

# Why Don't the Rich Pay More Taxes? The Role of Unrealized Gains and Borrowing

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# Motivation: When the Rich Get Richer, They're Often Not Taxed

- How we tax rich Americans is a central policy question
- Leaks of tax returns of billionaires (ProPublica 2021) showed for many huge increases in asset values, relatively little income tax
  - Musk, Bezos, Buffet: \$130B increase in asset values from 2014-2018
  - AGI < 4% of economic income
- Divergence is driven by the realization rule
  - Rule: No sale = No taxable income on asset appreciation
- Many scholars have long regarded as the rule “Achilles heel” of the income tax system (Andrews 1983)

# Motivation: The Rich Avoid Taxes Partly Through Borrowing

- What if they want to spend some of those “paper” gains?
  - Buy, borrow, die

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**FINANCE**  
**Buy, Borrow, Die: How Rich Americans Live Off Their Paper Wealth**  
Banks say the wealthy are borrowing more than ever, using low-interest loans backed by their investments



# Motivation: How Much Do Unrealized Gains & Borrowing Matter?

- Perceived failure to properly tax the rich has fueled a variety of proposals to reshape tax system
- Nevertheless, there's a relative paucity of empirical work on the exact amount of:
  1. Unrealized gains that go untaxed &
  2. Borrowing to avoid sales (and thus taxes)
- Partly because tax returns do not directly include information about wealth, borrowing, and unrealized asset appreciation

# Our Contribution

We are the first to show:

- How much unrealized gains reduces the size of the tax base beyond Forbes 400 billionaires
- How much borrowing there is across the wealth distribution
  - Explain what the drivers are

# Preview of Results

Adjusted Gross Income (AGI)  $\approx$  (Tax system's measure of net income)

1.  $AGI / (AGI + \Delta \text{unrealized gains}) = 60\%$  for wealthiest 1% (from 2004-2022)

- Lots of income from sources where deferral is difficult:
  - Profits from pass-through businesses, salaries, etc.

2. Using  $(AGI + \Delta \text{unrealized gains})$  as benchmark, tax system is still progressive, but less so than using AGI as measure of income

# Preview of Results

1.  $AGI / (AGI + \Delta \text{unrealized gains}) = 60\%$  for wealthiest 1%
2. Including unrealized gains as “economic income,” tax system is still progressive, but less so
3. We quantify new borrowing by rich for first time: it’s fairly small compared to new unrealized gains
  - New borrowing  $\sim 1\text{-}2\%$  of  $(AGI + \Delta \text{unrealized gains})$  for top 1%
  - New unrealized gains  $\sim 40\%$  of  $(AGI + \Delta \text{unrealized gains})$  for top 1%
4. Why? Consumption  $\ll$  AGI for top 1% wealth holders. Because:
  - “High” liquid income (i.e., AGI)
  - “Low” consumption
  - If buy, borrow, die is meant to enable extra consumption without sales, no need if  $C < AGI$ 
    - $\sim$  Simpler way to avoid tax: buy, save, die

# Existing Literature

- Income
  - Measure tax rates using broader concepts of income: (Auten & Splinter 2024; Piketty, Saez & Zucman 2018; Yagan 2023; Bricker et al. 2020; Larrimore et al. 2021)
  - Components of income of the rich: (Smith, Zidar & Zwick 2023)
  - We are first to measure the effect of unrealized gains across the wealth distribution on the *tax base* (as distinct from tax rates)
    - First to probe importance of unrealized gains specifically
    - Also develop new measure of unrealized gains from observed data
- Borrowing
  - Describing existence of “buy, save, die”: (McCaffery 2017, 2020; Understood & Yost 2023)
  - Quantifying consumption rates (Mian, Straub & Sufi 2021; Feiveson & Sabelhaus 2019)
  - We quantify borrowing by the rich for the first time



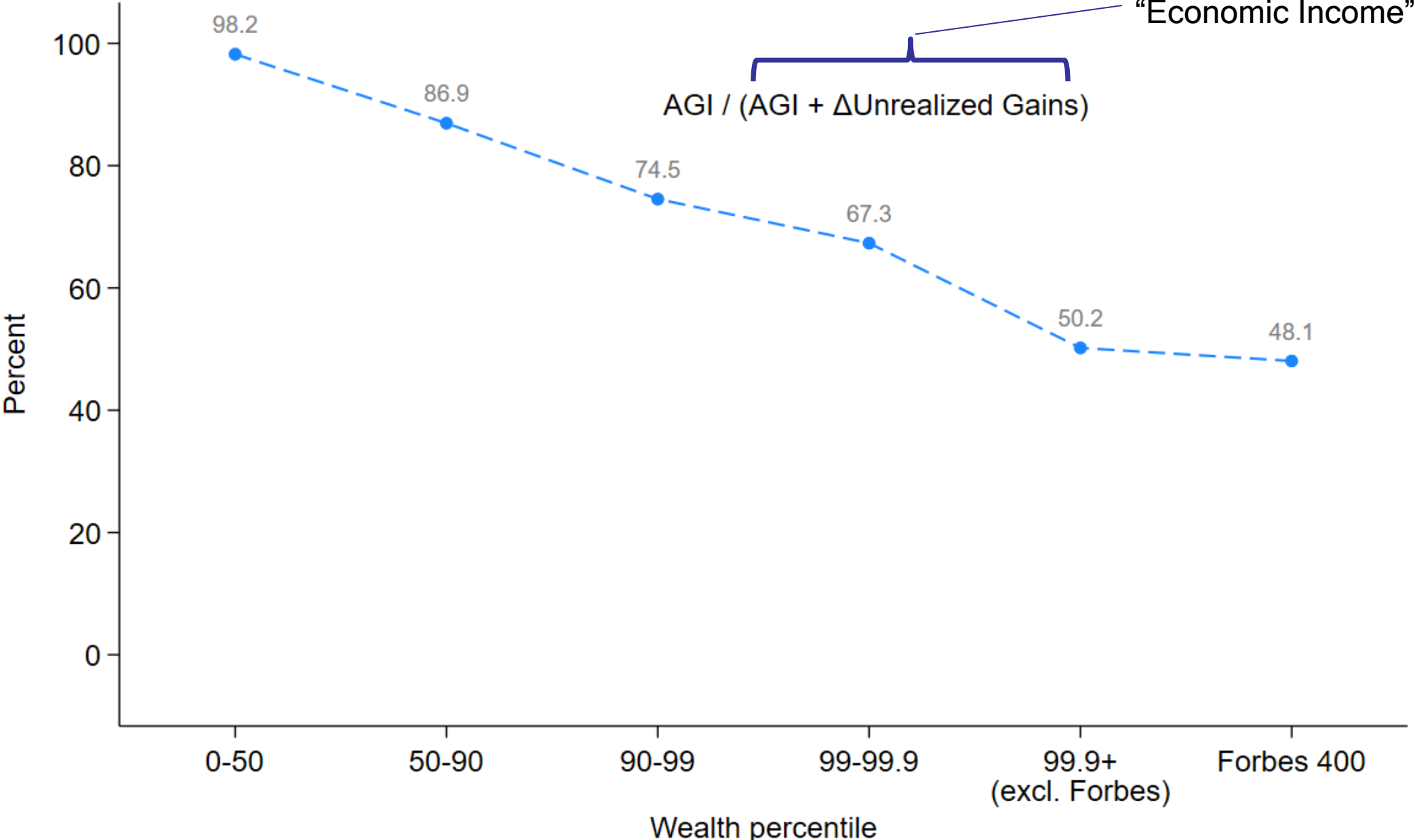
# Data and Methodology

- Data come from Survey of Consumer Finances (SCF) conducted by the Fed every 3 years going back to 1989 and going through 2022
- Survey heavily “over-samples” rich Americans
- Comprehensive examination of finances including:
  - Wealth
  - Debt
  - Forms of Taxable Income
- We scale AGI and tax liability to match published aggregates from the IRS Statistics of Income (SOI)
- SCF does not cover Forbes 400 because of privacy concerns
  - Wealth comes from Forbes estimates
  - We estimate tax liability by adjusting SOI statistics on top 400 filers in the income distribution, following Yagan (2023)

# Data and Methodology

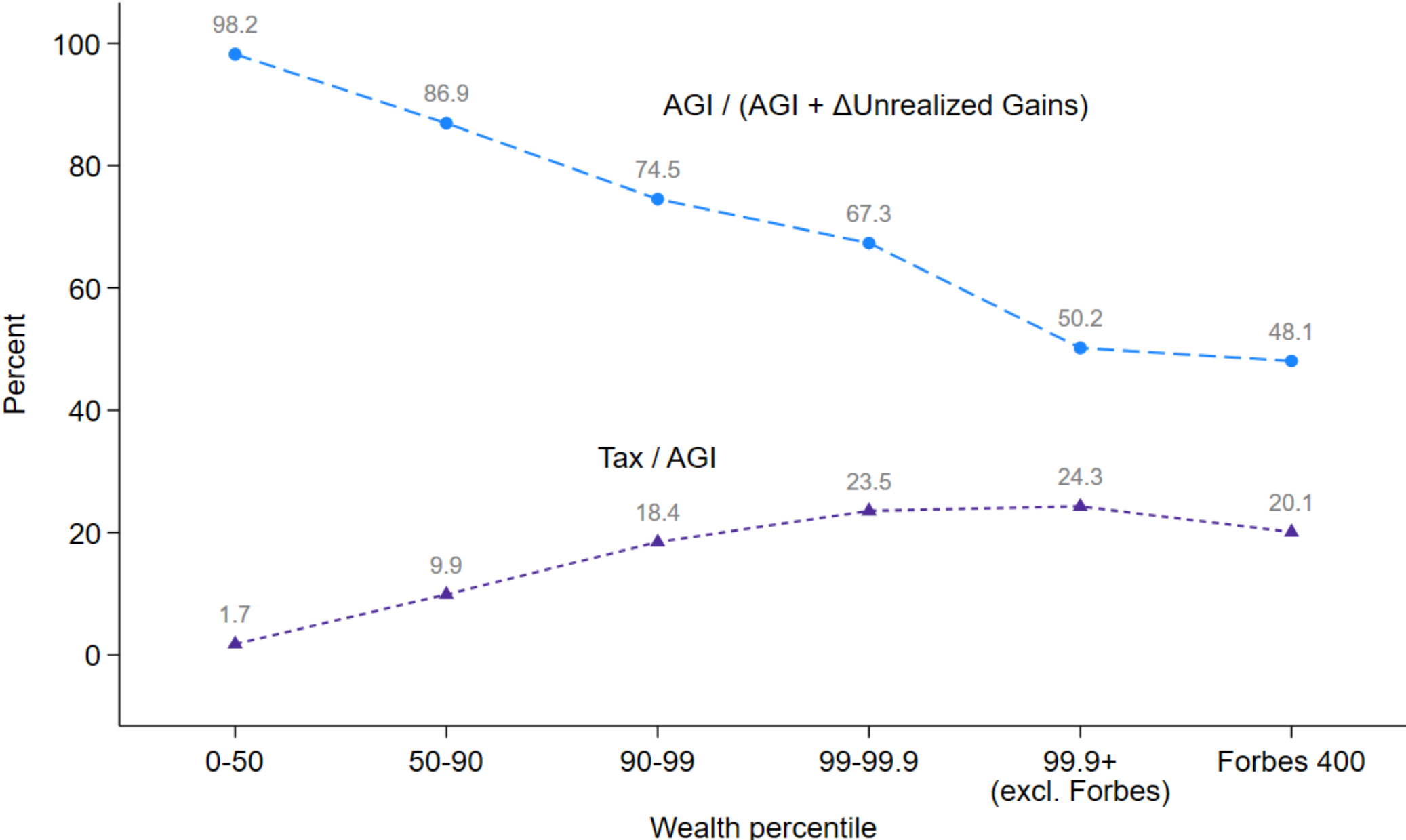
- Estimating new unrealized gains each year:
  - We use data on unrealized gains reported directly in the SCF
  - First, compute annualized nominal growth rate of unrealized gains for each wealth group, 1989-2022. Then, use this growth rate and the stock of unrealized gains in period  $t$  to estimate change in unrealized gains from period  $t-1$  to period  $t$
- Previous papers just assume growth rates
- For Forbes 400, stock of unrealized gains is not directly observed. To estimate unrealized gains each year, we assume (unrealized gains / net worth) is the same as top 0.1% of wealth distribution in SCF
- Focus on top 1% of wealth
  - [Wealth cutoffs and average net worth by percentile, 2022](#)

# How Much Unrealized Gains Reduce Taxes



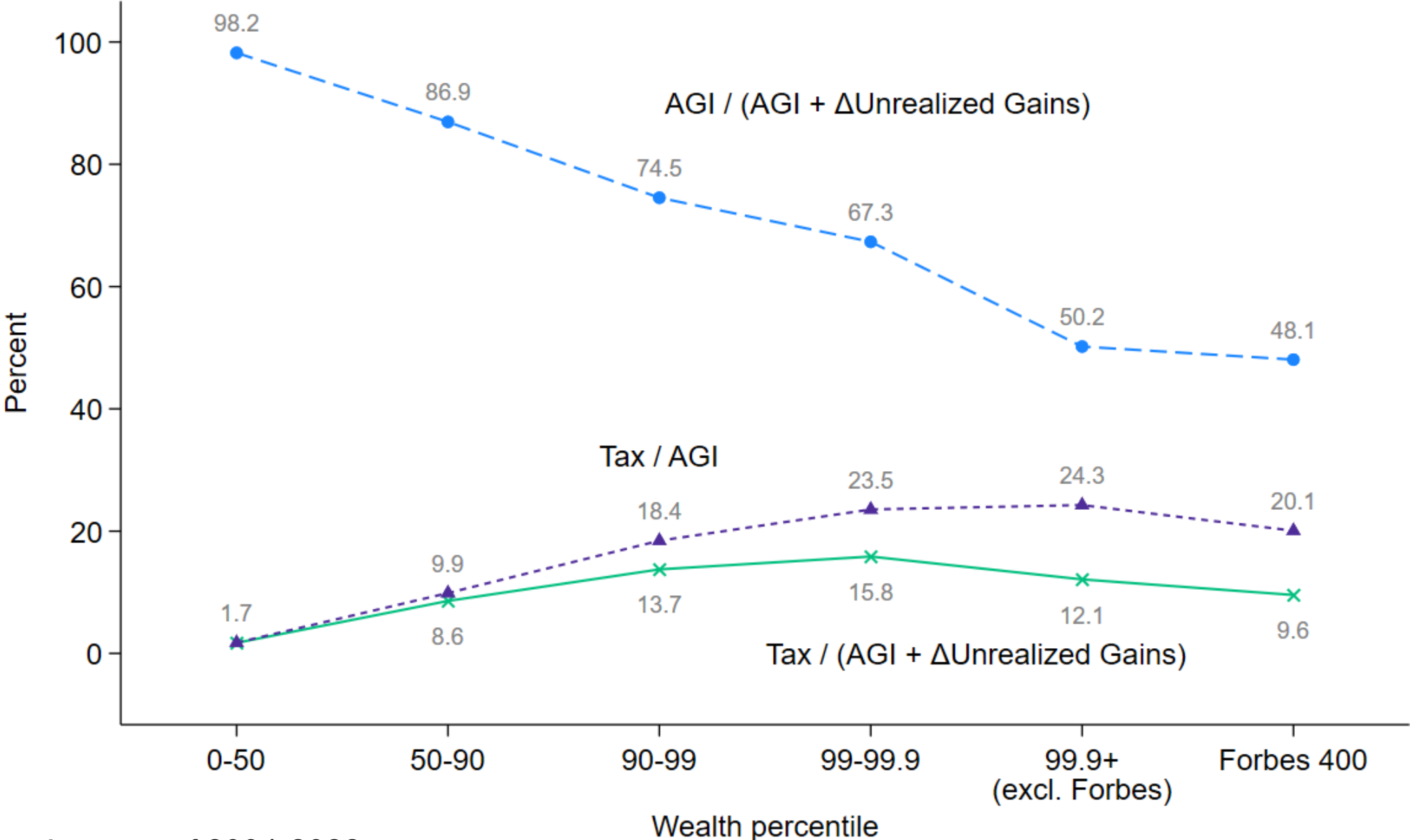
Note: Average of 2004-2022.

# How Much Unrealized Gains Reduce Taxes



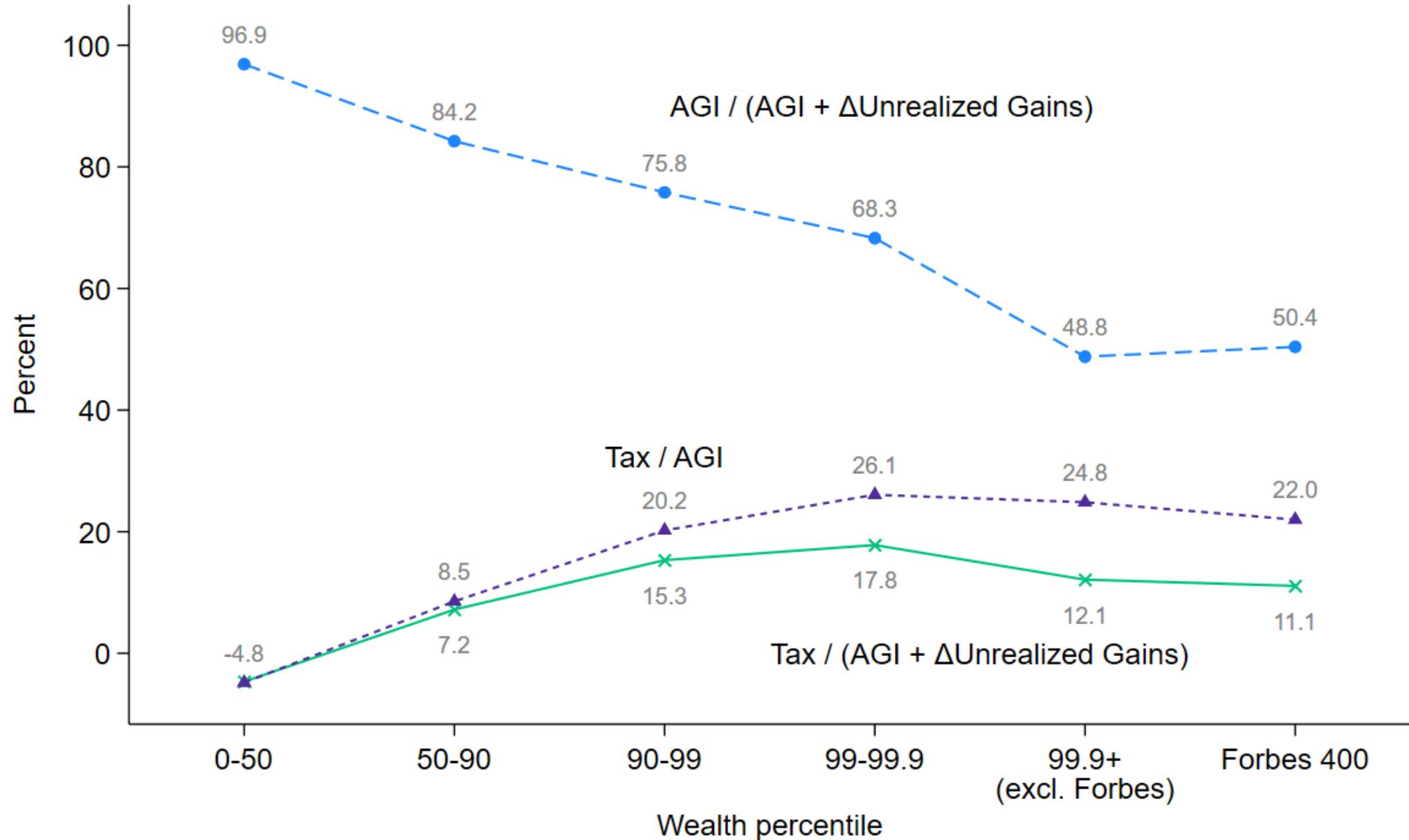
Note: Average of 2004-2022.

# How Much Unrealized Gains Reduce Taxes



Note: Average of 2004-2022.

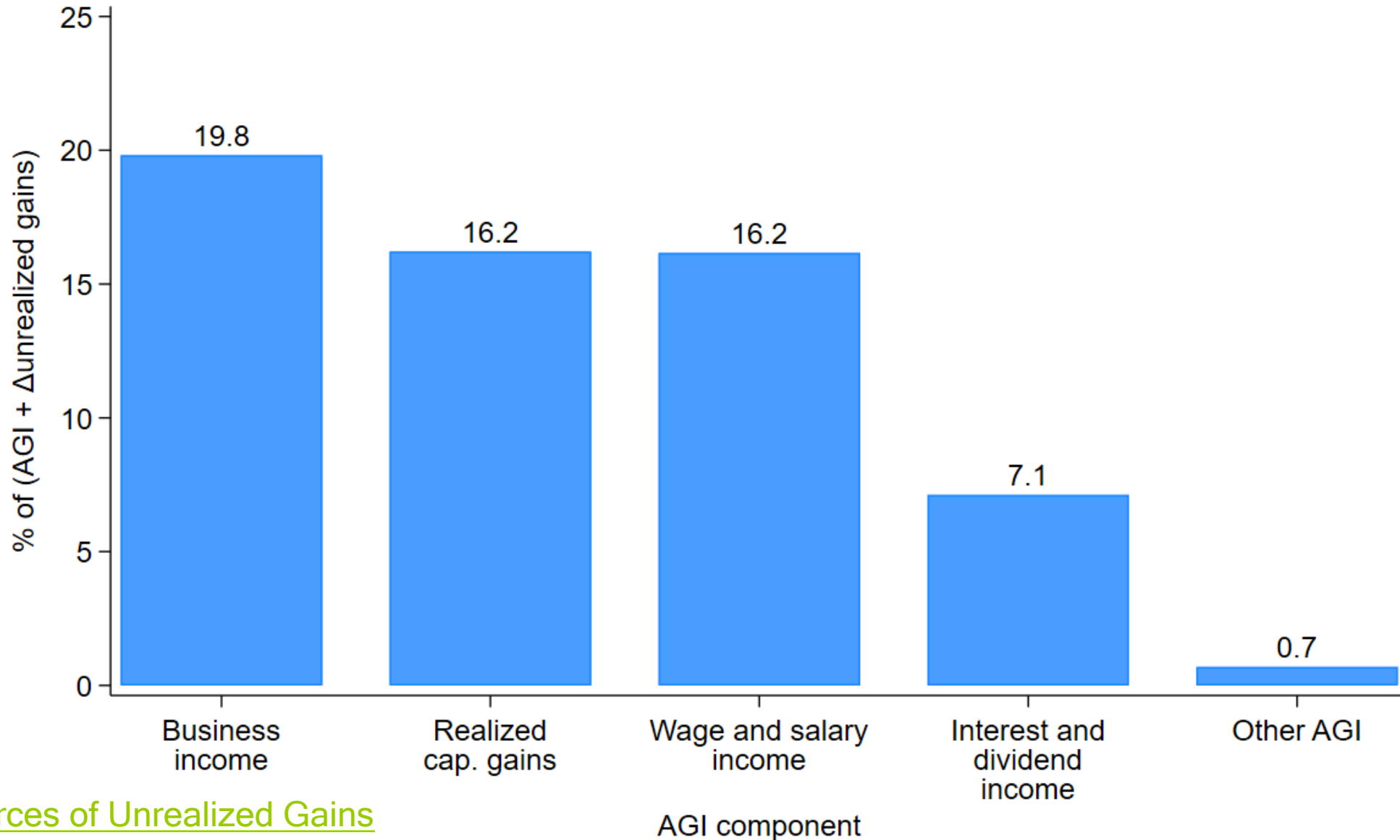
# How Much Unrealized Gains Reduce Taxes (2022)



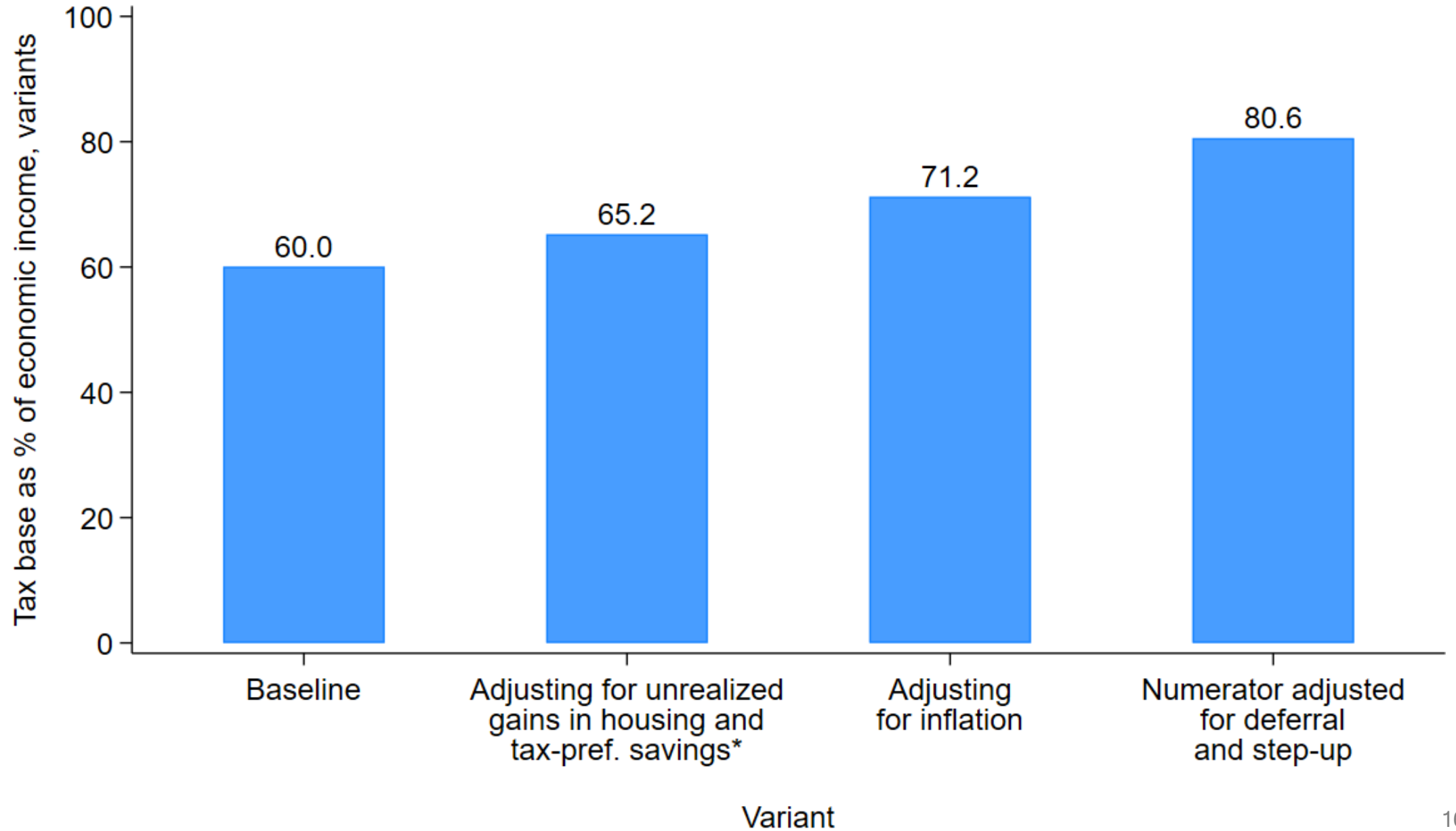
Time Series: [AGI / \(AGI +  \$\Delta\$ Unrealized Gains\)](#), [Tax / AGI](#), [Tax / \(AGI +  \$\Delta\$ Unrealized Gains\)](#)

# What Drives Up AGI?: Components of AGI for Top 1%, 2022

- As share of AGI + unrealized gains: AGI = 60%, unrealized gains = 40%



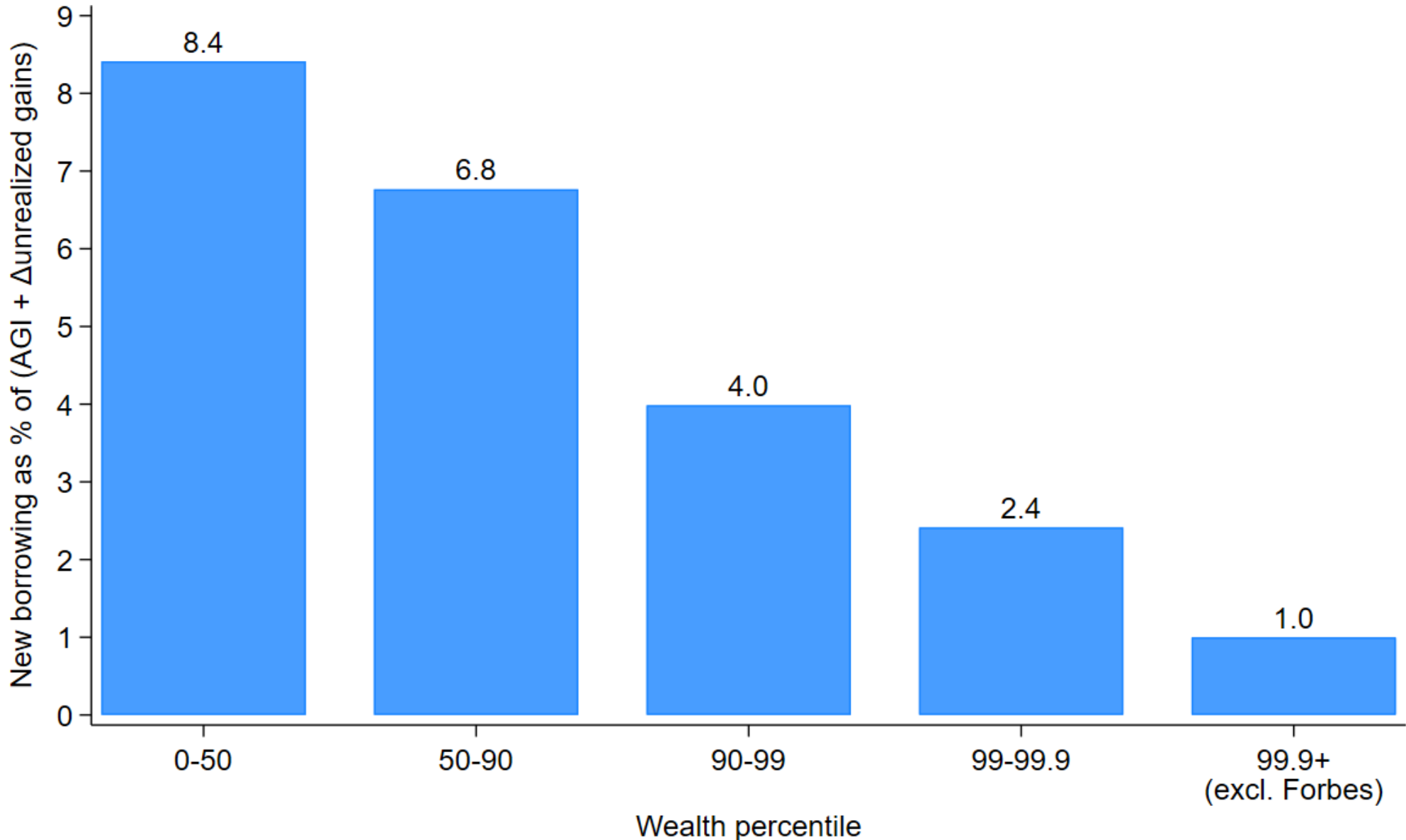
# Tax Base as Percent of Economic Income, Variants: Top 1% Wealth



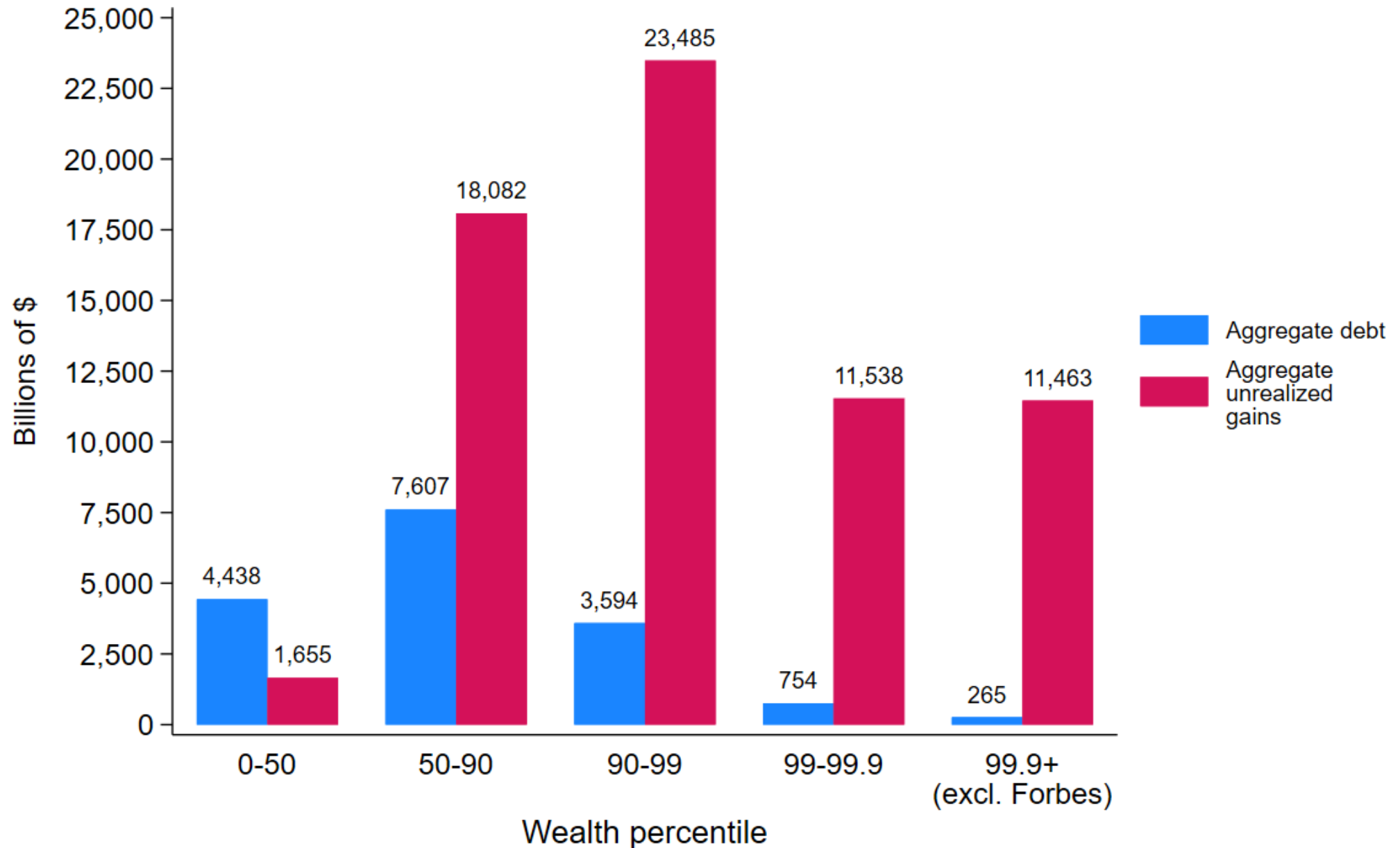


# How Much Borrowing Is There?

## New Borrowing as % of (AGI + $\Delta$ Unrealized Gains) by Wealth, 2022



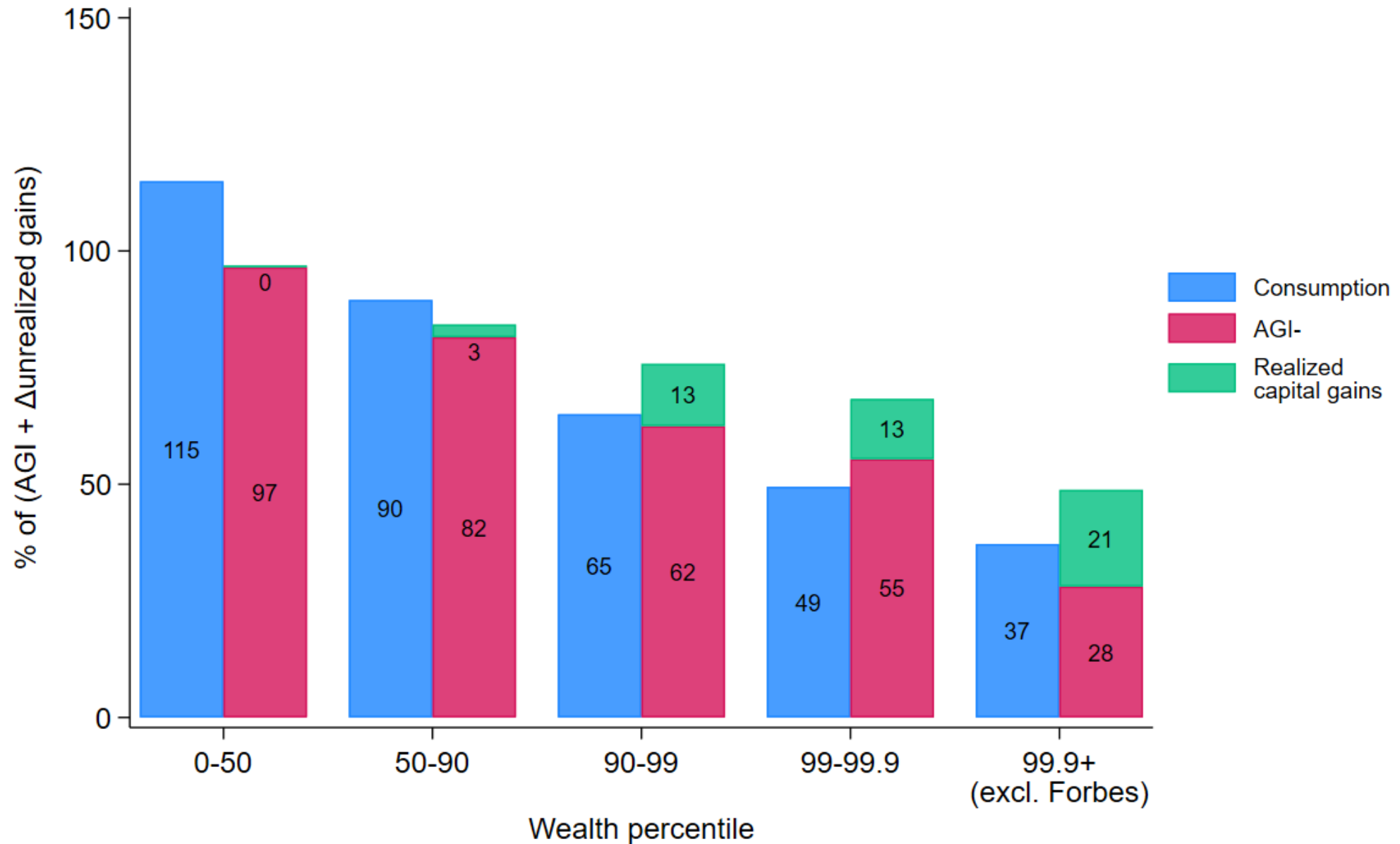
# Aggregate Unrealized Gains & Borrowing, 2022



# Why Do the Rich Borrow So “Little” Compared to Unrealized Gains?

- Pseudo-panel methodology (Feiveson and Sabelhaus 2019; Mian, Straub, and Sufi 2021)
  - For each *group* we observe in each period, AGI, net-wealth and its portfolio composition, returns on asset categories, and gifts and inheritances
  - This allows us to back out estimates of consumption and savings behavior

# Why Is There So Little Borrowing?: Consumption and AGI Shares by Wealth, 2022



# Why Liquid Income > Consumption for the Rich

- Why is consumption so “low” compared to AGI- or (AGI + change in unrealized gains)?
- High AGI (i.e., liquid income)
  - A lot of business income, realized gains, wages
- Low consumption (i.e., high savings)
  - Unclear: bequest motive?
  - Perhaps declining return to consuming. Only so many beds you can sleep in each year.
  - Ingrained habits?
  - Wealth itself is (*contra* Veblen) the ultimate status good?

# Borrowing Robustness Checks

Robustness checks:

- Compare to Financial Accounts & external margin-borrowing data
  - [Distributing “excess” margin-borrowing](#)
- Personal borrowing via entities
  - [Distributing borrowing by partnerships and S-Corps](#)
- Comparison to estate tax data
  - [Table](#)

. . . do not qualitatively change the story on borrowing by the rich.

# Conclusion

- $AGI / (AGI + \text{change in unrealized gains}) = 60\%$  for top 1% in terms of wealth (average 2004-2022)
- Using  $(AGI + \text{change in unrealized gains})$  as a benchmark, tax system is still progressive, but less so than using AGI as our measure of income
  - Still, rich overall are paying higher taxes as a % of  $(AGI + \text{change in unrealized gains})$  than billionaires are
- New borrowing each year is fairly small
  - Buy, borrow, die seems not to be a primary tax avoidance strategy
- Consumption is much less than AGI for top 1% wealth holders
  - Explains why buy, borrow, die may be used less than appears in media

# Potential Implications of Results

- **Tax Rates:** Raising existing rates reaches 60% of AGI + change in unrealized gains for top 1%
  - Existing taxes “miss” 40%
  - Can reach most income without new types of taxes
- **Borrowing:** Buy, borrow, die seems not to be a *primary* avoidance mechanism for rich
  - Instead: “buy, save, die”
- **Broader point:** It’s important not to reason too much about the rich in general from what we know about certain billionaires
  - Forbes 400 own 4% of wealth of the top 10% as a whole
- **Caveat:**
  - That the realizations rule is somewhat less of a problem than we thought ≠ Not a problem
  - Many innovative tax reforms could still make sense. Indeed we’ve advocated for them and still do (e.g., taxing the borrowing of the super-rich)!



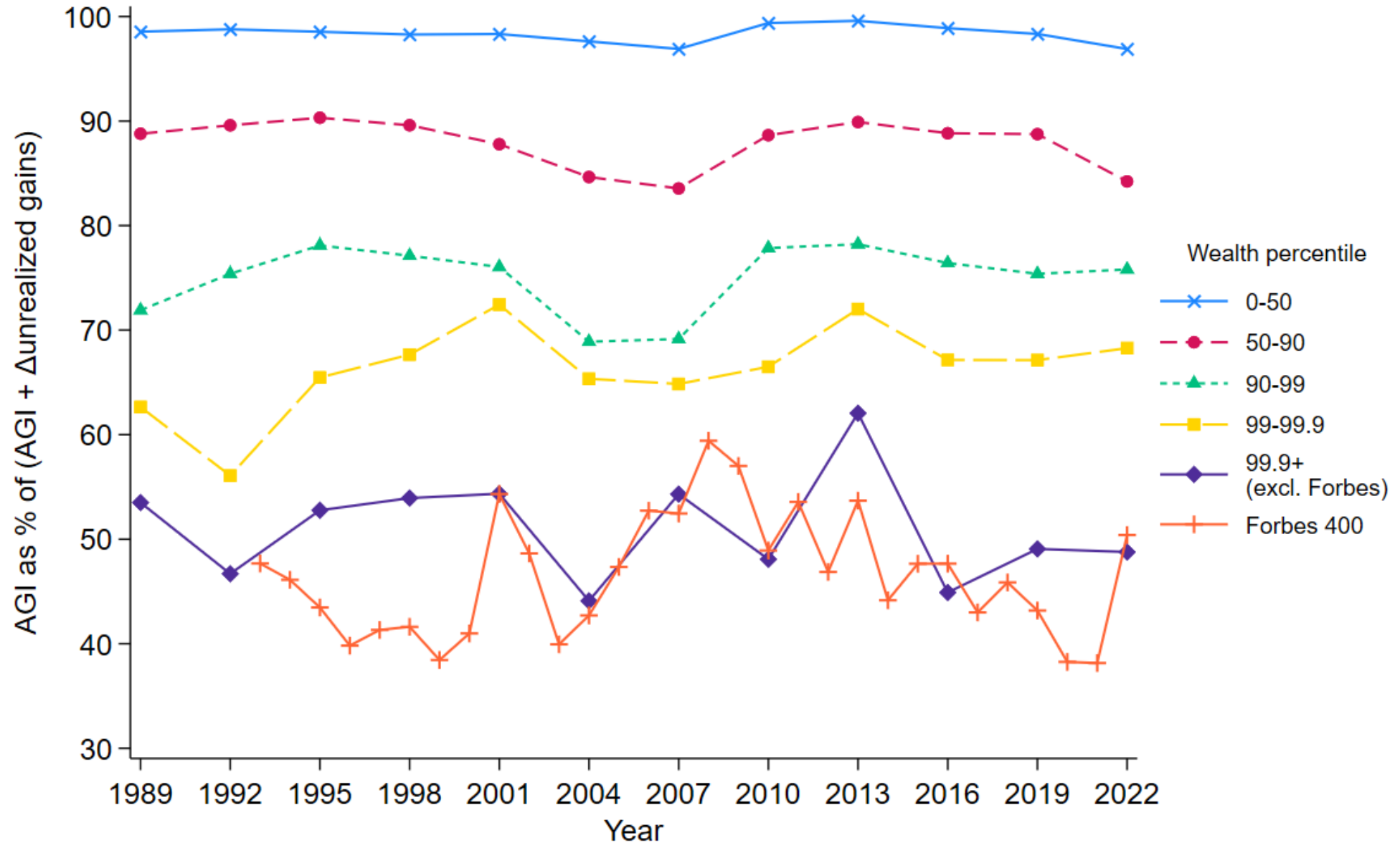
# Additional Slides

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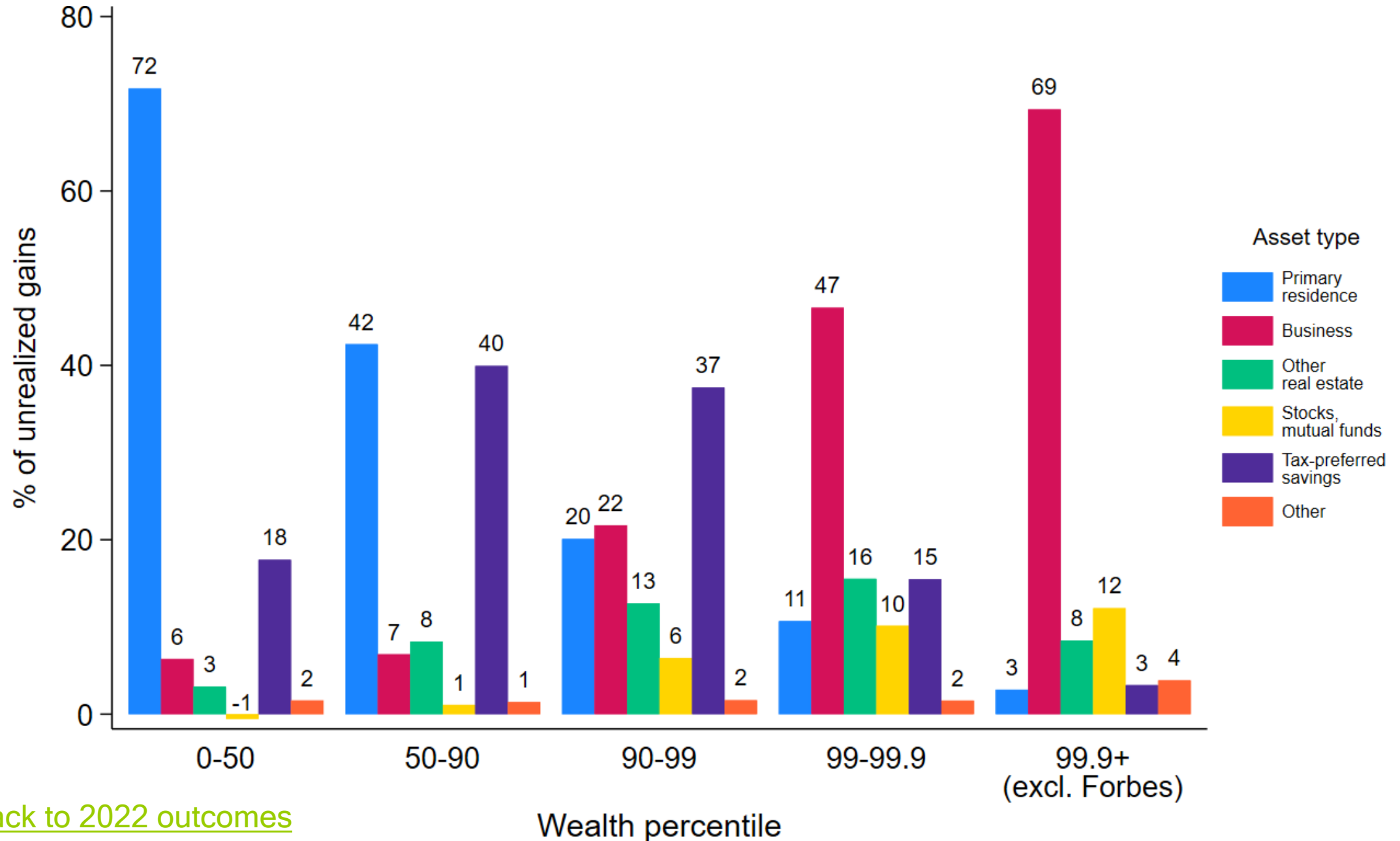
# Figures

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# How Much Unrealized Gains Reduce the Tax Base, Over Time

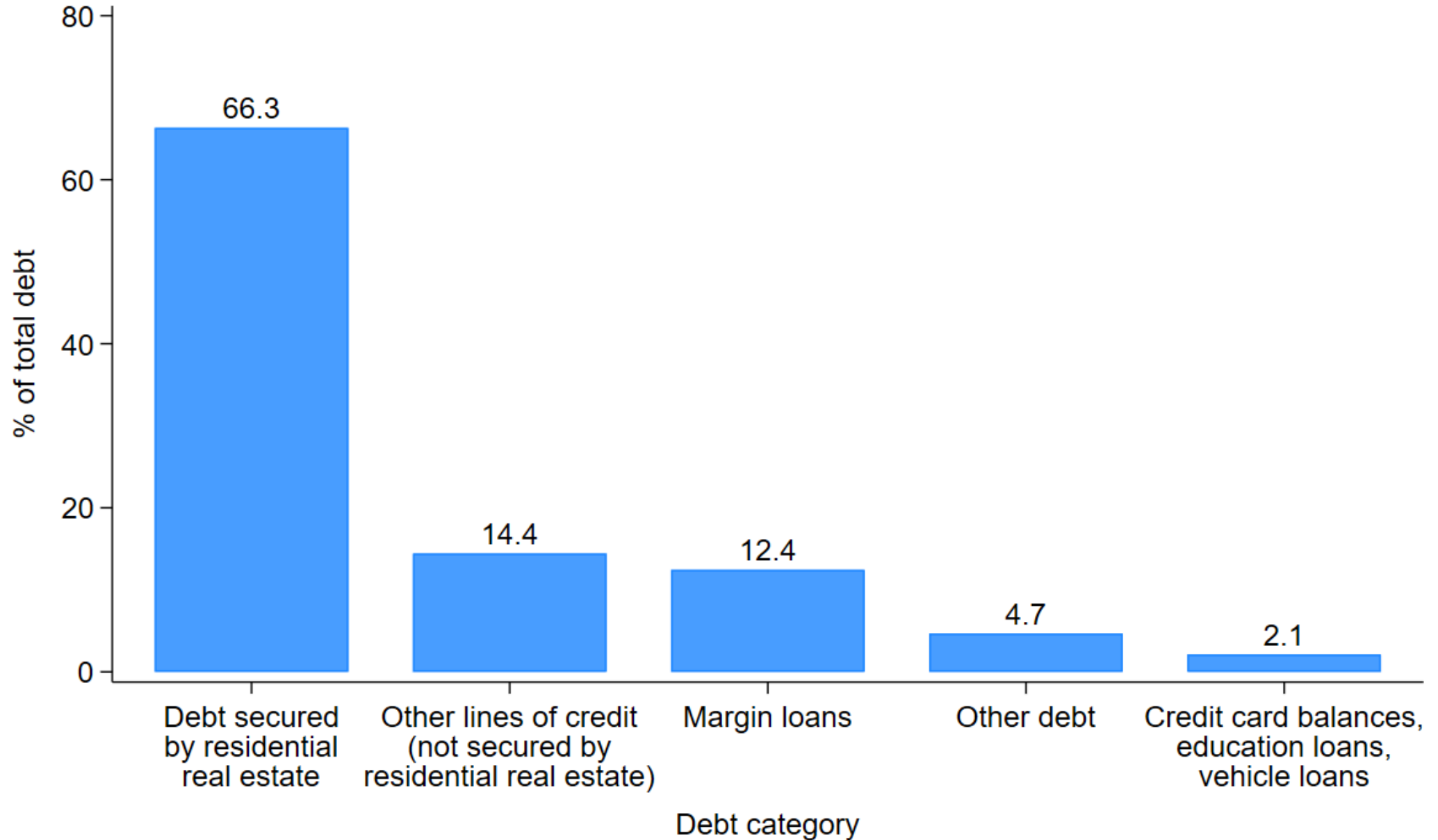


# Unrealized Gains by Asset Type, Average 2004-2022

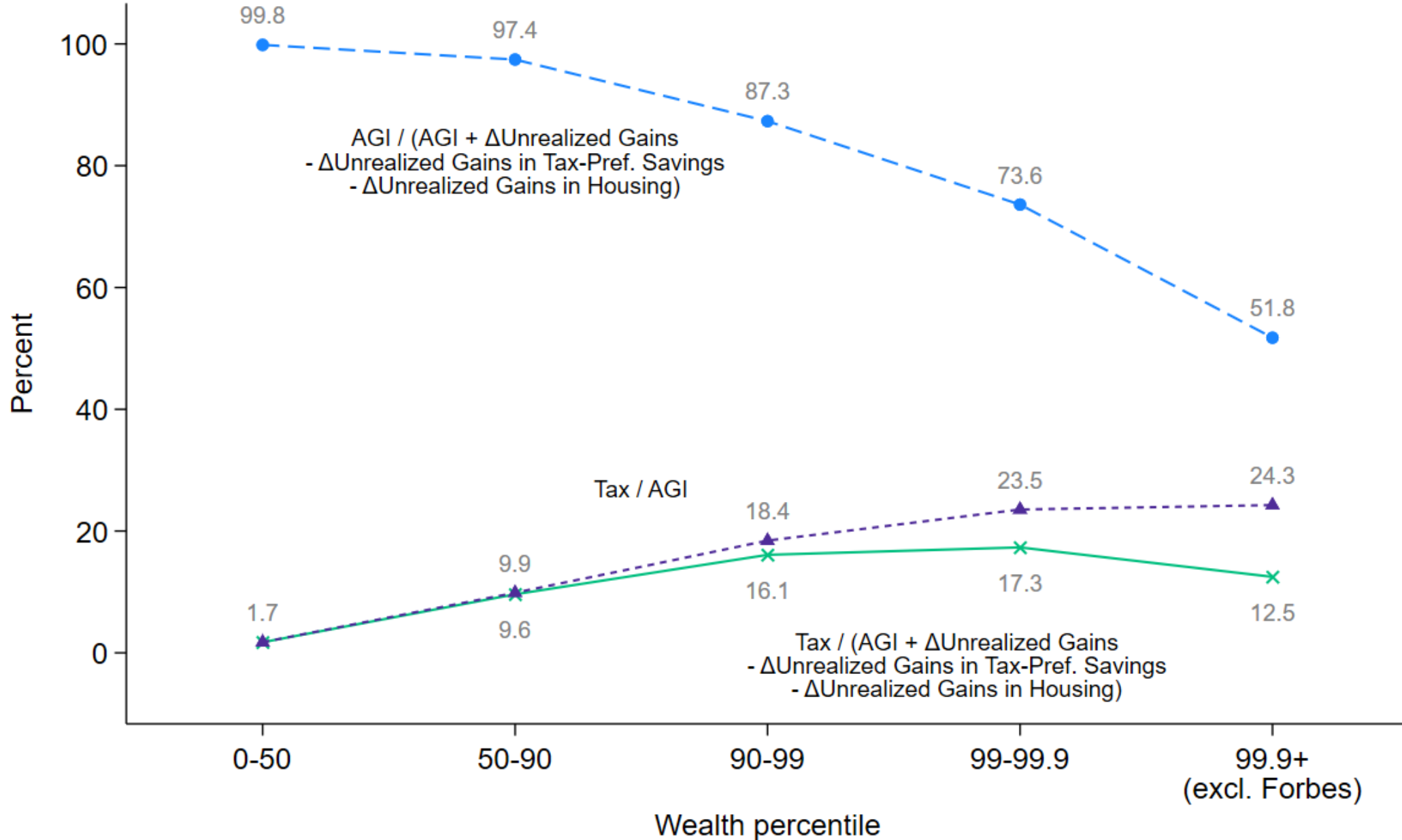


[Back to 2022 outcomes](#)

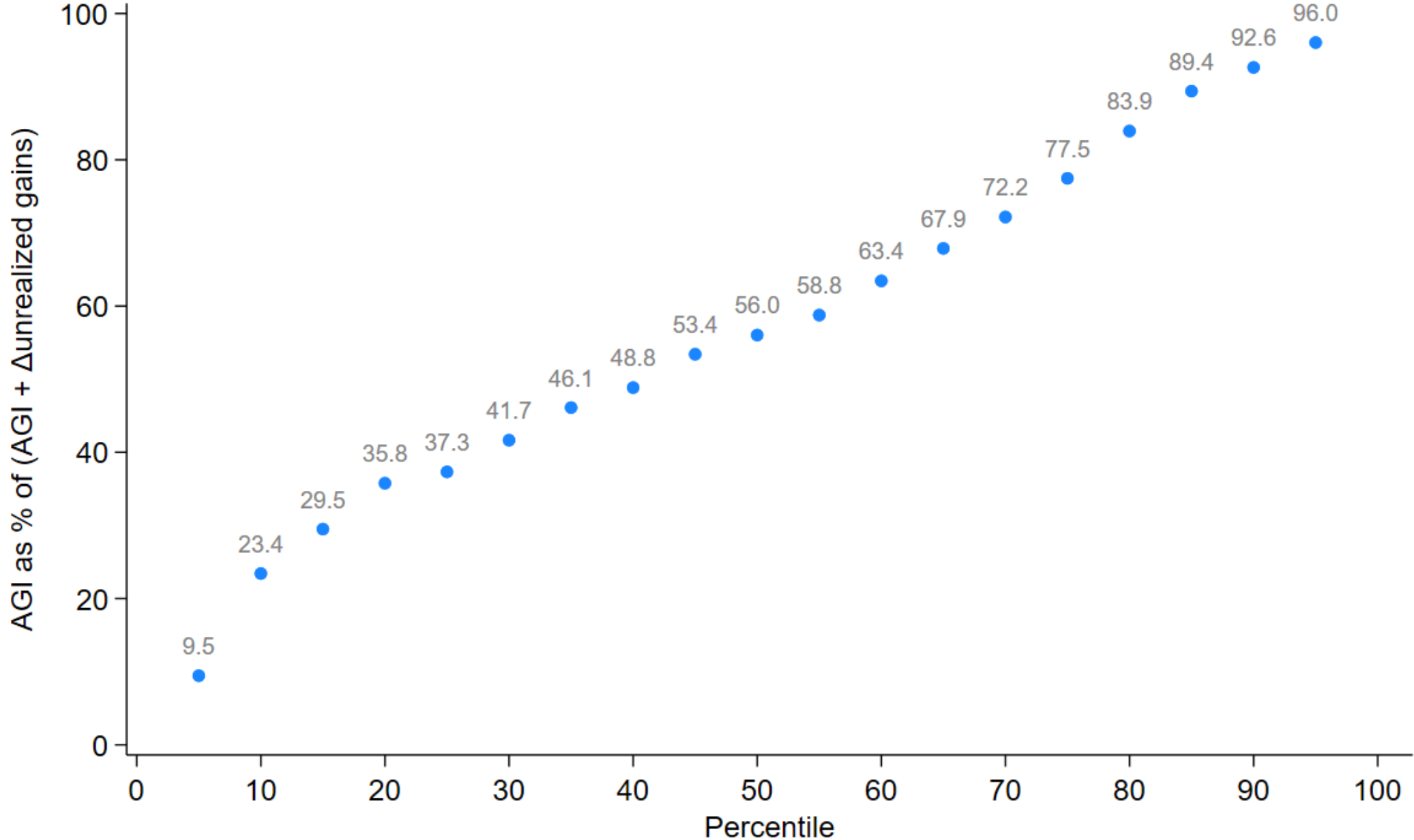
# Sources of Debt, Top 1% of Wealth Distribution, 2022



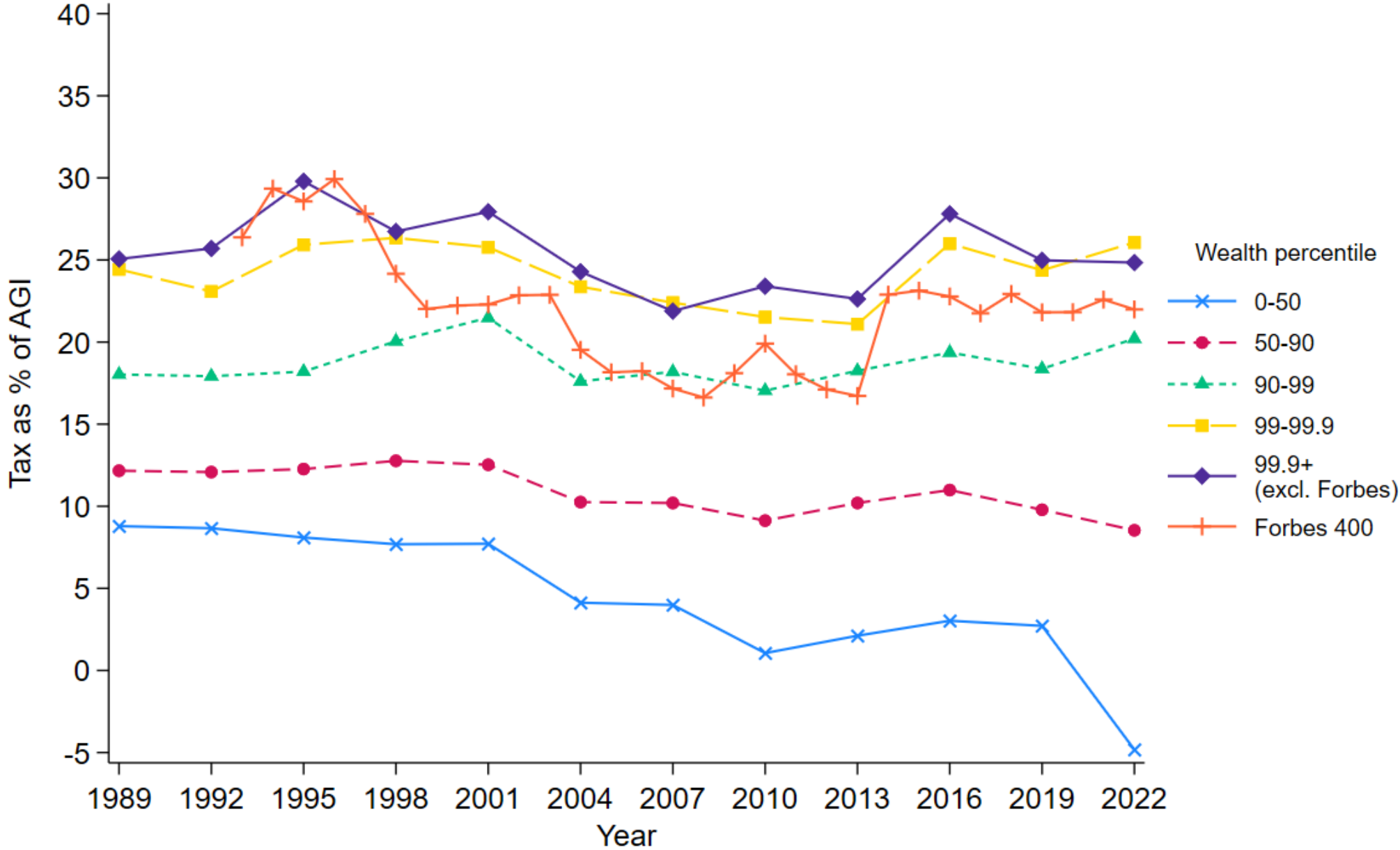
# Appendix Figure 1. Tax Base and Tax Rates Adjusting for Tax-Preferred Savings and Housing, Average 2004-2022



# AGI as % of (AGI + $\Delta$ Unrealized Gains) by Household, Top 1% of Wealth Distribution, 2022



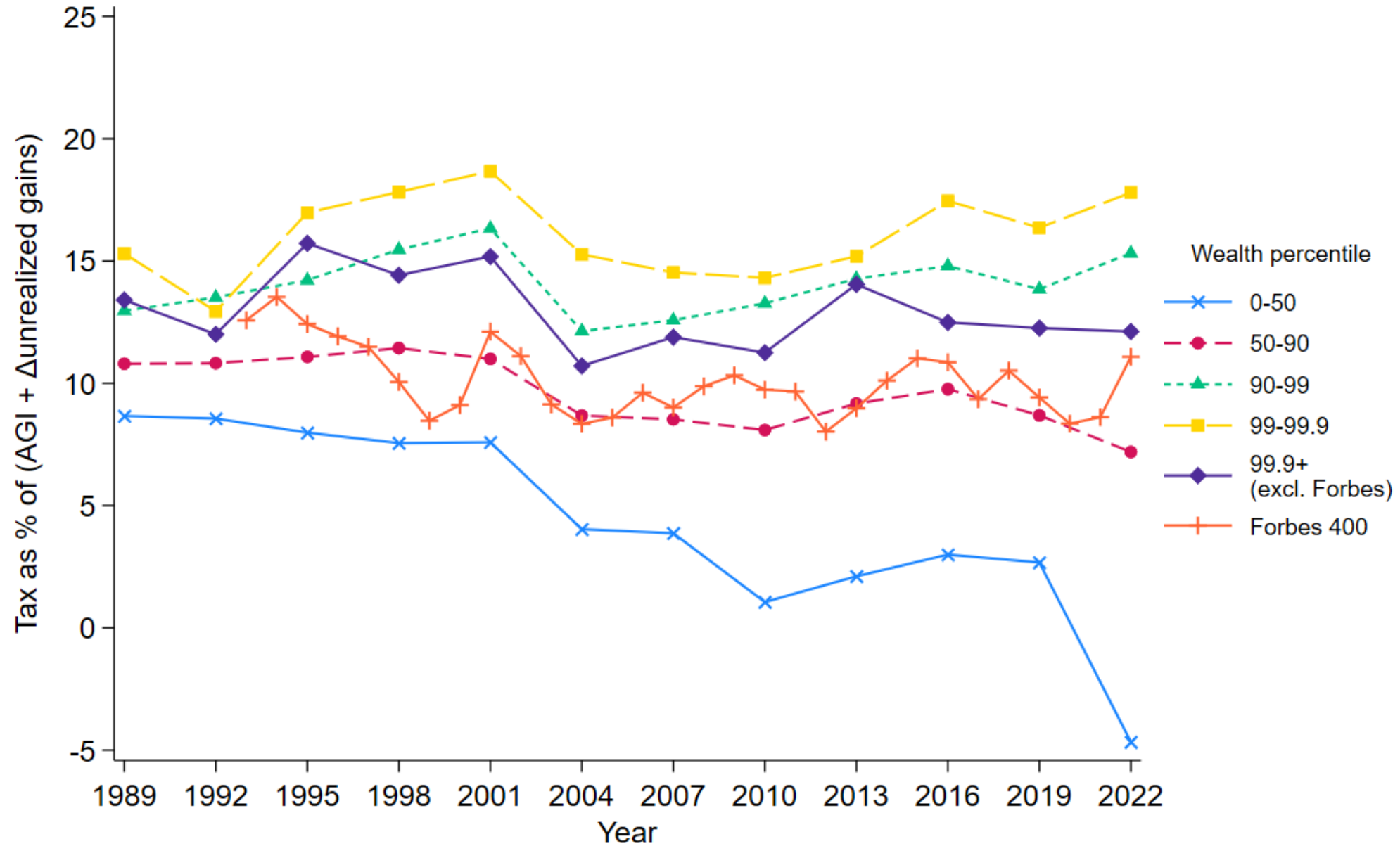
# Federal Income Tax as % of AGI



[Back to 2022 outcomes](#)

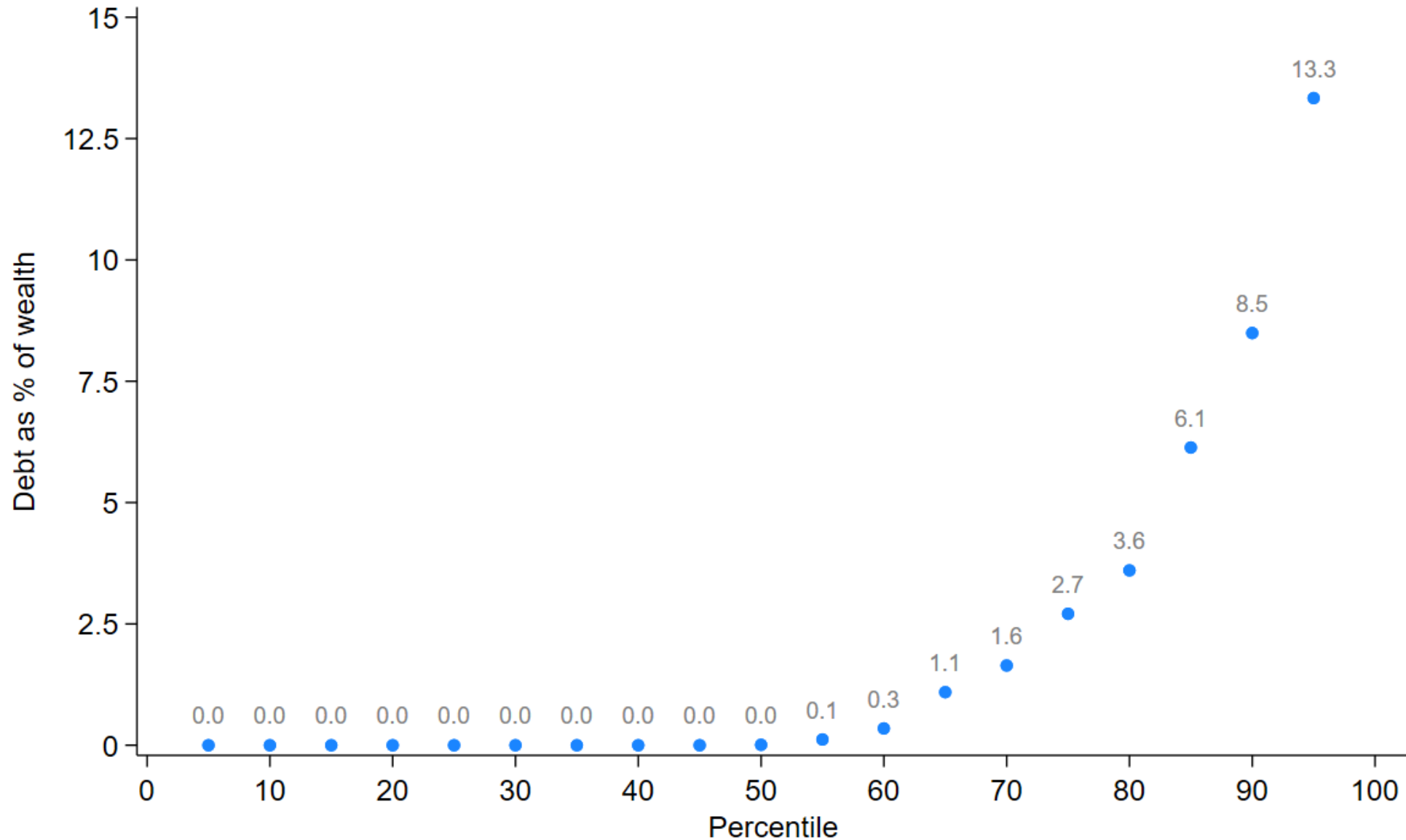


# Federal Income Tax as % of (AGI + $\Delta$ Unrealized Gains)

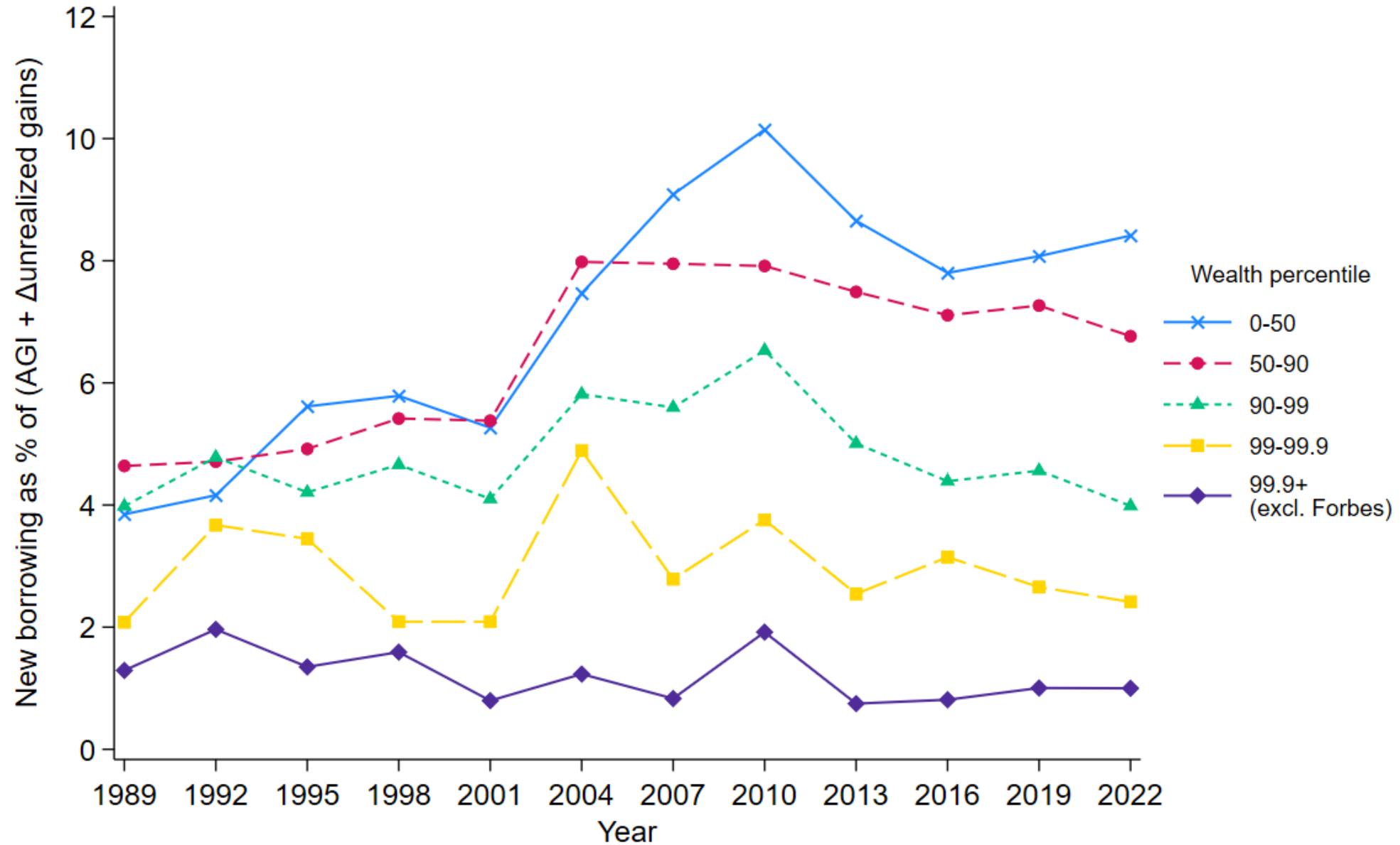


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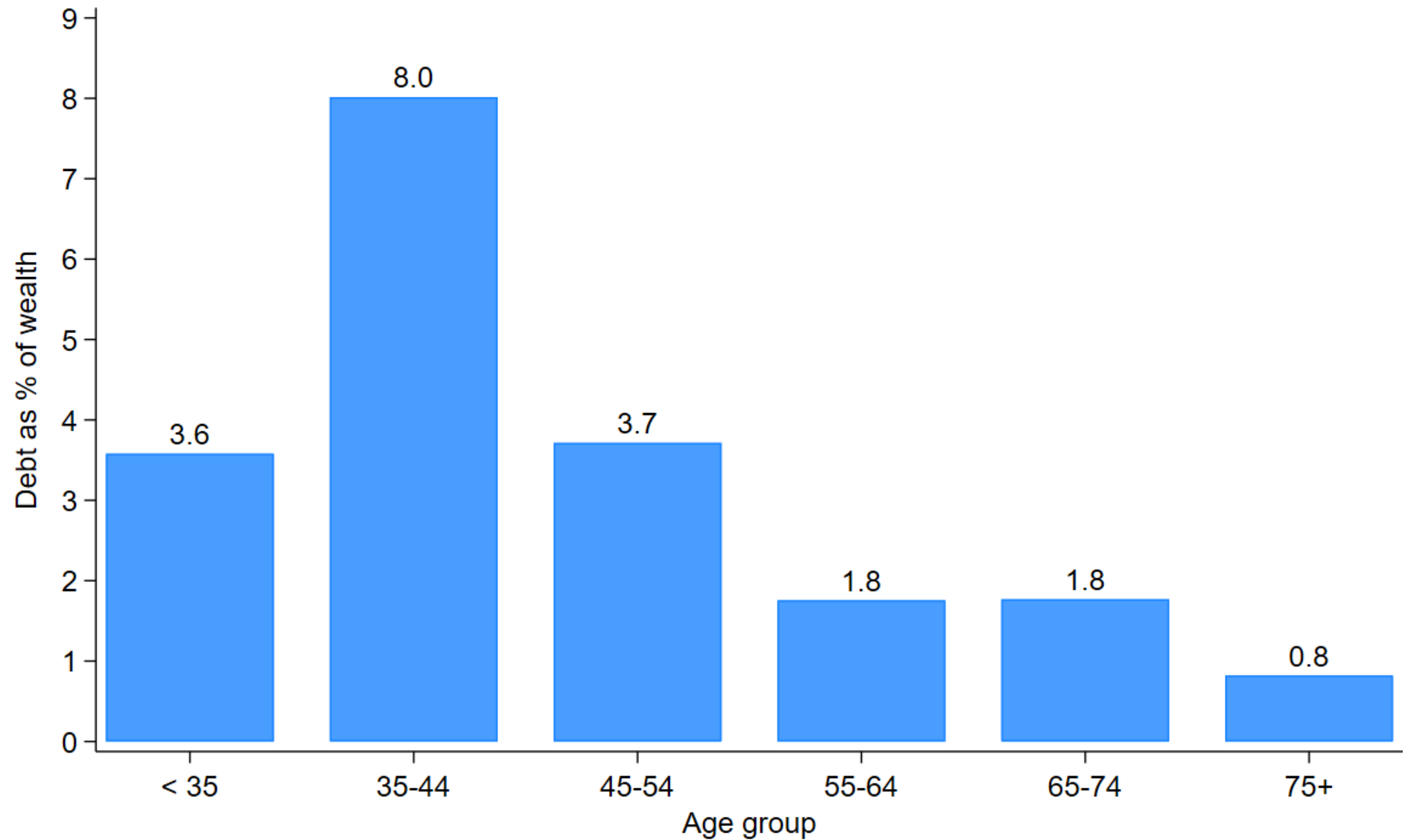
# Debt as % of Wealth by Household, Top 1% of Wealth Distribution, 2022



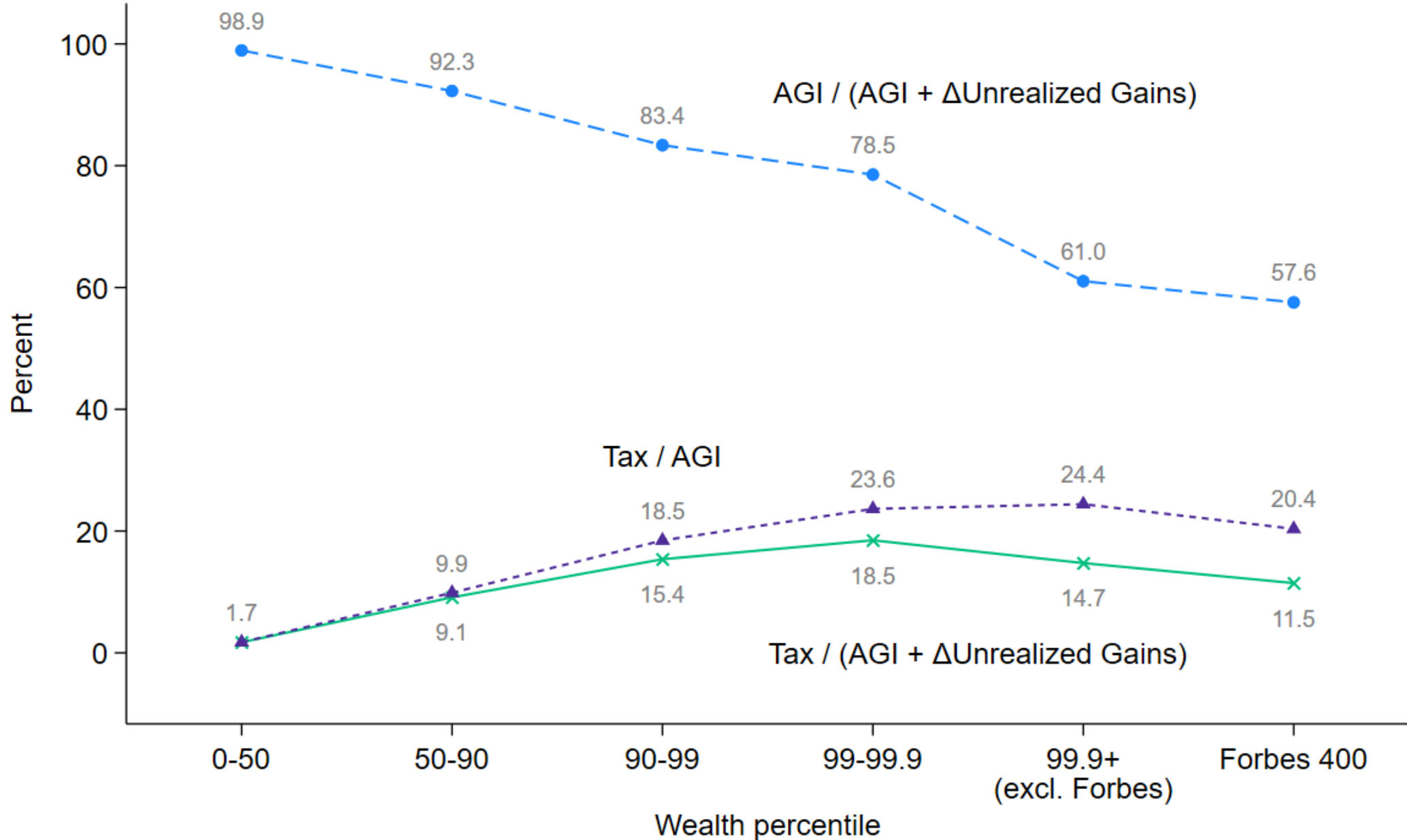
# New Borrowing as % of (AGI + $\Delta$ Unrealized Gains)



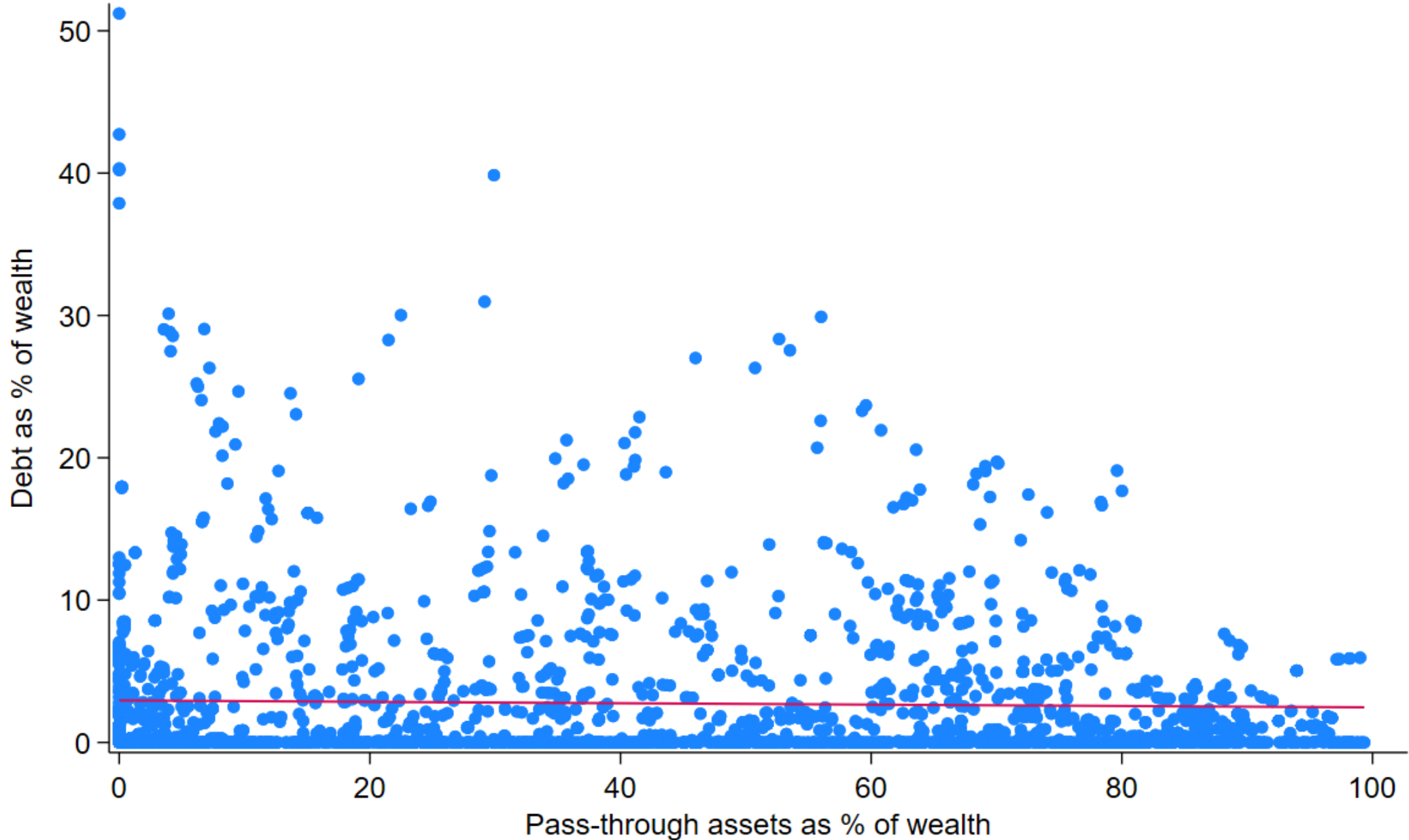
# Debt as % of Wealth by Age Group, Top 1% of Wealth Distribution, 2022



# Tax Base and Rates Adjusting for Inflation, Average 2004-2022



# Debt vs. Passthrough Assets as % of Wealth, Top 1% of Wealth, 2022



# Tables

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# Appendix Table 1. Annual Factors Used to Scale SCF to SOI, 1989-2022

AGI Bin (Nominal Dollars)	AGI			Federal Tax Liability		
	Average	Minimum	Maximum	Average	Minimum	Maximum
	(1)	(2)	(3)	(4)	(5)	(6)
\$1 to Under \$25,000	1.25	1.14	1.33	1.43	0.01	2.56
\$25,000 to Under \$50,000	1.06	1.00	1.13	1.12	0.92	1.49
\$50,000 to Under \$100,000	0.95	0.77	1.02	0.99	0.68	1.67
\$100,000 to Under \$1,000,000	0.73	0.51	0.88	0.68	0.43	0.84
\$1,000,000 or More	0.69	0.46	0.85	0.62	0.41	0.77



## Appendix Table 2. Annualized Growth of Unrealized Capital Gains and Net Worth, 1989-2022

Wealth Percentile	Average Nominal Growth Rate	
	Unrealized Gains	Net Worth
	(1)	(2)
0-50	0.062	0.052
50-90	0.056	0.057
90-99	0.059	0.063
99-99.9	0.057	0.066
99.9+ (Excluding Forbes)	0.069	0.074
Forbes 400	0.080	0.084

# Appendix Table 3. AGI as % of (AGI + $\Delta$ Unrealized Gains), With Robustness Methods

Wealth Percentile	Average, 2004-2022			2022		
	Baseline	Robustness 1	Robustness 2	Baseline	Robustness 1	Robustness 2
	(1)	(2)	(3)	(4)	(5)	(6)
0-50	98.2	94.3	96.4	96.9	93.6	94.9
50-90	86.9	82.5	77.6	84.2	81.6	75.8
90-99	74.5	73.4	64.3	75.8	79.0	72.0
99-99.9	67.3	70.2	59.9	68.3	68.4	60.0
99.9+ (Excluding Forbes)	50.2	67.9	53.3	48.8	73.3	57.6
Forbes 400	48.1	68.5	66.6	50.4	81.7	68.7

# Appendix Table 4. Average Wealth and Average Borrowing by Wealth Group, 2022

Wealth Percentile	Average Net Worth (Thousands of Nominal \$)	Average Borrowing, Does Not Include Non- Residential Property Debt and Loans from Household- Owned Business (Thousands of Nominal \$)	Average Borrowing, Includes Non-Residential Property Debt and Loans from Household-Owned Business (Thousands of Nominal \$)
	(1)	(2)	(3)
0-50	62	68	68
50-90	841	145	148
90-99	4,919	304	329
99-99.9	24,334	638	752
99.9+ (Excluding Forbes)	155,414	2,011	2,395

# Appendix Table 5. Aggregate Borrowing / Aggregate Wealth by Wealth Group, Comparing Debt Concepts, 2004-2022 Averages

Wealth Percentile	Does Not Include Non-Residential Property Debt and Loans from Household-Owned Business	Includes Non-Residential Property Debt and Loans from Household-Owned Business
	(1)	(2)
0-50	1.772	1.784
50-90	0.215	0.221
90-99	0.073	0.083
99-99.9	0.035	0.049
99.9+ (Excluding Forbes)	0.014	0.028

# Appendix Table 6. Wealth Cutoffs and Average Net Worth by Percentile, 2022

	Wealth Percentile					
	0-50	50-90	90-99	99-99.9	99.9+ (Excl. Forbes)	Forbes 400
	(1)	(2)	(3)	(4)	(5)	(6)
Lower Bound (\$ Millions, 2022 Dollars)	-0.56	0.25	2.29	13.98	62.13	2,700
Average Net Worth (\$ Millions, 2022 Dollars)	0.06	0.84	4.92	24.33	155.41	10,012
Aggregate Net Worth (\$ Millions, 2022 Dollars)	4,053,880	44,154,852	58,164,512	28,786,204	20,463,764	4,004,800

# Appendix Table 7. AGI as % of (AGI + $\Delta$ Unrealized Gains) Variants

	Average, 2004-2022			2022		
	AGI as % of (AGI + $\Delta$ Unrealized Gains)	AGI as % of (AGI + $\Delta$ Unrealized Tax-Pref. Savings Gains)	AGI as % of (AGI + $\Delta$ Unrealized Housing Gains)	AGI as % of (AGI + $\Delta$ Unrealized Gains)	AGI as % of (AGI + $\Delta$ Unrealized Tax-Pref. Savings Gains)	AGI as % of (AGI + $\Delta$ Unrealized Housing Gains)
Wealth Percentile	(1)	(2)	(3)	(4)	(5)	(6)
0-50	98.2	98.5	99.8	96.9	97.5	99.8
50-90	86.9	91.6	97.4	84.2	89.7	97.2
90-99	74.5	82.3	87.3	75.8	82.4	87.1
99-99.9	67.3	70.9	73.6	68.3	71.6	74.0
99.9+	50.2	51.0	51.8	48.8	49.4	49.9
(Excluding Forbes)						
Forbes 400	48.1			50.4		

# Appendix Table 8. Tax and AGI as % of (AGI + $\Delta$ Unrealized Gains) Variants, Average 2004-2022

Wealth Percentile	Outcome as % of AGI		Outcome as % of (AGI + $\Delta$ Unrealized Gains)		Outcome as % of (AGI + $\Delta$ Unrealized Gains - $\Delta$ Unrealized Tax-Pref. Savings Gains)		Outcome as % of (AGI + $\Delta$ Unrealized Gains - $\Delta$ Unrealized Tax-Pref. Savings Gains - $\Delta$ Unrealized Housing Gains)	
	Tax	AGI	Tax	AGI	Tax	AGI	Tax	AGI
	(1)	(2)	(4)	(5)	(4)	(5)	(4)	(5)
0-50	1.7	100	1.7	98.2	1.7	98.5	1.7	99.8
50-90	9.9	100	8.6	86.9	9.0	91.6	9.6	97.4
90-99	18.4	100	13.7	74.5	15.2	82.3	16.1	87.3
99-99.9	23.5	100	15.8	67.3	16.7	70.9	17.3	73.6
99.9+ (Excluding Forbes)	24.3	100	12.1	50.2	12.3	51.0	12.5	51.8
Forbes 400	20.1	100	9.6	48.1				

# Appendix Table 9. Aggregate Borrowing / Aggregate Unrealized Gains

Year	Wealth Percentile				
	0-50	50-90	90-99	99-99.9	99.9+ (Excl. Forbes)
	(1)	(2)	(3)	(4)	(5)
1989	2.63	0.41	0.13	0.05	0.03
1992	3.37	0.44	0.18	0.07	0.04
1995	3.81	0.50	0.18	0.09	0.03
1998	3.33	0.51	0.19	0.06	0.04
2001	3.12	0.43	0.16	0.07	0.02
2004	3.11	0.51	0.17	0.12	0.03
2007	2.90	0.47	0.17	0.07	0.02
2010	16.16	0.68	0.27	0.10	0.04
2013	20.96	0.73	0.21	0.08	0.02
2016	6.93	0.62	0.17	0.08	0.02
2019	4.81	0.63	0.17	0.07	0.02
2022	2.68	0.42	0.15	0.07	0.02



# Appendix Table 10. Aggregate Borrowing / Aggregate Wealth

Year	Wealth Percentile				
	0-50	50-90	90-99	99-99.9	99.9+ (Excl. Forbes)
	(1)	(2)	(3)	(4)	(5)
1989	0.79	0.17	0.06	0.03	0.02
1992	0.90	0.18	0.08	0.04	0.02
1995	1.06	0.18	0.07	0.04	0.02
1998	1.07	0.19	0.08	0.03	0.02
2001	0.93	0.17	0.07	0.03	0.01
2004	1.27	0.23	0.08	0.05	0.02
2007	1.41	0.23	0.08	0.04	0.01
2010	2.81	0.24	0.09	0.04	0.02
2013	2.29	0.22	0.07	0.03	0.01
2016	1.83	0.21	0.06	0.03	0.01
2019	1.71	0.21	0.06	0.03	0.01
2022	1.10	0.17	0.06	0.03	0.01

# Appendix Table 11. Distributing "Excess" Margin and Insurance Policy Loans in Financial Accounts, 2022

Wealth Percentile	Share of SCF Margin Loans	Share of SCF Policy Loans	SCF Debt (Billions of Nominal \$)	SCF Debt + Excess Margin and Policy Loans (Billions of Nominal \$)	Unrealized Gains (Billions of Nominal \$)	SCF Debt / Unrealized Gains	(SCF Debt + Excess Margin and Policy Loans) / Unrealized Gains
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
0-50	0.000	0.127	4438	4,446	1,655	2.681	2.686
50-90	0.045	0.243	7607	7,636	18,082	0.421	0.422
90-99	0.225	0.153	3594	3,670	23,485	0.153	0.156
99-99.9	0.447	0.345	754	908	11,538	0.065	0.079
99.9+ (Excluding Forbes)	0.284	0.133	265	357	11,463	0.023	0.031

## Appendix Table 12. Debt of Partnerships and S-Corporations, 2017

Entity Type	Loans Received	Equity	Assets	Debt / Equity	Debt / Assets
	(Millions of Nominal \$)	(Millions of Nominal \$)	(Millions of Nominal \$)		
	(1)	(2)	(3)	(4)	(5)
All Partnerships	5,992	19,279	32,404	0.311	0.185
All S-Corporations	1,425	1,554	4,520	0.917	0.315
Non-Financial Partnerships	5,465	6,799	14,682	0.804	0.372
Non-Financial S-Corporations	1,332	1,449	4,040	0.919	0.330

# Appendix Table 13. Debt / Assets and Debt / Equity by Entity Status, 2014-2017

	Debt/Assets	Debt/Equity
	(1)	(2)
Partnership	-0.0636***	-0.263***
All S-Corporations	-0.00717	-0.0459
Constant	0.615***	2.678***
	-0.0164	-0.105
Observations	136	136
R-squared	0.920	0.856
Year FEs	Yes	Yes
Industry FEs	Yes	Yes

Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

# Appendix Table 14. Distributing “Excess” Partnership Borrowing, 2022

Wealth Percentile	Share of All	SCF Debt (Billions of Nominal \$)	SCF Debt +	Unrealized Gains (Billions of Nominal \$)	SCF Debt / Unrealized Gains	(SCF Debt +
	Private Businesses Owned by Wealth Group		Excess Partnership Borrowing (Billions of Nominal \$)			Excess Partnership Borrowing) / Unrealized Gains
	(1)	(2)	(3)	(4)	(5)	(6)
0-50	0.003	4,438	4,440	1,655	2.681	2.683
50-90	0.058	7,607	7,655	18,082	0.421	0.423
90-99	0.293	3,594	3,840	23,485	0.153	0.163
99-99.9	0.306	754	1,010	11,538	0.065	0.088
99.9+ (Excluding Forbes)	0.340	265	549	11,463	0.023	0.048

# Appendix Table 15. Debt as % of Assets: Estate Tax vs. SCF, 2019

Value of Assets (Gross Estate)	Estate Tax	SCF: All Respondents	SCF: All Respondents ("Expanded Debt")	SCF: ≥ 70 Years Old	SCF: ≥ 70 Years Old ("Expanded Debt")
	(1)	(2)	(3)	(4)	(5)
\$11.4 Million < \$20 Million	3.4	4.1	5.2	2.3	2.5
\$20 Million < \$50 Million	3.5	4.0	6.0	2.6	2.7
\$50 Million or More	4.2	1.3	3.5	0.6	0.8