

# The Iowa Sales and Use Tax Incidence Model

Presented by Aaron Barker  
Iowa Department of Revenue

Tuesday, September 26, 2017

Disclaimer: The views expressed here are those of the author and do not necessarily represent the views of, and should not be attributed to, the Iowa Department of Revenue



# Outline

- Definition of sales tax incidence
- Features of the sales tax in Iowa
- US Census Consumer Expenditure Survey (CEX)
- Correcting misreporting in CEX
- Application of Iowa sales tax to CEX
- Assumptions made for model
- Model results
- Implications
- Limitations and next steps

# Sales Tax Incidence Defined

- Tax incidence is who pays the tax
  - Buyers/Sellers
  - Employees/Employers
  - ***Across income spectrum***
- Third incidence can be described as share of income paid in tax compared to other taxpayers
  - Progressive = average < marginal rate – e.g. income
  - Regressive = average > marginal rate – e.g. sales, excise
  - Some taxes are unclear – e.g. property

# Sales Tax Considered

## Regressive

- Sales taxes generally considered regressive (Fullerton, Metcalf 2002)
- Rate is same regardless of income
- Cause is principally negative relationship between marginal income and marginal propensity to consume
- Some exemptions in place on necessities to reduce regressivity
  - Groceries
  - Clothing



# Iowa Sales and Use Tax

- Rate is 6% plus local option tax of up to 1%
- Goods are taxable unless specified as exempt
- Services are exempt unless specified as taxable
- Extensive list of taxable services (88) including
  - Appliance repair
  - Dance lessons
  - Electrical work
  - Plumbing
  - Telecommunications
  - Vehicle repair



# Consumer Expenditure Survey (CEX)

- Rolling survey of expenditures, income, and demographics conducted by the US Census
- Published in two public-use microdata (PUMD) files
  - Interview – covering four quarters
  - Diary – covering two weeks
- Interview survey used in this analysis
- All entries assigned a six-digit code
  - Rent = 210110, Groceries = 790240, Gas (Renter) = 260211
- Business expenditures excluded
- Demographic, educational, income data available

# CEX Underreporting

- Well-known that consumers do not report all expenditures on the CEX (Garner, McClelland, Passero, 2009)
- CEX and the BEA's Personal Consumption Expenditure (PCE) estimates do not align
- Under-sampling of high-income individuals
- Varies by salience of item reported
  - Utilities (frequently paid) underreported by 2%
  - Televisions (infrequently purchased) underreported by 82%
- Varies by nature of item
  - Gasoline (frequently paid and neutral) underreported by 6%
  - Gambling (perceived vice) underreported by 95%
- Underreporting corrected using CE to PCE ratio in model



# Applying Iowa Tax Law to CEX

- All CEX expenditures assigned to 68 categories
- Each of 68 coded as taxable or exempt
- Some problems
  - Newspapers exempt, magazines not – reported together
  - Remodeling exempt, repair not – reported together
  - Digital books exempt, physical not – reported together





# Assumptions of the Model

- Used all national entries, not just Iowa or Midwest
- Expenditures aggregated for each individual
- “Iowa adjusted gross income (AGI)” calculated for each
- Results stratified based on AGI
- Excluded all entries under \$3,000 AGI
- Created separate analysis for elderly, parents, couples, and homeowners
- Prices and income adjusted for inflation, but brackets are not

# Model Results

Household "Iowa AGI"	Est. SUT Incidence	Groceries	Utilities	Gasoline	Legal Fees	Remodeling
Less than \$10,000	10.48%	8.08%	1.33%	1.41%	0.11%	0.37%
\$10,000 to 20,000	4.32%	3.60%	0.58%	0.68%	0.08%	0.15%
\$20,001 to 30,000	2.80%	2.34%	0.36%	0.47%	0.05%	0.09%
\$50,001 to 60,000	1.82%	1.23%	0.20%	0.29%	0.03%	0.06%
\$70,001 to 80,000	1.59%	0.99%	0.16%	0.24%	0.02%	0.07%
\$100,001 to 125,000	1.44%	0.77%	0.12%	0.19%	0.02%	0.07%
\$150,001 to 175,000	1.28%	0.60%	0.09%	0.14%	0.02%	0.09%
\$250,001 to 500,000	1.13%	0.37%	0.06%	0.07%	0.01%	0.16%
\$500,001 or more	0.96%	0.24%	0.04%	0.04%	0.02%	0.12%



# Implications

- The sales tax is regressive
- In fact, the sales tax on almost everything is regressive
- Adding comparatively less regressive items can reduce average regressivity



# Limitations and Next Steps

- Not yet applied to Iowa population
  - Need to match each CEX entry to Iowa income taxpayers
  - Need to correct for non-filers (elderly, students, undocumented immigrants, tourists)
- Cannot use for fiscal estimates (yet)
- Atemporal results are difficult to explain
- Granularity of diary results not yet incorporated

Questions? Suggestions?

# References

- Fullerton, Don and Gilbert Metcalf. “Chapter 26: Tax Incidence.” *Handbook of Public Economics*. Eds. A.J. Auerbach and M. Feldstein. 2002. Accessed September 8, 2017 from <https://pdfs.semanticscholar.org/5182/d6f49b387852bb42cb38ae528949c5303051.pdf>
- Garner, Thesia, Robert McClelland, and William Passero. “Strengths and Weaknesses of the Consumer Expenditure Survey from a BLS Perspective.” 2009. Accessed September 8, 2017 from [https://www.bls.gov/cex/pce\\_compare\\_199207.pdf](https://www.bls.gov/cex/pce_compare_199207.pdf)