Research, Analysis & Statistics — IRS

tpc Tax Policy Center — Urban Institute and Brookings Institution

Advancing Tax Administration ■ June 19, 2014

Session 4: Understanding Taxpayer Behavior

Moderator:	*Kevin Pierce* *IRS, RAS, Statistics of Income*
Tax Evasion and Self-Employment in the US: A Look at the Alternative Minimum Tax	*Xiaowen Liu* *University of Tennessee*
Do Doubled-Up Families Minimize Household-Level Tax Burden?	*Maggie R. Jones* *U.S. Census Bureau*
RAS Affordable Care Act Microsimulation Model	*Brock Ramos* *IRS, RAS, OPERA*
Discussant:	*Len Burman* *Tax Policy Center*

Tax Evasion and Self-employment in the US: A Look at the Alternative Minimum Tax

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Department of Economics
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Policy Background

- The alternative minimum tax (AMT) for individuals is a separate income tax system in parallel to the regular income tax
  - Originally set to target high income individuals, AMT affects more middle income filers now

  - Taxpayers complete Form 6251 to find out if they owe the AMT, and how much they owe

Research Questions

- Do taxpayers manipulate their incomes in order to avoid the AMT as they move toward the AMT threshold?

- If bunching is found, is there any difference between self-employed individuals and wage earners?

- Does the behavioral response come from misreporting or real change in activity?
  - If the response is driven by misreporting, the welfare loss is just or mainly tax revenue loss
  - If the response is partially driven by real activity, the welfare loss includes traditional excess burden, in addition to revenue loss

Previous Literature

- Behavioral responses to the US income tax schedule: real response or misreporting?
  - Saez (2010) finds clear evidence of bunching by the EITC, and the bunching is concentrated among self-employed taxpayers
  - Kuka (2013) compares results from survey data and tax return data, and concludes that the bunching is mainly driven by misreporting

- Related studies on behavioral responses to other programs
  - Ramnath (2013)
  - Chetty et. al. (2009)
  - Kleven and Waseem (2011)

Data

- Individual Public Use Tax Files for 1994-2002
  - limit our sample to those who filed Form 6251

  - define the tax gap as the difference between the AMT liability and the regular tax liability

    Tax Gap = AMT Liability – Regular Tax Liability

    - This is not IRS defined tax gap
    - AMT is calculated based on tax return information on Form 1040 and Form 6251

Summary Statistics

Variable	Self-Employed	Wage Earners
Adjusted Gross Income (median)	255,105.3	168,427.9
AMT Liability (median)	40,813.17	16,377.75
Regular Tax Liability (median)	41,190	19,190
Single (=1 if filed as single)	0.14	0.27
Head of Household (=1 if filed as head of household)	0.02	0.04
Married Filing Jointly (=1 if filed jointly)	0.81	0.66
Married Filing Separately(=1 if filed separately)	0.02	0.03
Total Number of Exemptions	2.72	2.52
State and Local Tax (median)	9,023.1	2,552.0
Tax Gap (median)	–4,302.8	–2,887.4
% Pay AMT	0.23	0.27
Sample Size	100,198	20,290

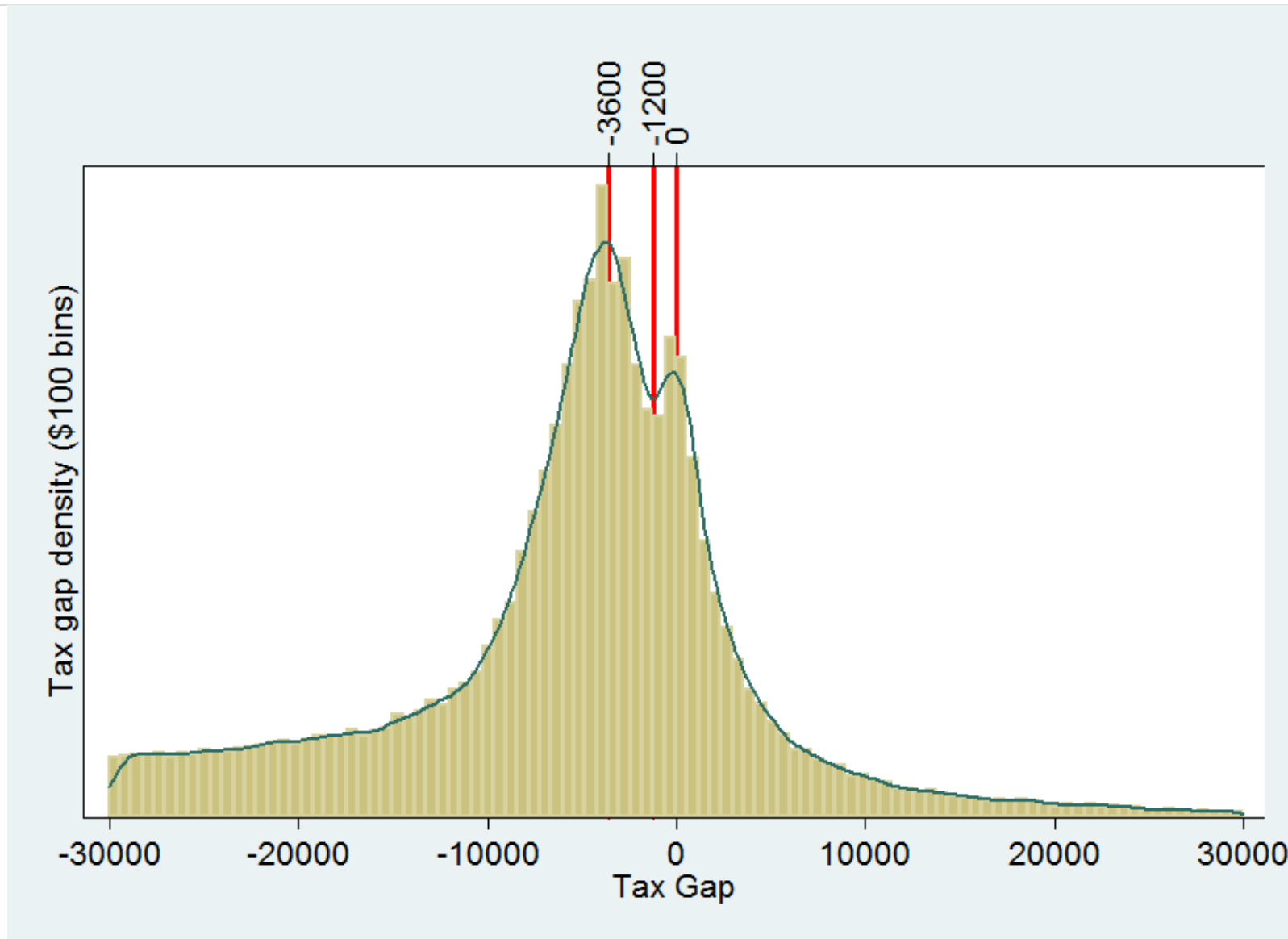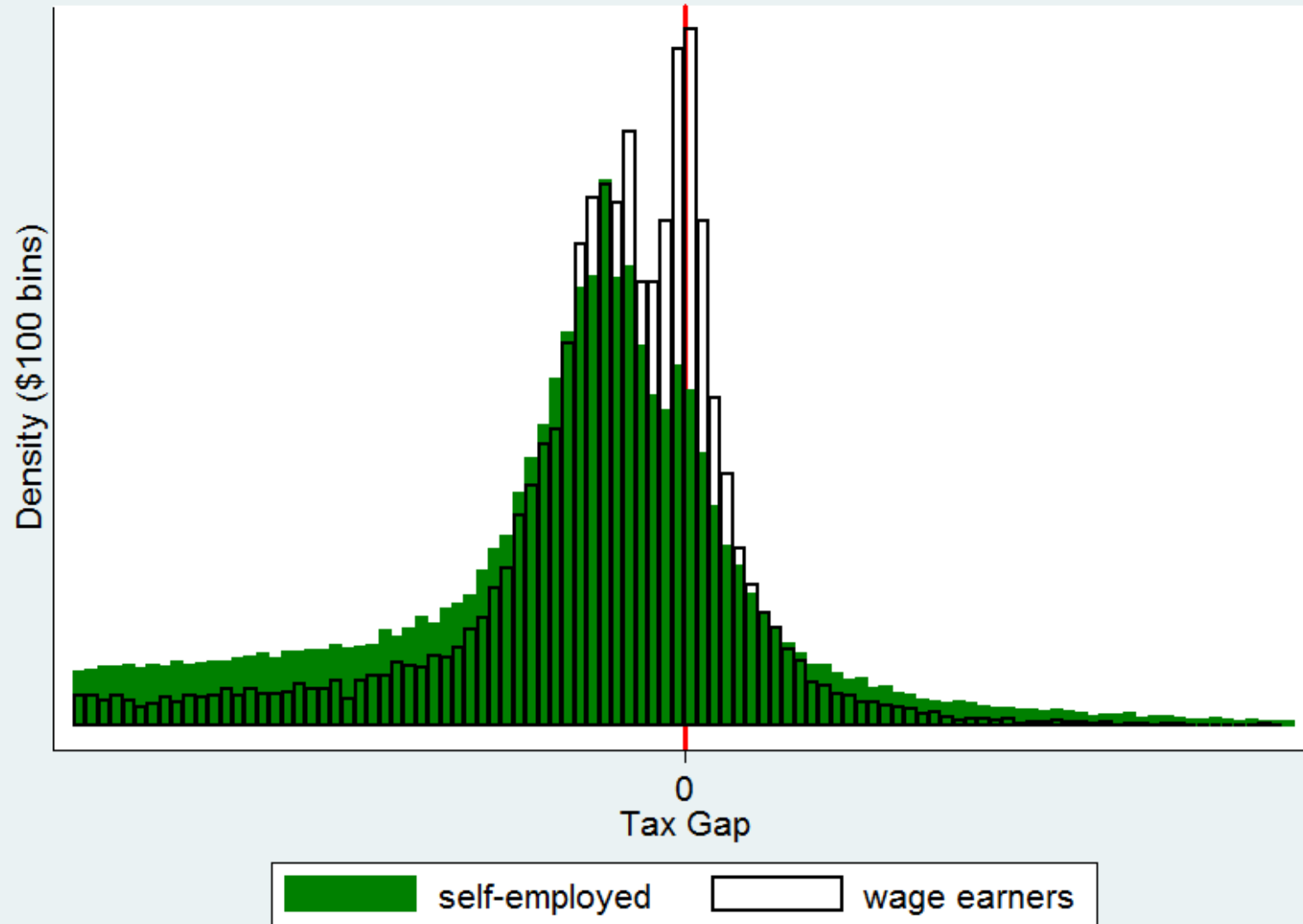# Figure 1. Kernel Density of Tax Gap, 1994-2002

Figure 5. Tax Gap Distribution for the Self-employed and Wage Earners

Misreporting or Real Activity Response?

- Expenditure-based approach by Pissarides and Weber (1989)

- Tax-based consumption items on the Schedule A ($\boldsymbol{C_{i,j}}$)
    - Interest paid
    - Property tax paid
    - Charitable contributions

$$ln\left(\frac{C_{i,j}}{Total\ Income}\right) = \boldsymbol{\beta_1 TaxGap_{i,j} + \gamma_{i,j} Z_{i,j} + Year_j + \epsilon_{i,j}}$$

Results

Variable	*ln*(Interest Paid Ratio)	*ln*(Property Tax Ratio)	*ln*(Donation Ratio)
Tax Gap	0.0000144***	0.0000244***	0.0000103***
	(0.000003)	(0.000002)	(0.000003)
The Self–employed	0.054*	0.024	0.260***
	(0.031)	(0.019)	(0.029)
The Self–employed *Tax Gap	0.000005*	-0.000001	-0.0000704**
	(0.000003)	(0.000002)	(0.000003)
Marginal Tax Rate	-5.318***	-3.670***	-3.393***
	(0.081)	(0.052)	(0.076)
Total Number of Exemptions	0.0862***	0.000612	0.0535***
	(0.006)	(0.004)	(0.006)
Married Filing Jointly	-0.035*	0.122***	0.209***
	(0.021)	(0.013)	(0.019)
Age 65 and Above	-0.675***	0.114***	0.613***
	(0.019)	(0.011)	(0.016)
Sample Size	60,203	67,452	68,441

Discussion

- Evidence of misreporting
  - When tax gap increases, all three consumption ratios increase

  - The self-employed have higher ratio of tax consumption to income than wage earners

  - The self-employed appear to act more aggressively than wage earners when approaching the AMT threshold

Discussion

- We find clear and significant behavioral responses to the AMT threshold

- We find evidence of both real response and misreporting
  - Bunching among wage earners suggests real response
  - Consumption-based estimation suggests misreporting

Future Work

- What we estimated can be interpreted as an upper bound of the behavioral response to the AMT

- The results are all suggestive evidence because the data are pooled cross-section. Will need panel data to find causal effect.

- Future work could continue the exploration of a causal impact of the AMT on taxpayer behavior if panel data is available

Thank you!

Xiaowen Liu

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Do Doubled-up Families Minimize Household-Level Tax Burden?

Maggie R. Jones and Amy O'Hara

U.S. Census Bureau

Research question

What predicts the sorting of dependent children, for tax purposes, between related adult filers in a household?

Definitions

- Sorting: There is a child in the household who
    - looks like he belongs to the reference person, according to survey response
    - is actually claimed by another adult relative in the household

- Multiple related adult filers: A child, grandchild, parent, sibling, or other relative of a survey household reference person who lives in the HH and
    - files a 1040
    - is not claimed as a dependent on another return

- Example: A mother with 2 children lives with her mother; the mom claims one child and the grandmother claims the other.

Mechanism

- Income tax burden is
  - Unambiguously smaller for an *individual* when a dependent can be claimed
  - Larger or smaller for a *household* depending on the details of who claims or how many dependents each taxpayer claims
- Complexity of income tax laws regarding qualifying children
  - Residency versus support
  - Relative status
- Avoidance or evasion?
  - Complexity of rules leaves many situations open to interpretation
  - We assume sorting is generally allowed by rules (and we wouldn't be able to distinguish anyway)

Incentives in Tax Rules

- Dependent exemption
    - lowers taxable income for claimant
    - value depends on tax bracket
- Head of household filing status
    - higher standard deduction
    - wider tax brackets
- Earned Income Tax Credit (EITC)
    - Larger credits for more children, but
    - Credits are not multiplicative in children
- Child Tax Credit (CTC, also ACTC)
    - Credit is per child

Example I: Single mother, single grandmother
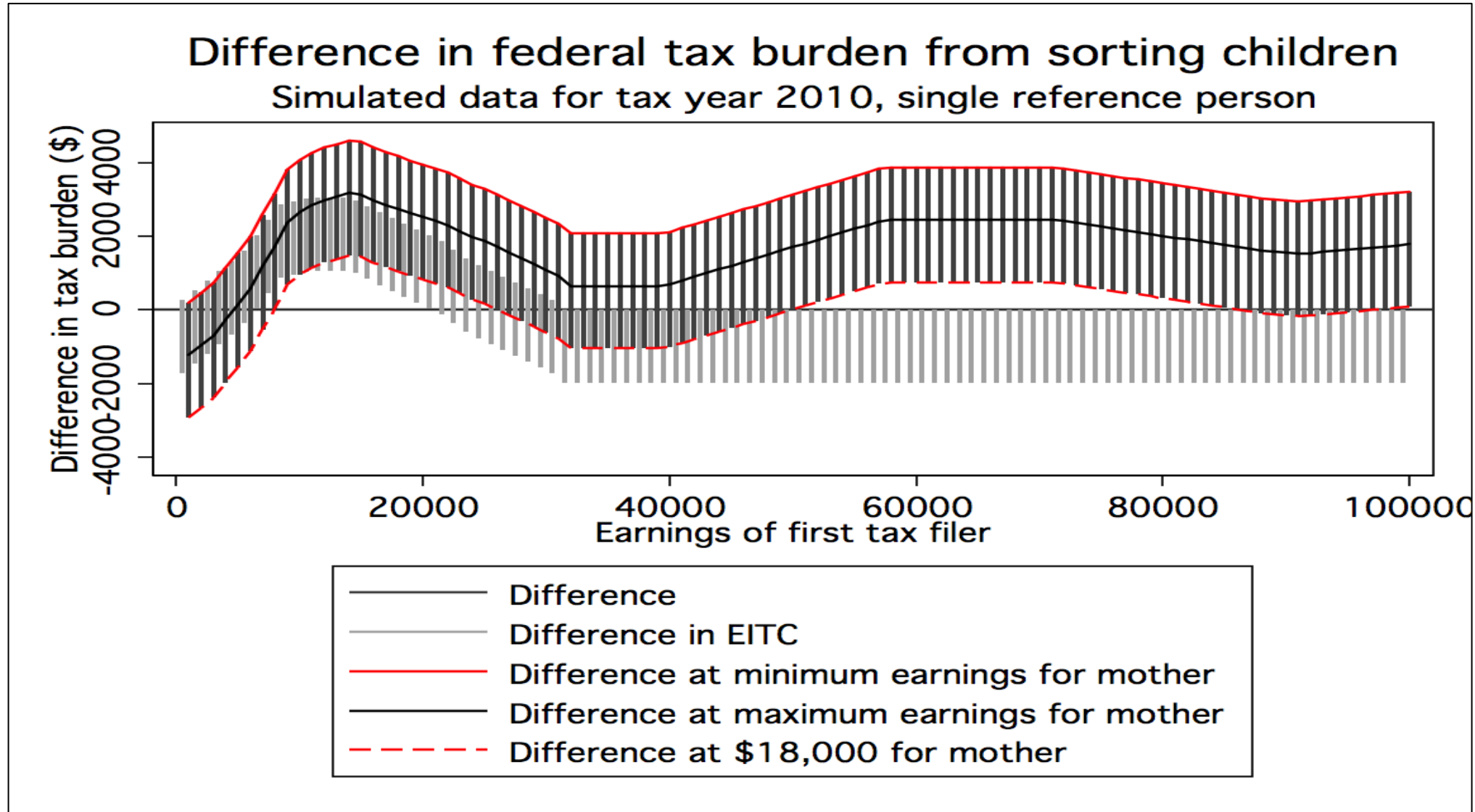
Example II: Single mother, married grandmother
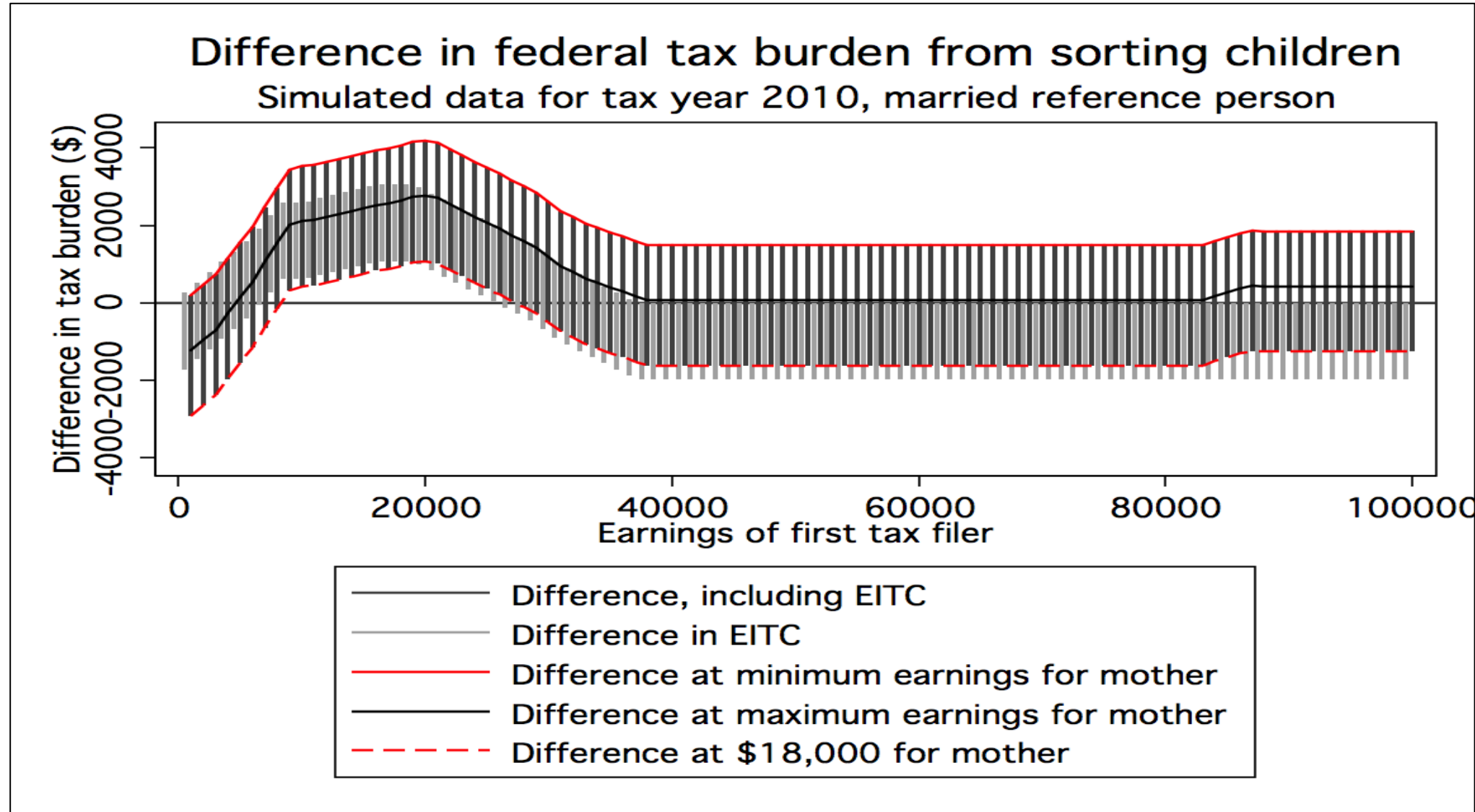
Model

- Following McCubbin (2000), we use the increase in tax refund (or decrease in tax burden) due to optimal sorting of children:

$$\frac{\partial E(y_r, x_r)}{\partial x_r} ,$$

  where y_r is reported income and x_r is number of claimed dependent children

- For now, we express this in terms of EITC, which will make up much of the difference in burden

- Using probit models, we use this value as the explanatory variable predicting whether or not a household sorts

Data

- Current Population Survey Annual Social and Economic Supplement (CPS ASEC), 2006–2011

- IRS tax data from 2005–2010
    - Universe of 1040s
    - Universe of W-2s

- Records are matched at individual level using probability linkage techniques (Layne & Wagner, 2012)
    - Name, DOB, address, SSN used to assign unique identifier
    - Records linked using identifier, personal information stripped
    - Matches kept when CPS values not imputed

Eligibility modeling

- Starting with relationship status in the CPS, modeling proceeds as in Jones (2013)
  - flag all eligible EITC units
  - calculate modeled credit amount

- Sample selection
  - households with multiple adult related filers, and
  - households with at least one child claimed as a dependent on a tax return
  - all info on adult related filers then linked to the reference filer

- We get *original modeled* totals for the household:
  - number of EITC-eligible filers
  - total credit amount

- Simulated eligibility models are run (see next slide)

Simulated Eligibility

- For every combination of filers/children in a household, we compute all possible EITC amounts for the household (up to a max of 3 filers and 6 children)

  - largest possible number of eligibility runs for a household is thus 28

  - all other variables that go into eligibility determination (income, earnings, etc.) remain the same

- The *simulated* totals for the household are:

  - maximum number of EITC-eligible filers

  - maximum credit

- We calculate the difference between original modeled credit and simulated maximum credit

Make-up of sorting and non-sorting HH

Table 1. First and second relative filers in sorting and non-sorting households							
	Second relative						
First relative, sorters	Child	Grandchild	Parent	Sibling	Other	None	Total
Child	**12.34**	**0.98**	0.51	0.42	5.68	48.28	68.20
Grandchild		0.09	0.00	0.00	0.05	2.79	2.93
Parent			0.42	1.91	**0.65**	8.66	11.64
Sibling				0.70	1.58	5.54	7.82
Other					1.68	7.73	9.40
Total						**73.00**	100.00
N	2,148						
Non-sorters	**Second relative**						
First relative, non-sorters	Child	Grandchild	Parent	Sibling	Other	None	Total
Child	**8.56**	**0.57**	0.31	0.36	5.23	56.81	71.83
Grandchild		0.12	0.01	0.00	0.19	1.03	1.35
Parent			0.24	1.62	**0.36**	10.45	12.67
Sibling				0.35	0.72	5.27	6.34
Other					1.33	6.48	7.81
Total						**80.04**	100.00
N	17,736						

Source: CPS ASEC—IRS linked file, 2005 to 2010. Numbers in bold are statistically different from one another.

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Main Results

Table 2. Probit models predicting sorting. Dependent variable = 1 when a household sorts	(1)	(2)
Eligible for EITC	0.069***	0.059***
	(0.004)	(0.005)
Eligible for EITC, relative	0.063***	0.050***
	(0.004)	(0.005)
Maximum total eligible, simulation	0.035***	0.025***
	(0.003)	(0.003)
Max total EITC, simulation (log)	0.004***	0.005***
	(0.001)	(0.001)
Difference in EITC, simulated minus modeled (log)	-0.003***	-0.004***
	(0.001)	(0.001)
Difference in EITC (log) X any filer eligible	0.009***	0.008***
	(0.001)	(0.001)
Any eligible, main effect	0.083***	0.074***
	(0.007)	(0.007)
Year and region fixed effects	yes	yes
Characteristics for reference person	yes	yes
Characteristics for household	no	yes
N	19,884	

Source: CPS ASEC-IRS linked files, 2005-2010.
Each row reports a separate probit regression. Marginal effects are reported for each independent variable listed. The unit of observation is the CPS reference person.

Earnings of sorters and non-sorters

Table 3. Differences in earnings in multifamily homes between sorters and non-sorters				
	Mean earnings, reference filer***	Mean earnings, filer 2**	Mean earnings, filer 3***	Difference between ref filer and lowest earner***
Sorter	33,981.88	18,528.61	22,568.96	17,238.89
Non-sorter	55,653.14	20,526.19	27,226.34	36,668.10

Source: CPS ASEC-IRS linked files, 2005-2010. Asterisks indicate whether the difference in mean is statistically different from 0.

Sorting to three

Table 3. Probit models predicting sorting to exactly three children. Dependent variable = 1 when a sorting household has at least one filer who claims 3	
Max total EITC (log)	-0.001 (0.001)
2006	0.008 (0.008)
2007	0.002 (0.007)
2008	-0.006 (0.007)
2009	0.054*** (0.010)
2010	0.048*** (0.014)
Characteristics for reference person	yes
Characteristics for household	yes
N	4,461

Source: CPS ASEC-IRS linked files, 2005-2010.

Marginal effects are reported for each independent variable listed. The unit of observation is the CPS reference person.

Conclusion

- We examined the way multiple filers in a household sort dependents to minimize household tax burden

- As a function of optimal EITC amount, the propensity to sort

  - Decreased as ΔEITC increased when looking at full sample

  - Increased as ΔEITC increased when looking only at households where at least one filer was eligible for EITC under original modeling

  - Results could be due to an information story or sorting among relatively less affluent households

- Sorting to exactly three children increased after the 2009 change in EITC rules

  - Supporting evidence that the behavior is a direct response to rule-making and not a data artifact

Thank you!

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Return-Based Affordable Care Act Microsimulation Model

Projecting the impact of ACA Tax Provisions on taxpayers and the IRS

Presentation Overview

- IRS Responsibilities Under ACA

- Motivation for an IRS Model

- How Does the Model Work
  - Data
  - Policies
  - Behavior
  - Outcomes

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ACA contains 50+ tax provisions for IRS implementation

Three key provisions are:

- The Premium Tax Credit (PTC)
- Individual Shared Responsibility Payment (ISRP)
- Employer Shared Responsibility Payment (ESRP)

Understanding the populations impacted by these provisions is important because these provisions:

- Require a new, and potentially complex, tax/credit calculations
- May significantly impact credit/balance due
- Are likely to increase both service demand and compliance workload

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Premium Tax Credit (PTC)

The PTC assists low to middle income households afford premiums in the new Health Insurance Marketplaces.

The PTC is claimed at filing; however, qualifying taxpayers may request the credit be paid in advance

- The Advance PTC (APTC) is paid directly to the insurer on a monthly basis on the taxpayer's behalf
- The APTC is determined using income and family size data from the most recent tax return or updated information provided by the taxpayer
- The APTC is reconciled with the PTC the taxpayer is eligible for at filing
- If the actual PTC is different from the APTC received, the taxpayer may owe part of the credit back or be due an additional refund

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Individual Shared Responsibility Payment

The ISRP is an assessable payment for taxpayers who are uninsured and do not meet one of the exemption criteria.

The payment is the greater of *a percentage of household income* or a *flat dollar amount* and phases in as follows:

- 2014: $95 or 1% of household income
- 2015: $395 or 2% of household income
- 2016: $695 or 2.5% of household income
- The payment is capped at the annual national average Bronze Plan premium

There are 9 exemptions to the ISRP. Some exemptions are administered by HHS and the rest by IRS, though all must be reported on the tax return.

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Employer Shared Responsibility Payment

The ESRP is an assessable payment for Applicable Large Employers (ALEs) who do not offer affordable insurance to full time employees.

There are two forms of the assessable payment:

- For employers that do not offer insurance
  (Number of Full Time Employees – 30) * $2,000
- For employers that offer unaffordable insurance
  Number of Full Time Employees who receive the PTC * $3,000

This provision has been delayed for 2014 and is limited for 2015.

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Using other models limits flexibility and the ability to focus on taxpayers

Flexibility
- Updates are infrequent
- Few alternative scenarios are available

Return Focus
- External models focus on all individuals
- IRS workload is driven by filing tax units

IRS Impacts
- With our own model, we can explore IRS-specific outcomes

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Overview of the Model

- A microsimulation model, built with an understanding of existing models.

- Focuses on 'what if' analysis to explore sensitivity to assumptions for workload.

- By design, the model has no built-in behavioral model to drive post-ACA transitions.

Data	Policy	Behavior	Outcomes
Base Files Individual Tax Returns Form W-2 Employer Payroll Tax and Annual Tax Return **External Data** Form 5500 Firm Characteristics in MEPS-IC Individual Characteristics in CPS-ASEC	**Eligibility Rules for the PTC** Calculations of Household Income FPL Thresholds Provision of Medicaid **Compliance Rules** ISRP ESRP	**Individual Behavior** Participation in governmment programs, ESI, private market Participation in the Exchange **Employer Behavior** Provision of Health Insurance	**PTC Population** Size and Charecteristics Reconciliation **Employer Implications** Change in ESI Offer Potential ESRP liability **Individual Impliacations** ISRP, Exemptions

RAS ACA Microsimulation Model   High level categories are based on Abraham 2012:http://www.statenetwork.org/wp-content/uploads/2012/03/State-Network-SHADAC-Predicting-the-Effects-of-the-ACA1.pdf

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Construction of the Input File

Acquired

- Model foundation is CDW tax records, a unique source available to Treasury and IRS.
- Prepared the data and linked employers and employees through the W-2 records.

Sampled

- Selected employers and employees using a two-stage cluster sampling approach.
- Sampled employees and their spouses (as well as the spouse's employment information) linked to their income tax returns.
- Stratified random sample of non-wage earner returns.

Augmented

- Augmented the sample with Form 5500 data.
- Augmented the sample with annual tax return fields.
- Imputed ESI offering status from MEPS-IC.
- Imputed current health insurance status from the CPS ASEC, BLS, and NCS.
- Imputed current service usage using the Taxpayer Experience Survey (TES).

Policy Rules

Policy Element	Model Representation
Premium Tax Credit Eligibility (Section 36B)	• Eligibility for the Premium Tax Credit is based on FPL, which is calculated based on TY2010 income. • Participation in the credit is dependent on the assignment of Exchange use, which is estimated through user-modified behavioral parameters. • Medicaid Expansions :State-by-state Medicaid policies have great variability (up to 200% FPL).
Individual Responsibility Payments (Section 5000A)	• Individual responsibility payment assessments is an input parameter entered by the user, expressed as the percentage of all uninsured returns that are subject to the payment. • Currently the model only estimates 2 of the 9 exemptions that are likely to be exempt from maintaining minimal essential coverage or the size of the individual payment.
Employer Shared Responsibility Payments (Section 4980H)	• Employers with an employee size exceeding 50 full time employees that do not offer insurance are assessed a penalty. • The employer size measure does distinguish between FT and PT workers (essentially counting all workers), overestimating the number of payments. • There is no representation of premium amounts in the model. Therefore, unaffordable coverage is not modeled.

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Behavioral Modeling: Overview

The model has two main behavioral inputs, representing employer decisions to offer and families decisions around coverage.

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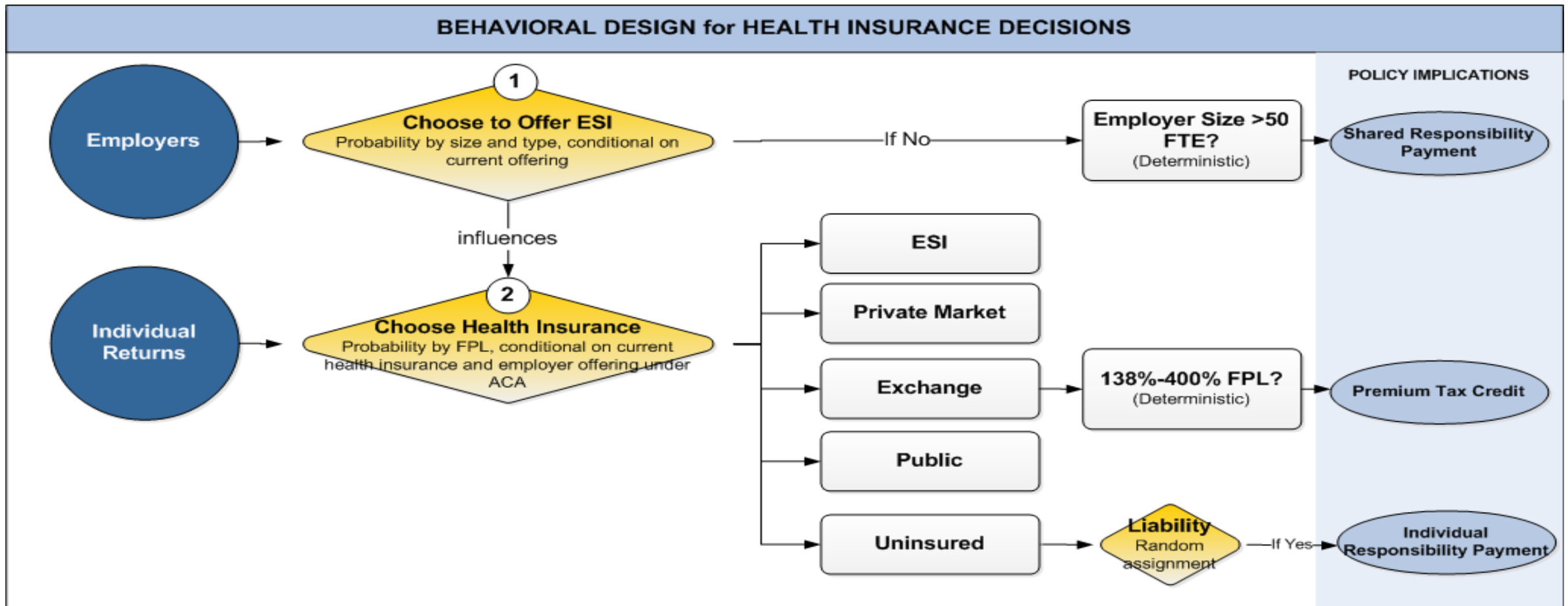
Behavioral Modeling: Analyst Inputs

These are entered through two primary input tables in the model interface.

Firm Size (Number of Employees)	Percentage of Employers Offering ESI		
	Private	State & Local Government	Federal Government
1-4	31%	90%	100%
5-9	34%	93%	100%
10-24	63%	92%	100%
25-49	82%	92%	100%
50-99	82%	91%	100%
100-249	94%	92%	100%
250-499	96%	95%	100%
500-999	96%	98%	100%
1,000-9,999	99%	98%	100%
10,000-49,999	99%	98%	100%
50,000+	100%	96%	100%

Pre-ACA Health Insurance Status	FPL Percentage Level	Employer Offers ESI Pre-ACA	Employer Offers ESI Post-ACA	Post-Reform Health Insurance Transition Probabilities				
				ESI	Private	Public	Uninsured	Exchange
ESI - Under 138 FPL	< 100%	Y	Y	75%	0%	13%	0%	13%
	< 100%	Y	N	0%	0%	65%	0%	35%
	< 100%	N	Y	75%	0%	13%	0%	13%
	< 100%	N	N	100%	0%	0%	0%	0%
	100%-138%	Y	Y	75%	0%	7%	0%	18%
	100%-138%	Y	N	0%	0%	50%	0%	50%
	100%-138%	N	Y	100%	0%	0%	0%	0%
	100%-138%	N	N	100%	0%	0%	0%	0%
ESI	138%-150%	Y	Y	70%	0%	0%	0%	30%
	138%-150%	Y	N	0%	0%	0%	15%	85%
	138%-150%	N	Y	100%	0%	0%	0%	0%
	138%-150%	N	N	100%	0%	0%	0%	0%
	150%-200%	Y	Y	75%	0%	0%	0%	25%
	150%-200%	Y	N	0%	0%	0%	20%	80%
	150%-200%	N	Y	100%	0%	0%	0%	0%
	150%-200%	N	N	100%	0%	0%	0%	0%

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RAS ACA Model – Analysis Flow

Policy Questions

New Research

Administrative Uncertainty
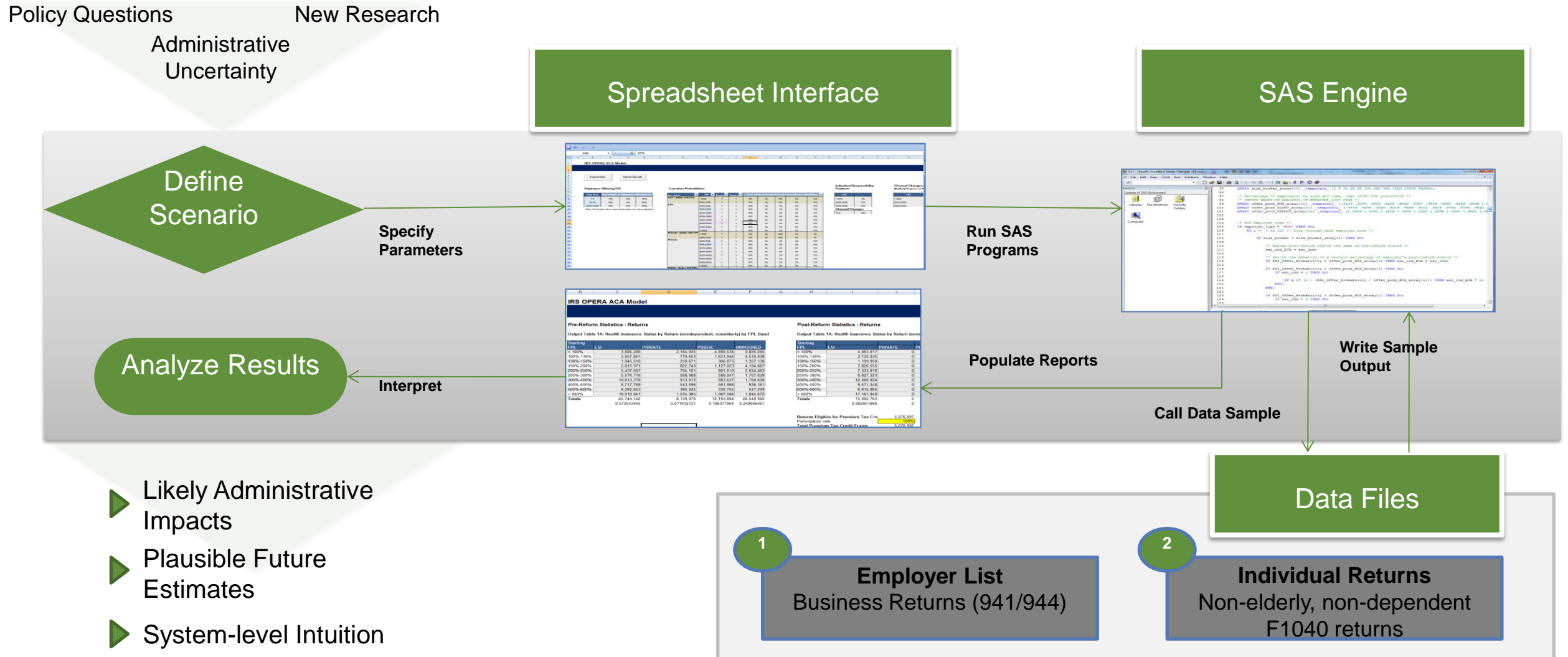
Spreadsheet Interface

SAS Engine

Define Scenario

Specify Parameters

Run SAS Programs

Analyze Results

Interpret

Populate Reports

Write Sample Output

Call Data Sample

Data Files

- Likely Administrative Impacts
- Plausible Future Estimates
- System-level Intuition

1 **Employer List** Business Returns (941/944)

2 **Individual Returns** Non-elderly, non-dependent F1040 returns

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The RAS ACA Model aligns with outputs from other microsimulation models.

Notional Comparison of Outputs from Multiple Models

Legend:
- EXCHANGE
- UNINSURED
- PUBLIC
- PRIVATE
- ESI

Categories: Return, UI, Lewin, CBO, RAND

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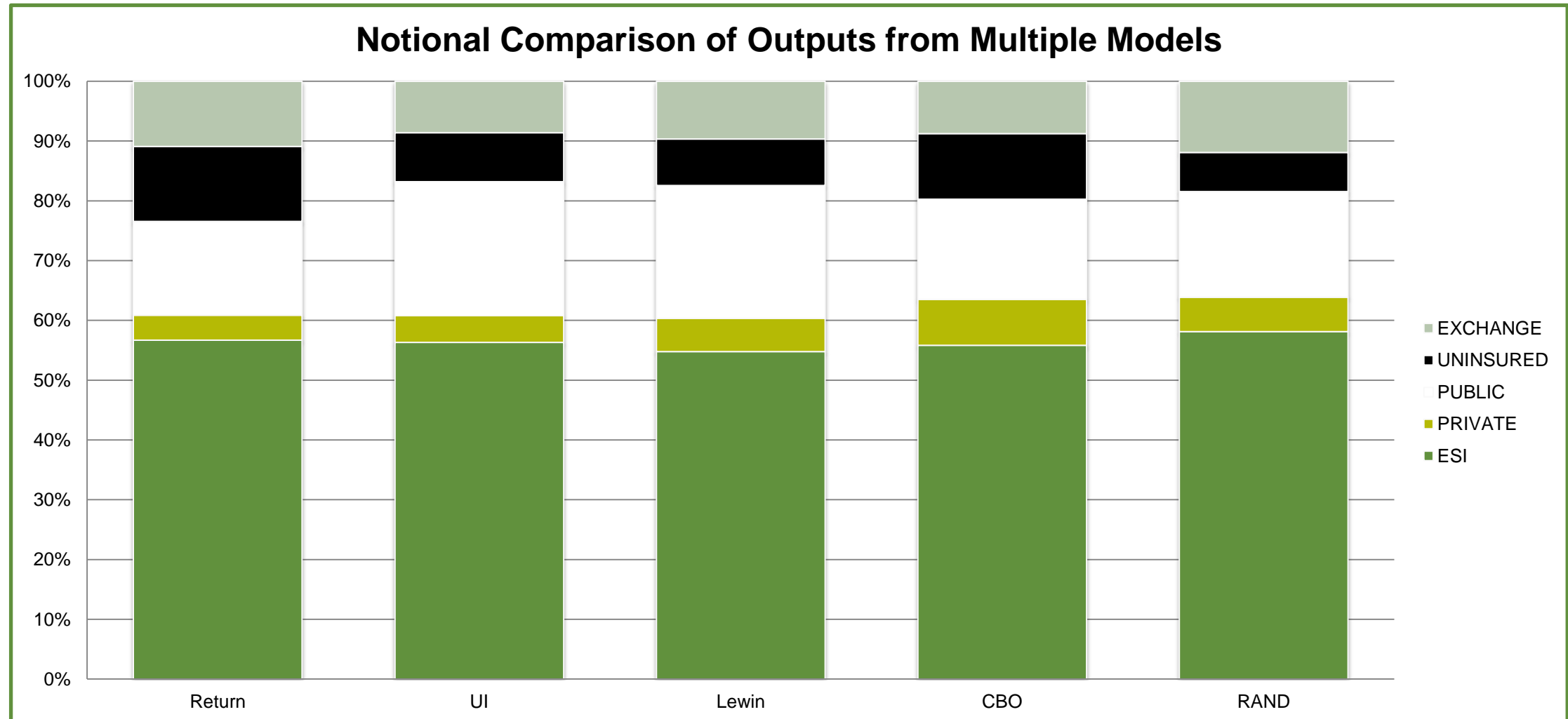
Using 2010-2011 FPL changes, about half of APTC recipients would receive an additional refund, while the other half would owe money back

Notional PTC Reconciliation Implications

- 2%
- 50%
- 48%

Legend:
- ■ Even Reconciliation
- ■ Additional Premium Tax Credit
- □ Repayment of Excess Credit
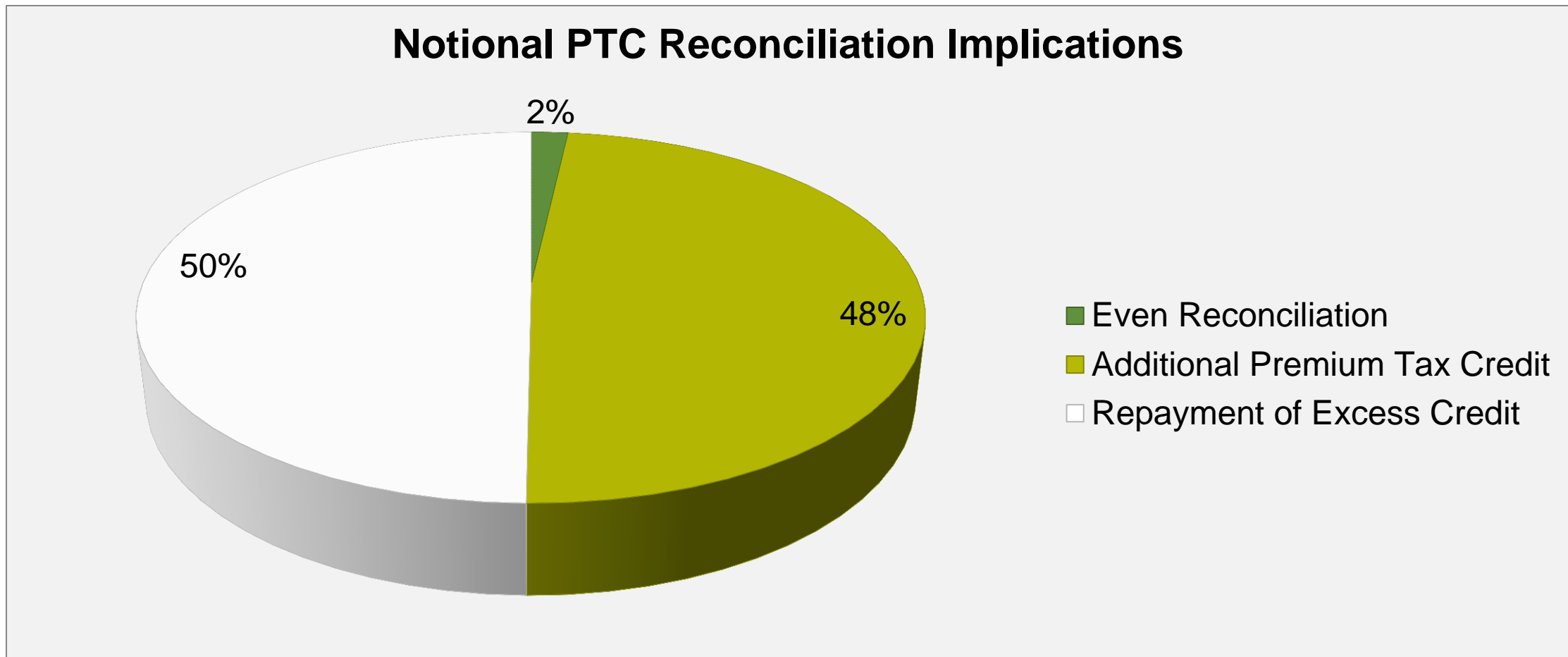
Next Steps

- RAS will continue to improve the model, add functionality, and generate estimates based on modeled outcomes.

- RAS will continue to refine inputs regarding the calculation of premiums and alternative FPL scenarios.

- As we learn more about ACA, and as assumptions become actual data points, we will adjust the model and update outcomes.

- RAS will continue testing alternative scenarios to better understand the sensitivity of various inputs.

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Wrap-Up

Janice Hedemann
Conference Chair
(Director, RAS Office of Research)