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Consumers' Share and Producers' Share of the General Sales Tax

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Abstract:

For each state with a general sales tax, we estimate the share of the sales tax revenue generated by final consumption spending of the state's residents. In 2013, the consumers' share ranges from 19 percent to 85 percent with a 45-state (states with a general sales tax) average of 53 percent. We also compare consumers' share in 1999 and 2013 with previously published data from 1989. We find that average consumers' share dropped between 1989 and to 2013. Thirty-two states saw a decrease while 13 states saw an increase in consumers' share over that time.

Introduction:

In practice, general sales tax is levied on business-to-business transactions as well as consumer purchases. Ring (1989) and Ring (1999) reported consumer share estimates for each state with a general sales tax in 1979 and 1989, respectively. This paper presents new consumers' share estimates for 1999 and for 2013. We estimate the percentage of states' general sales tax that is levied directly on final consumption spending.

Methodology:

The methodology follows the work in Ring 1999 with an update to the categories relevant for each state's general sales tax.

$$SHARE = \frac{CP}{CP + BP}$$

where CP represents the sales tax paid on consumer purchases and BP represents sales tax paid on primarily business purchases. (BP also includes small amounts of sales tax paid by nonprofits and governments in some states.)

To find each element of SHARE, we first determine how each state defines its sales tax base. To generate the sales tax paid on consumer expenditures, we use state-specific information on categories that were included and excluded from the general sales tax. For each state, we add average amounts spent by consumer units in each of six income classes (e.g., less than \$10,000, \$10,000 - \$14,999, etc.) on those spending categories that each state subjects to sales tax. This gives us average spending by consumer units in each income class. Average spending amounts are from the Bureau of Labor Statistics' Consumer Expenditure Survey (CEX).

To find aggregate consumer spending, we need to know the number of consumer units in each income class in each state. We reconcile the consumer units defined in the CE with the households and families defined somewhat differently in the Census Bureau's American Community Survey (ACS), following the methodology in Ring 1999, Appendix A. The CEX defines each family and each person living alone to be a separate consumer unit. Nonfamily persons (i.e., unrelated individuals) living together who make joint financial decisions constitute one consumer unit, but persons living together who are financially independent of one another constitute separate consumer units. As a result, CEX has more consumer units than ACS has households, since ACS uses only the family or nonfamily designator, but does not distinguish whether nonfamily household members are financially independent.

The CEX publishes the total number of consumer units in the U.S. by income bracket, but does not publish the number of consumer units by state. Therefore, we construct a nationwide ratio of consumer units per nonfamily household to account for the financially independent persons living in nonfamily households who would be counted as consumer units. Since there are more consumer units than households, this ratio will exceed 1.00. We develop these figures as shown below.

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Define $CUTOT_{US}$ to be the total number of consumer units in the U.S. Define $NFCU_{US}$ to be the total number of nonfamily consumer units in the U.S. Define $FHTOT_{US}$ to be the total number of family households in the U.S.

$$NFCU_{US} = CUTOT_{US} - FHTOT_{US}$$

The ratio of consumer units per nonfamily household ($RATNF_{US}$) can be given by

$$RATNF_{US} = \frac{NFCU_{US}}{NFTOT_{US}}$$

where $NFTOT_{US}$ is the total number of nonfamily households in the U.S.

Assuming this ratio holds for all states, the nonfamily consumer units in each state (i) are calculated as

$$NFCU_i = RATNF_{US} \times NFTOT_i$$

Combining with the family household consumer units ($FHCU_i$), the total consumer units in the state (i) are given by

$$CU_i = FHCU_i + NFCU_i$$

The income distribution data provided by the American Community Survey for family households and nonfamily households was used as-is assuming the distribution for members of nonfamily households was the same.

Multiplying CU_i for each income class times average spending for that income class gives total consumer spending in that income class. Adding CU_i , across all income classes gives total consumer spending, CP , for state i . Dividing CP by total sales tax collections ($CP + BP$) for the state in the calendar year of interest gives $SHARE$.

Findings:

The consumers' share ranged between 25 percent and 94 percent in 1999 with a 45-state average of 59%. In 2013, the consumers' share averaged 53 percent for the 45 states with a general sales tax, with a range 19 percent to 85 percent. These estimates reflect modest changes in consumers' share for most states even after adjusting for the changes in exemptions (see Ring, 1989, Ring, 1999).

The exemptions for each state changed little from 1989 to 1999 (three states began exempting food), reflected in no change in the average consumers' share figure for the two years. However, from 1999 to 2013 nine states began exempting food, three states began exempting consumer utilities, and four began exempting clothing. (We do not distinguish here between states that change to fully exempting an item and those that exempt most, but not all, purchases of that item.) By 2013, only eight states taxed food for home consumption at their full sales tax rate.

Data Sources:

Consumer Expenditure Survey, (2013). Table 1202: Income before taxes: Annual expenditure means, shares, standard errors, and coefficient of variation.

American Community Survey (2013, 1 year estimates). Table S1901: Income in the Past 12 Months (in 2013 Inflation-Adjusted Dollars).

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2013 Consumers' Share Calculations				
	2013 Effective Tax Rate (percent)	2013 Consumers' Sales Tax (\$ million)	2013 Total Sales Tax (\$ million)	2013 Consumers' Share (percent)
Alabama	4.00	1,625.5	2,344.6	69
Alaska	none			
Arizona	6.02	3,216.2	5,054.0	64
Arkansas	6.25	1,507.0	3,001.3	50
California	7.50	19,517.8	35,621.8	55
Colorado	2.90	1,248.4	2,490.4	50
Connecticut	6.35	1,893.7	3,955.7	48
Delaware	none			
Florida	6.00	8,061.4	21,187.3	38
Georgia	4.00	3,489.5	4,973.1	70
Hawaii	4.00	530.1	2,852.1	19
Idaho	6.00	811.3	1,350.1	60
Illinois	6.25	7,145.5	8,393.2	85
Indiana	7.00	4,350.1	6,908.0	63
Iowa	6.00	1,544.9	2,335.7	66
Kansas	6.23	1,708.9	2,931.5	58
Kentucky	6.00	1,906.1	3,067.0	62
Louisiana	4.00	1,307.4	3,017.4	43
Maine	5.13	580.6	1,117.1	52
Maryland	6.00	2,877.9	4,152.5	69
Massachusetts	6.25	3,148.1	5,351.8	59
Michigan	6.00	5,533.1	8,332.4	66
Minnesota	6.88	3,118.5	6,284.1	50
Mississippi	7.00	1,661.1	3,210.9	52
Missouri	4.23	2,084.7	3,243.6	64
Montana	none			
Nebraska	5.50	931.1	1,721.5	54
Nevada	6.85	1,358.1	3,697.6	37
New Hampshire	none			
New Jersey	7.00	5,050.3	8,733.3	58
New Mexico	5.13	836.7	1,720.7	49
New York	4.00	5,708.3	12,634.7	45
North Carolina	4.75	3,730.6	5,684.0	66
North Dakota	5.00	312.1	1,281.8	24
Ohio	5.58	5,095.7	8,938.0	57
Oklahoma	4.50	1,537.0	2,538.7	61
Oregon	none			
Pennsylvania	6.00	5,442.8	9,344.1	58
Rhode Island	7.00	554.8	900.2	62
South Carolina	6.00	2,017.1	2,991.9	67
South Dakota	4.00	353.8	891.5	40
Tennessee	7.00	3,910.1	7,144.1	55
Texas	6.25	11,570.8	26,369.4	44
Utah	5.95	991.8	1,843.6	54
Vermont	6.00	286.0	351.7	81
Virginia	5.15	2,928.2	3,735.4	78
Washington	6.50	3,608.6	11,450.3	32
West Virginia	6.00	832.4	1,247.8	67
Wisconsin	5.00	2,490.7	4,554.0	55
Wyoming	4.00	210.9	719.8	29
District of Col.	5.94	363.4	1,153.6	31
Total		138,989.2	260,823.1	53

Source: Kathryn Birkeland and Raymond Ring for 107th Annual Conference on Taxation, November 13, 2014

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Consumers' share comparisons						
	1989		1999		2013	
	Cons. Share	Tax base	Cons. Share	Tax base	Cons. Share	Tax base
Alabama	73	E	79	E	69	E
Alaska						
Arizona	50	D	51	D	64	D
Arkansas	60	H	58	H	50	D
California	53	C	55	C	55	C
Colorado	60	B	51	B	50	B
Connecticut	58	A	42	A	48	B
Delaware						
Florida	50	B	41	B	38	B
Georgia	64	J	53	F	70	F
Hawaii	28	G	25	G	19	G
Idaho	62	E	63	E	60	E
Illinois	68	C	88	C	85	C
Indiana	54	F	66	F	63	F
Iowa	59	D	63	D	66	B
Kansas	67	E	59	E	58	E
Kentucky	54	B	74	B	62	B
Louisiana	51	H	61	H	43	B
Maine	57	B	61	B	52	B
Maryland	60	B	75	B	69	B
Massachusetts	62	A	58	A	59	A
Michigan	58	F	64	F	66	F
Minnesota	56	A	69	B	50	A
Mississippi	66	E	72	E	52	E
Missouri	64	E	59	B	64	B
Montana						
Nebraska	60	D	63	D	54	D
Nevada	44	B	53	B	37	B
New Hampshire						
New Jersey	62	A	63	D	58	A
New Mexico	50	H	47	H	49	D
New York	66	C	60	C	45	A
North Carolina	62	H	67	D	66	D
North Dakota	60	B	62	B	24	B
Ohio	66	B	63	B	57	B
Oklahoma	66	E	80	E	61	E
Oregon						
Pennsylvania	64	A	62	A	58	A
Rhode Island	59	A	74	A	62	A
South Carolina	61	E	62	E	67	B
South Dakota	61	H	57	H	40	H
Tennessee	63	E	58	E	55	E
Texas	53	B	61	B	44	B
Utah	63	E	61	E	54	B
Vermont	56	B	94	B	81	A
Virginia	70	E	78	E	78	B
Washington	49	B	35	B	32	B
West Virginia	89	E	88	E	67	B
Wisconsin	62	B	63	B	55	B
Wyoming	54	H	60	H	29	D
Dist. of Columbia	44	B	36	B	31	B
Total	59		59		53	

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