subsidy	Counterfactual Tax-Exempt all-in TIC	Counterfactual Tax-Exempt all-in RAY	Actual BAB all-in TIC with Subsidy minus Counterfactual Tax-Exempt all-in TIC (A) – (B)	Actual BAB all-in TIC with Subsidy minus Counterfactual Tax-Exempt all-in RAY (A) – (C)
Average of all CA bond Issues (43 bond issues)	12,879	6.530%	4.261%	4.904%	4.608%	<b>-0.64%</b>	<b>-0.35%</b>

45% overstatement of BAB benefit by using TIC instead of RAY

# Estimation of Neutral Subsidy Rates Based on All-in-TIC and All-in RAY: Average of all 43 Issues

	(A)	(B)	(C)	(D)	(E)		
	Actual BAB all-in TIC without Subsidy	Counter- factual Tax- Exempt all-in TIC	Counter- factual Tax- Exempt all-in RAY	Counter- factual Tax- Exempt all-in TIC as a Percent- age of Actual BAB all-in TIC without Subsidy (B)/(A)	Counter- factual Tax- Exempt all-in RAY as a Percent- age of Actual BAB all-in TIC without Subsidy (C)/(A)	Neutral Subsidy Rate Between Actual BAB and Counter- Factual Tax- Exempt Based on all-in TIC (100%-D)	Neutral Subsidy Rate Between Actual BAB and Counter- Factual Tax- Exempt Based on all-in RAY (100%-E)
Average of all CA bond Issues (43 bond issues)	6.530%	4.904%	4.608%	75.39%	70.78%	<b>24.61%</b>	<b>29.22%</b>

19% understatement of neutral subsidy rate by using TIC instead of RAY

# \$250MM Water District of Southern California Series 2009D: Federal Budget Sequester Analysis

Expected BAB all-in TIC with Full Subsidy	Expected BAB Debt Service with Full Subsidy	Actual BAB all-in TIC with Subsidy Adjusted for Budget Sequester	Actual BAB Debt Service with Subsidy Adjusted for Budget Sequester	Counter-factual Tax-Exempt all-in TIC	Counter-factual Tax-Exempt all-in TIC Debt Service	Counter-factual Tax-Exempt all-in RAY	Counter-factual Tax-Exempt all-in RAY Debt Service
<b>4.165%</b>	462,274,515	<b>4.211%</b>	464,251,941	<b>4.832%</b>	506,017,118	<b>4.385%</b>	469,823,584

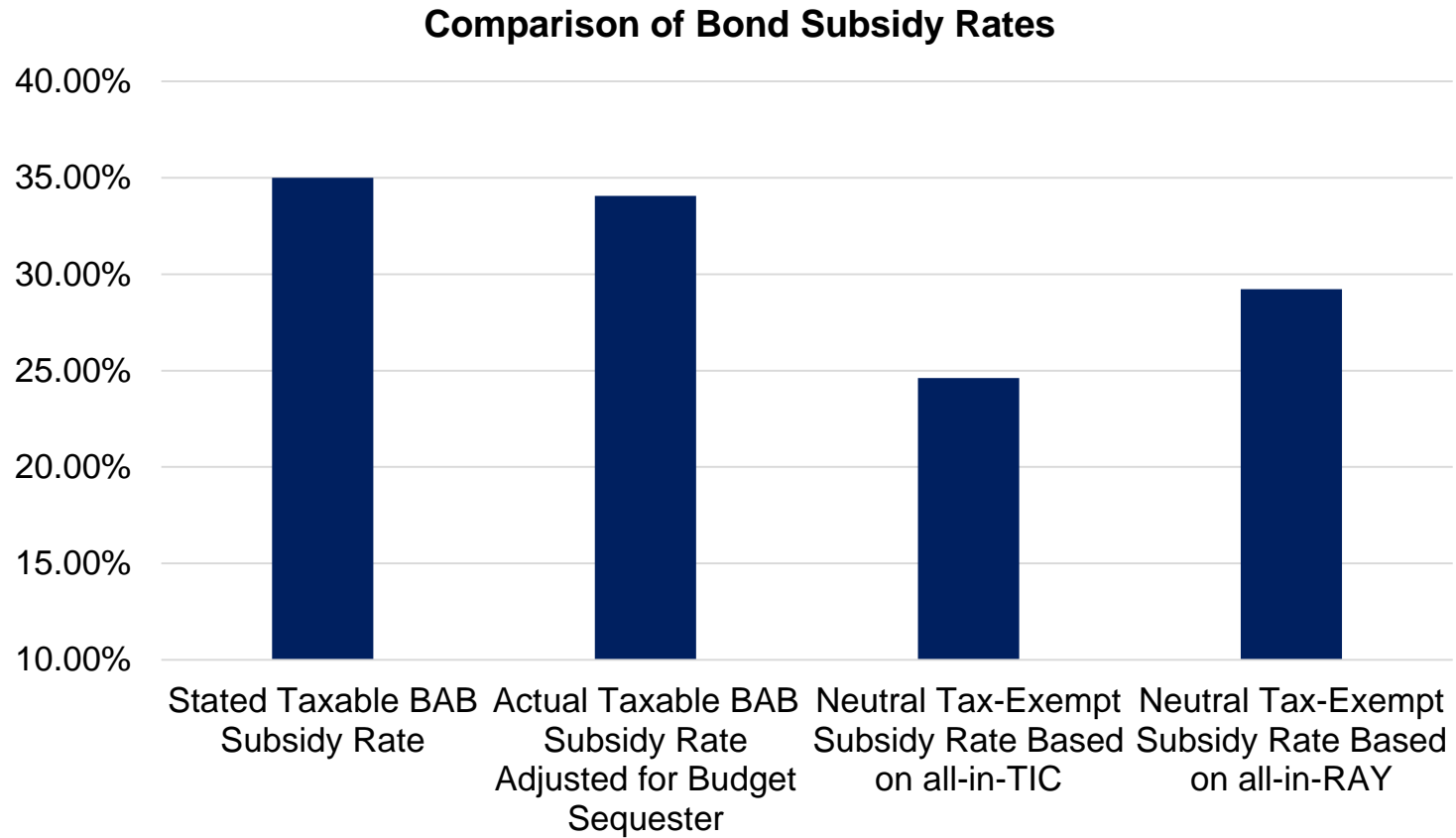
Federal budget sequester increased the TIC on the BABs by almost 5 bps

Federal budget sequester reduced the benefit of issuing BABs compared to tax-exempts from 22 bps to 17 bps based on RAY

All-in Ray produced a capital cost estimate of 45 bps lower than All-in TIC

# Summary of Subsidy Rates

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# Discussion and Policy Implications

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- ▶ BABs provided interest cost benefits versus tax-exempt bonds but substantially smaller as estimated in previous research
- ▶ This benefit is even smaller when accounting for the federal budget sequester that has reduced BAB subsidies since 2013
- ▶ 35% subsidy is overly generous, but subsidy rates in the mid 20's will likely not be enough to induce governments to sell direct subsidy bonds; our estimate is a minimum 30% direct subsidy rate to make issuers indifferent between bond types
- ▶ The Moving Forward Act subsidy provisions likely meet the “hurdle” subsidy rate due to generous initial subsidy rates; Previous attempts at reinstatement of BABs, such as America Fast Forward, with a 28% subsidy rate likely would not

## Discussion and Policy Implications (continued)

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- ▶ The benefit of call optionality and the “burn” many S&Ls feel related to the budget sequester needs to be considered in devising any new direct subsidy program
- ▶ More philosophically, a direct subsidy program makes it easier for federal encroachment into state and local finances and financing
  - ▶ In a previous Congress, some senators proposed the idea of adjusting the bond subsidy rate based on use of proceeds (e.g., education could get 35%, transportation 30%, etc.)
  - ▶ The direct subsidy mechanism also allows the federal government another mechanism to retrieve owed resources from S&L governments owed to the federal government, claw back resources previously provided to S&L governments or to hold back resources “promised” to S&L governments
- ▶ For research and practice purposes broadly speaking, using a better estimate for cost of capital make impact outcomes and practice



# Thank You

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Please send additional comments and questions to:

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