CE income tax estimates

Aaron E. Cobet

Division of Consumer Expenditure Surveys
CE Microdata User’s Workshop
July 13-15, 2016
Overview

- Introduce CE income taxes
- Compare income tax estimates
- How do you get started?
- Possible applications of the data
What changed?

- In 2013, CE introduced estimates for federal and state income tax liabilities.

- Until the 2014 PUMD, the datasets include the reported income taxes.
Reliability issues

Respondents provided unreliable tax data because of 3 reasons:

- Unwilling to provide because of privacy concerns
- Unable to remember taxes
- Unable to calculate the taxes
Are the estimates better than the reported data?

Yes

- TAXSIM uses reliably accurate available data
- Model has been tested since the 70s
TAXSIM

- Micro-simulation program
- Calculates taxes by “tax unit”

- Tax units: Group or individual who files their own tax return.
TAXSIM

CE uses TAXSIM in four steps:

1. Create tax units
2. Convert inputs organized by consumer unit to inputs organized by tax unit
3. Run TAXSIM to estimate taxes by tax unit
4. Convert outputs organized by tax unit to be organized by consumer unit
Do estimated data differ from reported data?
Annual personal taxes per household, U.S. dollars, 2004-2014

Reported

Estimated

Comparison of tax estimates

4 agencies:
- Bureau of Labor Statistics (BLS CE)
- Internal Revenue Service (IRS)
- U.S. Census Bureau (Census)
- Congressional Budget Office (CBO)

2 aspects:
- Concepts
- Formats
## Concepts Comparison

<table>
<thead>
<tr>
<th>Concept</th>
<th>CE (BLS)</th>
<th>IRS</th>
<th>CPS (Census)</th>
<th>CBO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of series</td>
<td>Average consumer unit income tax</td>
<td>Average income tax return</td>
<td>Household income tax</td>
<td>Average personal tax</td>
</tr>
<tr>
<td>Concepts included</td>
<td>Individual income taxes minus tax credits</td>
<td>Individual income revenue minus tax credits plus trust accumulation distribution</td>
<td>Individual income taxes minus tax credits</td>
<td>Individual income taxes plus payroll taxes, corporate income taxes, and excise taxes</td>
</tr>
<tr>
<td>Basic unit</td>
<td>Consumer unit (Tax unit)</td>
<td>Tax return</td>
<td>Household</td>
<td>Household</td>
</tr>
<tr>
<td>Federal</td>
<td>Federal</td>
<td>Federal</td>
<td>Federal</td>
<td>Federal</td>
</tr>
<tr>
<td>Method</td>
<td>Model</td>
<td>Sample of actual tax returns</td>
<td>Model</td>
<td>Model</td>
</tr>
</tbody>
</table>

## Formats comparison

<table>
<thead>
<tr>
<th>Format</th>
<th>CE (BLS)</th>
<th>IRS</th>
<th>CPS (Census)</th>
<th>CBO</th>
</tr>
</thead>
<tbody>
<tr>
<td>People counted</td>
<td>People living financially independent</td>
<td>People filing one tax return</td>
<td>People living in one housing unit</td>
<td>People living in one housing unit</td>
</tr>
<tr>
<td>Rank by</td>
<td>Population weighted income</td>
<td>Adjusted gross income</td>
<td>No ranking</td>
<td>Size-adjusted income</td>
</tr>
<tr>
<td>Presentation</td>
<td>Tabulated by income quintile</td>
<td>Tabulated by income segment</td>
<td>Mircodata</td>
<td>Tabulated by income quintile</td>
</tr>
<tr>
<td>Currency</td>
<td>U.S. dollars</td>
<td>U.S. dollars</td>
<td>U.S. dollars</td>
<td>U.S. dollars</td>
</tr>
<tr>
<td>Year</td>
<td>2013</td>
<td>2013</td>
<td>2013</td>
<td>2013</td>
</tr>
</tbody>
</table>

Do conceptual differences make numerical differences?
Average federal income taxes, 2013

Federal taxes by income quintile, 2013

How do you get started?
Getting started!

Where are the tax estimation data?

- NTAXI file
- In Interview survey files
Getting started!

What is a TAX_UNIT?

- Group or individual who files their own tax return.
- Connects all tax returns to CUs.
- Each tax unit has one row
Getting started!

- Administrative variables

- **TAX_UNIT** connects to NEWID
- **NEWID** connects tax units to other files.
- **SOI_ST** identifies state for tax units.
- **TAXYR_CY/PY** identifies the year for which taxes were calculated.
- **FTAXOWE** and **STAXOWE** point in time estimate of annual Federal and State tax liabilities for Tax Units
FTAXOWE and STAXOWE

Concept

- Weighted estimate for tax liabilities for each Tax Unit

- \( \text{FTAXOWE}_n = \text{CYWT} \times \text{FTAXO\_CY}_n + \text{PYWT} \times \text{FTAXO\_PY}_n \),
- \( \text{STAXOWE}_n = \text{CYWT} \times \text{STAXO\_CY}_n + \text{PYWT} \times \text{STAXO\_PY}_n \)

- CYWT: Months in the current year
- PYWT: Months in the previous year
- FTAXO\_CY/PY: Federal income tax liabilities after all credits in the current/previous year
- STAXO\_CY/PY: State income tax liabilities after all credits in the current/previous year
- \( n = n^{th} \): Tax unit in CU
FTAXOWE and STAXOWE

Example: How to find Federal taxes owed for tax unit?

- CU interviewed in May 2011
  - 4 months of 2011: Jan11 – April11
  - 8 months of 2010: May10 – Dec10

- Calculate annual estimated tax liability
  - 2010: FTAXOWE_PY = $3000
  - 2011: FTAXOWE_CY = $3400

- Calculate weighted tax amount to be used in tables and on the Microdata:
  - \((4/12) \times 3000 + (8/12) \times 3400 = 3134\)
Getting started!

- Input variables

- Income, deductions, and tax credits

- **FRATE_CY/PY**: Federal marginal rate
- **SRATE_CY/PY**: State marginal rate
- **FILESTAT**: Filing status
FILESTAT

- Refers to “Marital Status”
- Determined for the tax unit by the members in the tax unit.
- NTAXI contains three codes:

  1: **Single**: Tax units with one member
  2: **Married filing jointly**: Tax units with a married couple and maybe dependents
  3: **Head of household**: Tax units with a head and dependents, but no spouse
Getting started!

Output variables

- **FICA_PY** Federal Insurance Contributions Act (FICA) - US payroll tax, previous year
- **FTAXO_PY/CY**: Federal taxes after credits
- **STAXO_PY/CY**: State taxes after credits
- **AMTOW_CY/PY**: Alternative minimum tax (AMT)
Possible applications of the income taxes
Annual income and personal taxes per household by income quintile, U.S. dollars, 2014

<table>
<thead>
<tr>
<th>Income before taxes</th>
<th>Personal taxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest: $-441</td>
<td>$10,308</td>
</tr>
<tr>
<td>Second: $-569</td>
<td>$27,028</td>
</tr>
<tr>
<td>Third: $2,370</td>
<td>$47,056</td>
</tr>
<tr>
<td>Fourth: $7,904</td>
<td>$76,988</td>
</tr>
<tr>
<td>Highest: $33,294</td>
<td>$172,952</td>
</tr>
</tbody>
</table>

Average shares of personal taxes by households by tax, 2014

- Federal income taxes: 78.5%
- State and local income taxes and other taxes: 21.5%

Personal taxes as percent of pre-tax income for selected family types, 2014

- Couple without children: 15%
- Couple with children: 14%
- Single person without children: 13%
- One parent with children: 4%
Average spending and saving per household, percent, 2014

- Spending: 91.7%
- Saving: 8.3%

Savings as percentage of after-tax income by income quintile, 2014

Can you create TAXSIM data for previous years?
Historical data

Yes

- NBER provides the Stata program
- [http://users.nber.org/~taxsim/to-taxsim/](http://users.nber.org/~taxsim/to-taxsim/)

- [An introduction to the TAXSIM model](http://users.nber.org/~taxsim/to-taxsim/) by Daniel Feenberg and Elisabeth Coutts
Questions?

Ideas!
Documentation

- P:\Teams\DCES_Publications_Review_Team\Drafts\2015\Cobet_Taxes\CE 2015 Tax comparison 02 Material .docx
- P:\Phase 4 Production (BIA)\Microdata\2013 Processing\Requirements\Requirements 2013 Tax_Estimation.docx
- \filer1\DCES\DCES-Phase3\Interview_Edit_Specs\I_Tax_Estimation_2013_01.docx