



2015 IRS-TPC Research Conference

Session 2: Taxpayer Responses to Rules and Enforcement

Moderator:

Ron Hodge

IRS, RAS, Office of Research

Taxpayer Behavior under Audit Certainty

Erin Towery

University of Georgia

**2011-2012 Schedule M-3 Profiles of
Schedule UTP Filers by IRC Section Cited**

Lisa Rupert

IRS, Large Business & International

**Individual Nonfilers and IRS Generated Tax
Assessments**

Saurabh Datta

IRS, Small Business / Self-Employed

Discussant:

Danielle Higgins

City University of New York

Taxpayer Behavior under Audit Certainty

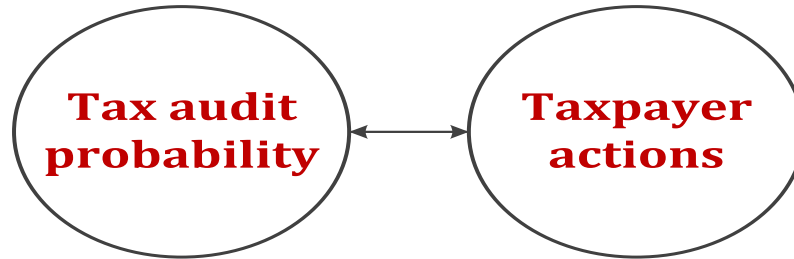
Ben Ayers, Jeri Seidman & Erin Towery

IRS Research Conference

June 18th, 2015

Motivation

➤ Strategic tax compliance model

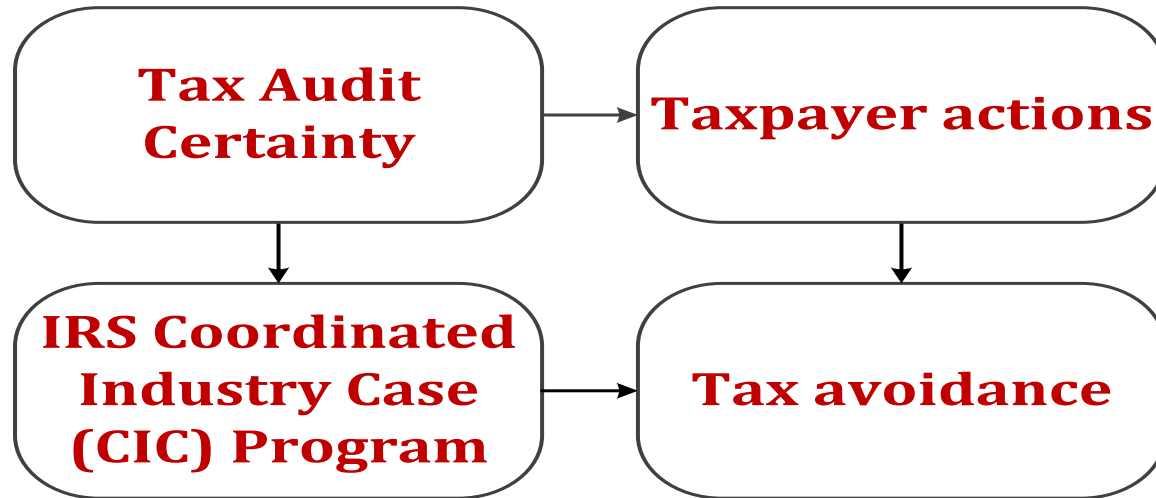


- ❖ Probability of tax audit changes with taxpayer actions
- ❖ Taxpayers condition their actions on expected audit probability

Motivation

- What happens when audit probability equals 1?
 - ❖ Strategic tax model does not posit corner solution
 - ❖ Blumenthal et al. (2001) and Mills & Sansing (2001) suggest the taxpayer might be *more* aggressive
 - ❖ Hoopes et al. (2012) and DeBacker et al. (2013) suggest the taxpayer might be *less* aggressive

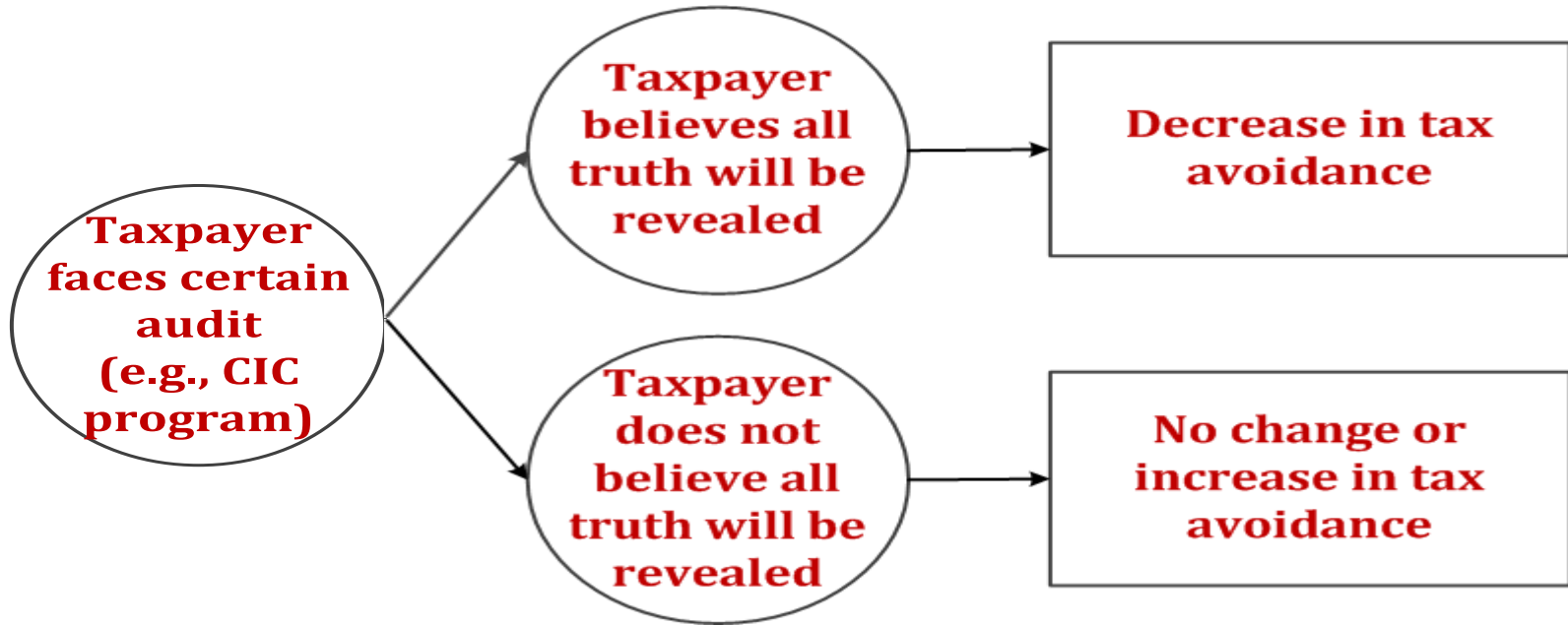
Research question



CIC program

- IRS implemented CIC program in 1960s
- LB&I Team spends substantial time in taxpayer's office during year
- IRS assigns firms to program based on point scheme
- Firms remain in CIC program until audit no longer requires team audit approach
- Between 500-1,500 taxpayers in CIC program per year

Hypothesis



Hypothesis

Hypothesis: Audit certainty does not affect taxpayer behavior.

Research design

➤ Determinants of CIC assignment

$$CIC_{\text{Firm}} = \alpha + \beta * \text{Size} + \gamma * \text{Complexity} + \varepsilon$$

- ❖ Size variables: Total Assets; Net Sales
- ❖ Complexity variables: # of geographic segments; # of business segments; Foreign Sales; Foreign Tax

$$CIC_{\text{Firm}} = \alpha + \beta * \text{Size} + \gamma * \text{Complexity} + \delta * \text{FirmAttributes} + \varepsilon$$

- ❖ Firm attributes: Leverage; R&D; Capital Intensity; Excess stock benefits; net operating losses

Research design

- Multivariate regression for effect of tax certainty on taxpayer behavior

$$Tax = \beta_0 + \beta_1 * POST + \beta_2 * \Delta Firm + \beta_3 * POST * \Delta Firm + Controls + \varepsilon$$

- ❖ $Tax = Fed_Cash_ETR, Cash_ETR, UTB_CY_ADD$
- ❖ $POST = 1$ for both CIC firm and matched firm for all years after CIC entrance
- ❖ $\Delta Firm = 1$ for firms entering the CIC program during our sample period

Research design

- Multivariate regression for effect of tax certainty on taxpayer behavior

$$Tax = \beta_0 + \beta_1 * POST + \beta_2 * \Delta Firm + \beta_3 * POST * \Delta Firm + Controls + \varepsilon$$

- ❖ Matched firm samples constructed using CIC determinants model
- ❖ $\beta_3 = 0 \rightarrow$ No change in tax behavior
- ❖ $\beta_3 > 0 \rightarrow$ Increase in tax payments when entering CIC program
- ❖ $\beta_3 < 0 \rightarrow$ Decrease in tax payments when entering CIC program

Sample

Publicly-traded firm-years from 2000 to 2011 with $\geq \$250\text{M}$ in TaxReturnAssets	34,379
Less: observations not matched with Compustat data	(2,057)
Less: observations missing dependent or explanatory variables	(3,611)
Less: observations missing one year lag and/or one year lead	<u>(5,617)</u>
Observations for CIC prediction model	23,094
 Firms entering the CIC program during sample period	 405

CIC prediction (n=23,094)

	<i>CICFirm</i> = 1 if firm assigned during current year		<i>CICFirm</i> = 1 if firm initially assigned during current year	
<i>Constant</i>	-5.822 ***	-5.984 ***	-6.036 ***	-5.794 ***
<i>AssetPoints</i>	0.339 ***	0.338 ***	0.194 ***	0.194 ***
<i>GrossReceiptsPoints</i>	0.502 ***	0.533 ***	0.344 ***	0.360 ***
<i>GeoSegPoints</i>	0.221 ***	0.184 ***	0.188 ***	0.165 ***
<i>BusSegPoints</i>	0.154 ***	0.166 ***	0.111 ***	0.106 ***
<i>ForeignSalesPoints</i>	0.052 **	0.041 *	-0.069	-0.084 *
<i>ForeignTaxPoints</i>	0.224 ***	0.240 ***	0.016	0.033
<i>Leverage</i>		0.112		-0.501 *
<i>R&D</i>		4.258 ***		2.712 ***
<i>CapInt</i>		0.274 **		0.315
<i>ExcessStockBen</i>		-0.183 ***		-1.079 ***
<i>NOLInd</i>		-0.099 *		-0.063
Pseudo R-squared	47.57%	48.20%	16.09%	18.06%
Area under ROC curve	94.02%	94.22%	86.53%	86.43%

Effect of CIC on Fed_Cash_ETR

Variable	Newly-assigned & Non-assigned			Newly-assigned & Long-assigned		
	Δ Firms	Δ Firms	All Firms	Δ Firms	Δ Firms	All Firms
Intercept	0.195 *** (18.36)	0.202 ** (15.27)	0.196 *** (24.36)	0.219 *** (9.93)	0.202 *** (11.36)	0.203 *** (13.86)
<i>Post</i>	-0.004 (-0.76)	-0.011 ** (-2.25)	-0.011 ** (-2.11)	-0.001 (-0.13)	0.007 (0.74)	0.003 (0.37)
Δ <i>Firm</i>			0.007 (1.27)			0.012 (1.36)
<i>Post</i> * Δ <i>Firm</i>			0.006 (0.86)			0.001 (0.08)
N	2,133	2,133	4,266	672	672	1,344
R-squared	21.01%	27.69%	24.03%	13.30%	23.10%	17.00%

Effect of CIC on Cash_ETR

Variable	Newly-assigned & Non-assigned			Newly-assigned & Long-assigned		
	Δ Firms	Δ Firms	All Firms	Δ Firms	Δ Firms	All Firms
Intercept	0.235 *** (11.96)	0.203 ** (7.92)	0.227 *** (14.93)	0.249 *** (7.8)	0.272 *** (7.04)	0.252 *** (9.75)
<i>Post</i>	0.005 (0.48)	-0.006 (-0.63)	-0.004 (-0.44)	0.019 (1.17)	-0.004 (-0.23)	0.005 (0.34)
Δ <i>Firm</i>			0.017 (1.64)			0.006 (0.39)
<i>Post</i> * Δ <i>Firm</i>			0.005 (0.35)			0.006 (0.26)
N	2,133	2,133	4,266	672	672	1,344
R-squared	7.35%	11.90%	10.05%	5.50%	11.10%	7.40%

Effect of CIC on UTB_CY_ADD

Variable	Newly-assigned & Non-assigned			Newly-assigned & Long-assigned		
	Δ Firms	Δ Firms	All Firms	Δ Firms	Δ Firms	All Firms
Intercept	0.011 (1.02)	0.008 (0.86)	0.010 (1.35)	0.032 * (1.83)	0.024 * (1.91)	0.032 *** (3.10)
<i>Post</i>	0.011 * (1.90)	-0.003 (-0.70)	-0.002 (-0.38)	0.008 (0.97)	-0.007 (-1.37)	-0.007 (-1.13)
Δ <i>Firm</i>			-0.005 (-0.79)			-0.013 * (-1.67)
<i>Post</i> * Δ <i>Firm</i>			0.013 * (1.91)			0.016 * (1.68)
N	470	470	940	178	298	476
R-squared	4.54%	4.37%	4.18%	4.50%	7.40%	4.90%

Conclusion

- Use dataset of CIC firms to:
 - ❖ Build CIC determinants model
 - ❖ Examine the effect of audit certainty on tax avoidance
- Findings suggest:
 - ❖ Size and complexity main determinants of CIC assignment
 - ❖ CIC program alters managers' expectations regarding future tax payments, but does *not* have a significant deterrence effect
- Important to IRS as it considers the costs and benefits of CIC program

2011-2012 Schedule M-3 Profiles of Schedule UTP Filers by IRC Section Cited

IRS Research Conference Extract
from Boynton-DeFilippes-Legel-
Rupert Paper on “2011-2012
Schedule M-3 Profiles of Schedule
UTP Filers by IRC Section Cited”

June 2015



Large Business & International Division

**PLANNING, ANALYSIS,
INVENTORY & RESEARCH**

DISCLAIMER

THE OPINIONS EXPRESSED ARE THOSE OF THE AUTHORS AND DO NOT NECESSARILY REPRESENT POSITIONS OF THE U.S. DEPARTMENT OF THE TREASURY OR THE INTERNAL REVENUE SERVICE.



Large Business & International Division

PLANNING, ANALYSIS,
INVENTORY & RESEARCH

AGENDA

- ❖ 2011 - 2012 Data for Schedule UTP Filers and Non-filers
- ❖ 2011 - 2012 Schedules M-3 and UTP Analysis of Code Sections Cited
- ❖ 2011 - 2012 Summary



2011 - 2012 DATA FOR SCHEDULE UTP FILERS AND NON-FILERS



Large Business & International Division

**PLANNING, ANALYSIS,
INVENTORY & RESEARCH**

2011 (2012) Schedule UTP Data for Form 1120 Corporations

- ❖ 41,636 (42,301) corporations in 2011 (2012)

- ❖ 2,160 (2,232) filed a Schedule UTP in 2011 (2012)
 - 1,238 (1,230) SEC 10K/Public filers
 - 922 (1,002) Non-public filers

2011 (2012) Schedule UTP Data for Form 1120 Corporations with Assets \geq \$100M

- ❖ 12,307 (12,427) corporations have total assets of \$100M or more and potentially subject to Schedule UTP (required since 2010 for this group of TPs)
- ❖ 1,227 (1,176) SEC 10K/Public filers with \$100M or more in assets in 2011 (2012)
 - The 2012 decrease from 2011 of 51 SEC 10K/Public filers with \$100M or more in assets associated with a decrease of \$5 Trillion in total assets reported for this class of Schedule UTP filers

2011 - 2012 SEC 10K/Public Schedule UTP Filers and Non-filers with \geq \$100M in Assets

	'11 SEC Filers \geq \$100M	'12 SEC Filers \geq \$100M	'11 SEC Non-filers \geq \$100M	'12 SEC Non-filers \geq \$100M
Returns	3%	3%	5%	5%
Assets	61%	49%	12%	24%
WWI	89%	67%	17%	19%
NFI	88%	85%	8%	10%
Pretax Book	84%	67%	16%	17%
Taxable Income	77%	64%	11%	14%
Tax Net Income	78%	63%	12%	15%
Tax After Credits	57%	55%	15%	16%
FTC	79%	69%	11%	12%

2011 - 2012 SCHEDULES M-3 AND UTP ANALYSIS OF CODE SECTIONS CITED



Large Business & International Division

**PLANNING, ANALYSIS,
INVENTORY & RESEARCH**

2011 - 2012 Analysis of Schedule M-3 Profiles

- ❖ 2011 - 2012 Schedule M-3 and Form 1120 tax return data profiles for Schedule UTP filers and non-filers
- ❖ Financial statement types with \$100M or more in assets
 - SEC 10K/Public
 - Non-public (Audited and Unaudited)
- ❖ Schedule M-3 profiles that cite/do not cite on Schedule UTP any of the top five IRC sections

Most Frequently Cited IRC Sections

❖ Five most frequently cited code sections

- 482 – Transfer Pricing
- 41 – R&D Credit
- 162 – Trade or Business Expense
- 199 – Domestic Production Activities Deduction
- 263 – Capitalized Cost

❖ TPs may have one or more UTPs and most list only one UTP

Methodology

- ❖ Scale aggregate dollar data by an adjusted-total-income measure to make data for filers and non-filers comparable
- ❖ Total pretax income BTD is expressed as a percentage of total pretax book income
- ❖ Distinguish Schedule M-3 data with extreme absolute differences in the average values for the groups to be separated
- ❖ Schedule UTP filers and non-filers as well as Schedule UTP filers that list frequently cited IRC sections have different Schedule M-3, Part I, Part II, and Part III data profiles



2012 Schedule UTP SEC 10K/Public with Assets \geq \$100M: Filers vs. Non-filers

❖ Filers/Non-Filers: 1,176 vs. 2,112

- Mean asset size: \$21,200M vs. \$5,719M
- Mean WWI: \$553M vs. \$87M
- Mean Frn Nonincl Inc: -\$481M vs. -\$31M
- Mean Pretax Book Inc: \$583M vs. \$84M
- Mean BTD: -\$60M vs. -\$18M
- Mean tax net income: \$523M vs. \$66M
- Reduce pretax book income by -10.27% vs. -21.64% for tax net income



Key 2011 - 2012 Schedule M-3 Lines for SEC 10K/Public Filers and Non-filers

- ❖ Inclusion in tax income of subpart F foreign income (Schedule M-3, Part II, Line 3)
- ❖ Exclusion in tax income of previously taxed foreign distributions (Schedule M-3, Part II, Line 5)
- ❖ Exclusion from tax income of U.S. equity method income (Schedule M-3, Part II, Line 6)

Key 2011 - 2012 Schedule M-3 Lines for SEC 10K/Public Filers and Non-filers (cont.)

- ❖ Adjustments to U.S. partnership income to include all Schedule K-1 income in tax income (Schedule M-3, Part II, Line 9)
- ❖ Adjustments to COGS in tax income (Schedule M-3, Part II, Line 17)
- ❖ Adjustments to bad debt expense/deduction recognition in tax income (Schedule M-3, Part III, Line 32)

2012 Schedule UTP SEC Filers with Assets \geq \$100M Citing/Not Citing 482

❖ SEC Filers citing/not citing Section 482: 326 vs. 850

- Mean asset size: \$23,921M vs. \$20,157M
- Mean WWI: \$1,017M vs. \$374M
- Mean Frn Nonincl Inc: -\$1,410M vs. -\$125M
- Mean Pretax Book Inc: \$804M vs. \$498M
- Mean BTD: -\$11M vs. -\$79M
- Mean tax net income: \$793M vs. \$419M
- Reduce pretax book income by -1.31% vs. -15.81% for tax net income



Key 2011 - 2012 Schedule M-3 Lines SEC Filers with Assets \geq \$100M Citing/Not Citing 482

- ❖ Inclusion in tax income of subpart F foreign income (Schedule M-3, Part II, Line 3)
- ❖ Inclusion in tax income of Section 78 gross-up (Schedule M-3, Part II, Line 4)
- ❖ Exclusion from tax income of previously taxed foreign distributions (Schedule M-3, Part II, Line 5)

Key 2011 - 2012 Schedule M-3 Lines SEC Filers with Assets \geq \$100M Citing/Not Citing 482 (cont.)

- ❖ Exclusion from tax income of U.S. equity method income (Schedule M-3, Part II, Line 6)
- ❖ Adjustment to depreciation expense/deduction in tax income (Schedule M-3, Part III, Line 31)
- ❖ Adjustment to other expense/deduction with difference in tax income (Schedule M-3, Part III, Line 37)

2012 Schedule UTP SEC Filers with Assets \geq \$100M Citing/Not Citing 41

- ❖ SEC Filers citing/not citing Section 41: 506 vs. 670
 - Mean asset size: \$14,237M vs. \$26,459M
 - Mean WWI: \$513M vs. \$583M
 - Mean Frn Nonincl Inc: -\$487M vs. -\$477M
 - Mean Pretax Book Inc: \$508M vs. \$639M
 - Mean BTD: -\$138M vs. -\$1M
 - Mean tax net income: \$370M vs. \$638M
 - Reduce pretax book income by -27.09% vs. -0.17% for tax net income

Key 2011 - 2012 Schedule M-3 Lines SEC Filers with Assets \geq \$100M Citing/Not Citing 41

- ❖ Exclusion from tax income of U.S. equity method income (Schedule M-3, Part II, Line 6)
- ❖ Adjustments to U.S. dividends, not eliminated in consolidation, in tax income (Schedule M-3, Part II, Line 7)
- ❖ Adjustments to U.S. partnership income to include all Schedule K-1 income in tax income (Schedule M-3, Part II, Line 9)

Key 2011 - 2012 Schedule M-3 Lines SEC Filers with Assets \geq \$100M Citing/Not Citing 41 (cont.)

- ❖ Adjustments for mark-to-market in tax income (Schedule M-3, Part II, Line 16)
- ❖ Adjustment to amortization/impairment of goodwill expense/deduction in tax income (Schedule M-3, Part III, Line 26)
- ❖ Adjustment to other expense/deduction with difference in tax income (Schedule M-3, Part III, Line 37)

2011 - 2012 SUMMARY



Large Business & International Division

**PLANNING, ANALYSIS,
INVENTORY & RESEARCH**

Summary and Conclusions

- ❖ Schedule UTP filers and non-filers as well as Schedule UTP filers that cite IRCs have unique Schedule M-3 data profiles
- ❖ Quantitative models could be developed to detect the underlying issues on returns that don't file a Schedule UTP
- ❖ Models would assist in LB&I return selection

Thank you!

For more information contact:

charles.e.boynton@irs.gov

ellen.j.legel@irs.gov

lisa.j.rupert@irs.gov



Large Business & International Division

**PLANNING, ANALYSIS,
INVENTORY & RESEARCH**



Individual Non-Filers and IRS Generated Tax Assessments: Revenue and Compliance Impacts of IRS Substitute Assessment When Taxpayers Don't File

June 18, 2015

IRS Research Conference

Internal Revenue Service

Small Business / Self Employed, Collection Inventory Delivery & Selection , Strategic Analysis and Modeling

Saurabh Datta, Economist

Stacy Orlett, Operations Research Analyst

Alex Turk, Supervisory Economist

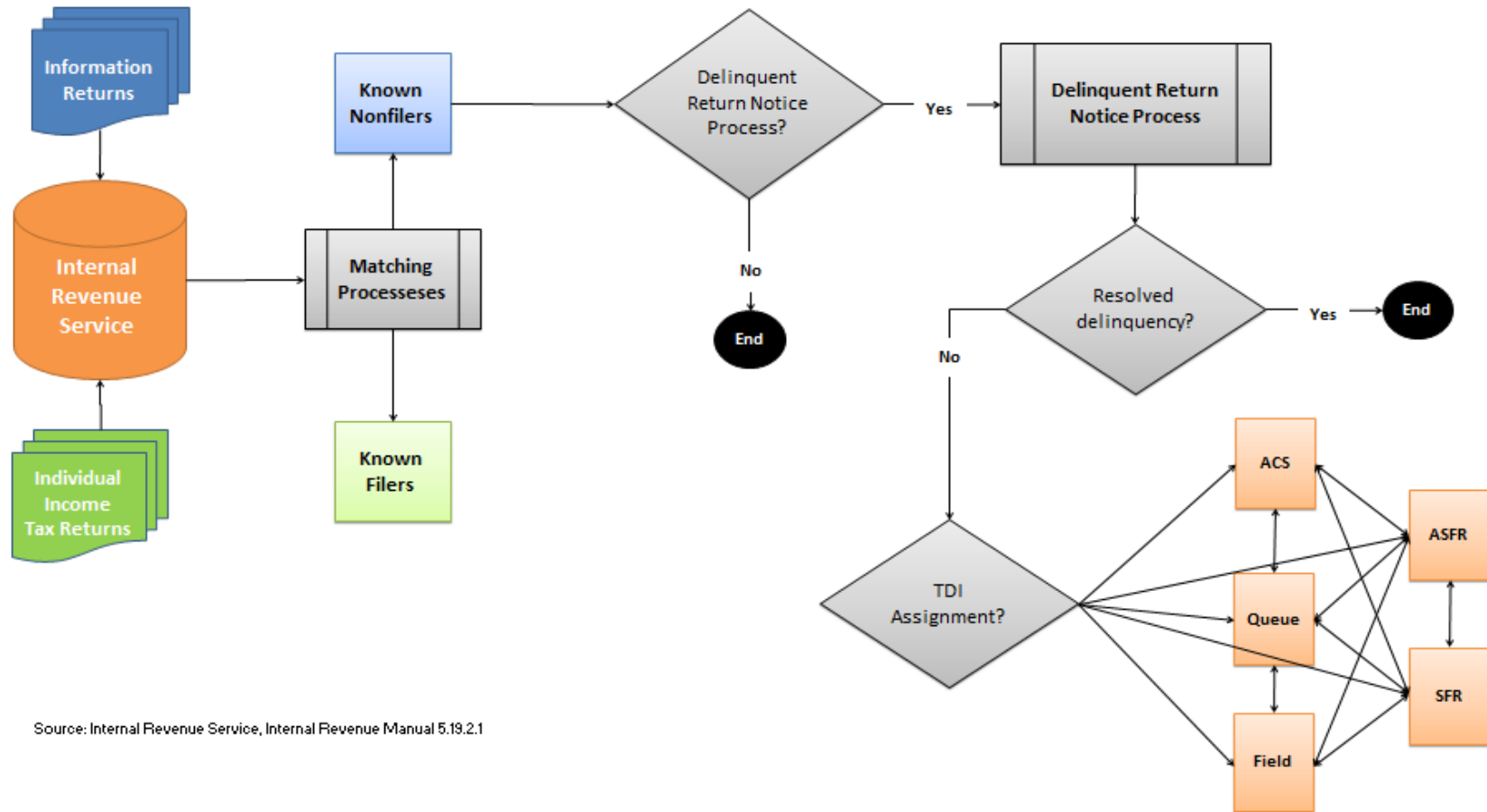
DISCLAIMER: The views and opinions presented in this paper reflect those of the authors.
They do not necessarily reflect the views or the official position of the Internal Revenue Service

Overview

- IRS Return Delinquency Process
- ASFR Background
- Research Objectives
- Overview of ASFR Inventory Compliance/Collectability
- Theoretical Model
- Empirical Model
- Modeling Results
- Simulation
- Conclusion



IRS Return Delinquency Process



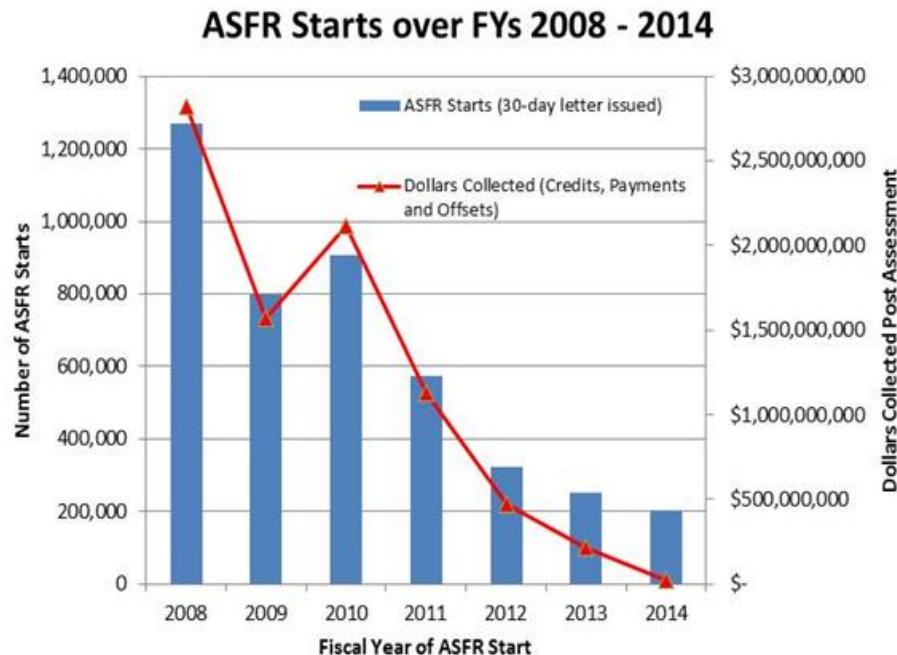
Source: Internal Revenue Service, Internal Revenue Manual 5.19.2.1

ASFR Background

- Automated Substitute for Return (ASFR) is an automated system; a key program for enforcing filing compliance.
- The taxpayers treated by the ASFR program have income and appear to have a tax liability and/or a filing requirement but have not responded to delinquent return notices.
- The ASFR process sends up to two letters of notification to the taxpayer.
 - Letters provide detail on income and the proposed assessment amount the IRS will make if the taxpayer does not respond
 - If there is no response or resolution from the taxpayer on the first letter (ASFR 30-day letter) , the system prepares the Notice of Deficiency, which is mailed to the taxpayer as the ASFR 90-day letter
- The end goal is to secure returns, collect unpaid tax liabilities, and promote future voluntary filing compliance.

ASFR Starts (30-day letters issued)

Fiscal Years 2008-2014



Source: IRS, Compliance Data Warehouse Individual Master File Transaction History, as of February 2015 (cycle 201508)

- **ASFR is working fewer cases**

- Securing less returns
- Collecting fewer dollars

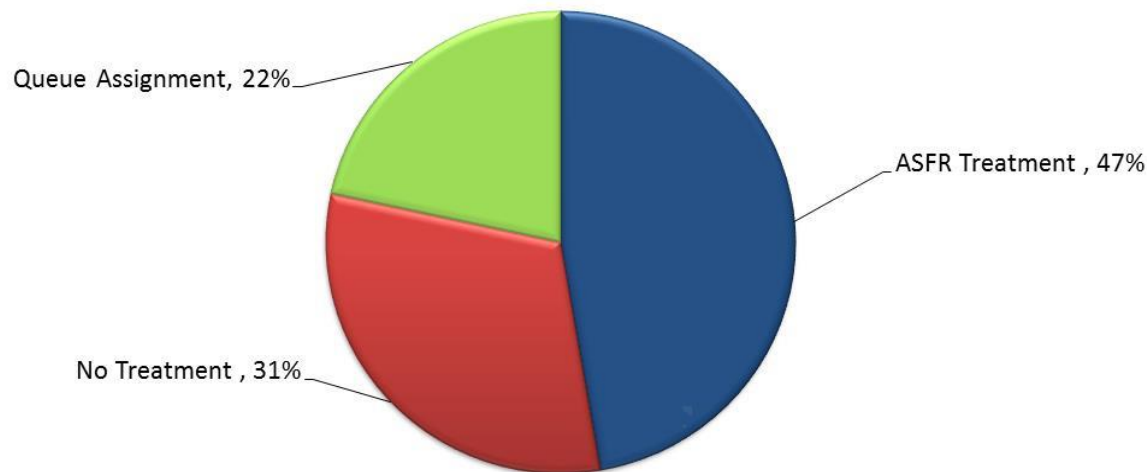
- **Decline in ASFR Resources**

- Steady decline in ASFR resources since 2010 as the graph demonstrates

Taxpayer Delinquent Investigations

Available ASFR Inventory


**Taxpayer Delinquent Investigations Available for ASFR,
Tax Years 2007 - 2009**



Source: IRS, Compliance Data Warehouse Individual Master File Status and Transaction History, and Individual Case Creation as of February 2015 (cycle 201508)



Research Objectives

- 
- Estimate impact on dollars collected for delinquent returns resulting from ASFR treatment
 - Estimate the impact on subsequent voluntary filing compliance resulting from ASFR treatment
 - Two, three, four years after delinquent return



Overview of ASFR Inventory Compliance/Collectability

Overview of Dollars Collected

Three years from TDI status

**Table 1. Dollars Collected Three Years from TDI status
TDIs Available for ASFR (Tax Years 2007-2009)**

Type of Treatment	% with a Payment	Average Dollars Collected
ASFR Treatment	28%	\$1,454
No Treatment	19%	\$804
Queue Assignment	6%	\$384

Source: IRS, Compliance Data Warehouse Individual Master File Status and Transaction History, and Individual Case Creation as of February 2015 (cycle 201508)

Taxpayers treated by ASFR

- were more likely to make a payment and
- have higher average dollars collected

Compared to those not treated.

Overview of Voluntary Filing Compliance

Taxpayers who later file their delinquent return are more likely to voluntarily file subsequent returns

At least one third of the taxpayers treated by ASFR voluntarily filed subsequent return two, three, four tax years following a TDI

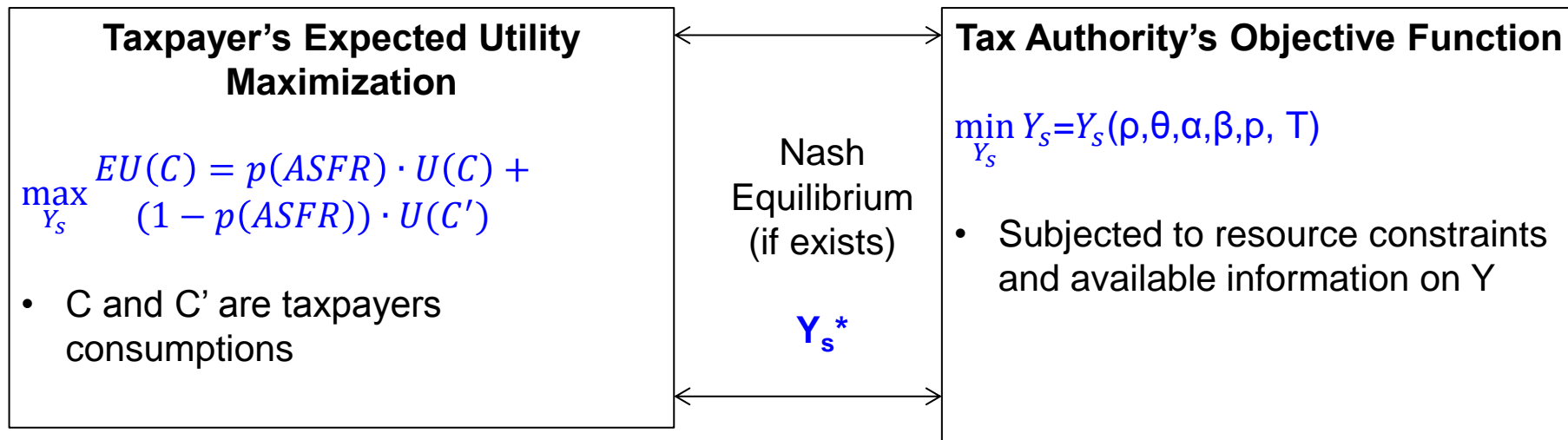
Table 2. Subsequent Voluntary Filing Compliance
TDIs Available for ASFR (Tax Years 2007-2009)

Type of Treatments for TDI Before Due Date of Subsequent Return	Filed Return of the TDI before due date of Subsequent Return	% Voluntarily Filed Subsequent Return Following TDI		
		Two Tax Years After TDI	Three Tax Years After TDI	Four Tax Years After TDI
ASFR Treatment	No	33%	38%	39%
No Treatment	No	37%	42%	42%
	Yes	71%	69%	61%
Queue Assignment	No	22%	25%	26%
	Yes	65%	63%	56%

Source: IRS, Compliance Data Warehouse Individual Master File Status and Transaction History, and Individual Case Creation as of February 2015 (cycle 201508)



Theoretical Model



- $Y_s = (Y - W)$ suggests tax authority has no income information beyond W, that is $Y_r = 0$. This is a case of non-filer



Empirical Model

- **Model 1:** Probability of ASFR working a case from available inventory

- *Probit Regression*
- *Using Tax Year dummies as instruments*

- **Model 2:** Net Dollars and Offsets Collected (within 3 years after TDI status)

- *Ordinary Least Square (OLS) Regression*
- *Tobit Regression – Payments are left censored at zero dollars*

- **Model 3:** Subsequent Filing Compliance (voluntarily filed their tax)

- *Logistic Regression*
 - *Estimated separately two, three and four tax years after delinquency*

- ❖ **X:** vector of observable taxpayer characteristics

- ❖ **Direct Effect of ASFR**

- ❖ **ASFR:** indicator for ASFR treatment

- ❖ **Indirect Effect of ASFR**

- ❖ **P(ASFR):** predicted probability of ASFR working a case from available inventory

Empirical Model

Net Dollars and Offsets Collected (within 3 years of TDI status)

β_1 and β_2 estimate the direct and indirect impacts of ASFR on Dollars Collected

■ OLS Model

$$Y_i = \beta_1 ASFR_i + \beta_2 P(ASFR)_i + X_{ik} \beta_k + e_i$$

- The marginal impact on dollars collected is given by

$$\frac{\partial(Y_i)}{\partial x_i}$$

- x_i is a specific element of the set $[ASFR_i, P(ASFR)_i, X_{ik}]$

■ Tobit Model

$$Y_i = \beta_1 ASFR_i + \beta_2 P(ASFR)_i + X_{ik} \beta_k + e_i$$

- The marginal impact on dollars collected is given by

$$\frac{\partial(Y_i^*)}{\partial x_i} = \beta_i \Phi \left(\frac{(\beta_1 ASFR_i + \beta_2 P(ASFR)_i + X_{ik} \beta_k)}{\sigma_U} \right)$$

- x_i is a specific element of the set $[ASFR_i, P(ASFR)_i, X_{ik}]$, $\Phi()$ is the Normal distribution function and σ_U is the scale parameter.

Empirical Model

Subsequent Filing Compliance

Voluntarily filed the tax return two, three or four tax years after TDI

α_1 and α_2 estimate the direct and indirect impacts of ASFR on Subsequent Filing Compliance

- $P(\text{File}_{t+j})_i = F(\alpha_1 \text{ASFR}_i + \alpha_2 P(\text{ASFR})_i + X_{ij} \alpha_j)$.
- File_{t+j} represents whether the taxpayer timely filed their $t+j$ tax return
- Separate regression are estimated for $j=2, 3$ and 4
 - \mathbf{X} matrix is updated for the each of the years with new available information
- The marginal impact of x_i on subsequent filing compliance for each of these years are computed at their sample means



Model Results

Dollars Collected Model Results

Table 3. Model Results - Expected Dollars Collected Three Years from TDI Status

Explanatory Variables <i>Dependent variable:</i> <i>Dollars Collected Three Years from TDI status</i> <i>(N = 277,314)</i>	OLS Coefficients	Tobit	
		Coefficients	Marginal Effect
Indicator ASFR Treatment (ASFR)	672.44 (14.60)***	11,385 (182.15)***	1639.59
Predicted Probability of ASFR Working a Case (P(ASFR))	193.92 (37.32)***	8241.28 (340.38)***	1186.86
Number of Cycles to ASFR Treatment (30-day letter issued)	-6.55 (0.24)***	-103.76 (3.26)***	-14.94

Source: Internal Revenue Service Individual Master File Status and Transaction History, and Case Creation Non-filer Identification Process. Data extracted February 2015.

Notes: Not all explanatory variables show n. See Appendix. *p<0.1; **p<0.05; ***p<0.01; Standard Errors reported in parentheses; The Standard Errors for the OLS model are Heteroscedasticity Consistent Standard Errors. Marginal Effects are calculated at the sample means.

**Increase in Dollars
Collected by ASFR
Treatment:**

Positive and Significant

*Marginal Effects are positive
on dollars collected for
ASFR treatments
compared to
“No Treatment”*

Subsequent Voluntary Compliance Model Results

Table 4. Model Results - Voluntary Filing Compliance Two, Three and Four Years from TDI Status

Explanatory Variables <i>Dependent variable: Taxpayer voluntary filed tax return 'j' tax years later; j=2,3 and 4</i>	Two Tax Years After		Three Tax Years After		Four Tax Years After	
	Coefficients	Marginal Effects	Coefficients	Marginal Effects	Coefficients	Marginal Effects
Indicator ASFR Treatment	0.42 (0.02)***	0.09	0.25 (0.01)***	0.06	0.18 (0.01)***	0.04
Predicted Probability of ASFR Working a Case	0.51 (0.02)***	0.11	0.89 (0.03)***	0.21	1.14 (0.03)***	0.27
Number of Cycles to ASFR Treatment (30-day letter issued)	-0.01 (0.001)***	-0.002	-0.004 (0.0003)***	-0.001	-0.003 (0.0002)***	-0.0006
Taxpayer filed return on TDI prior to due date of tax return 'j'	1.55 (0.02)***	0.35	1.32 (0.02)***	0.31	1.01 (0.02)***	0.24

Source: Internal Revenue Service Individual Master File Status and Transaction History, and Case Creation Non-filer Identification Process. Data extracted February 2015.

Notes: Not all explanatory variables show n. See Appendix. *p<0.1; **p<0.05; ***p<0.01; Marginal Effects are calculated at the sample means.

Increase in Subsequent Compliance by ASFR Treatment:

Positive, Significant and Stable

Marginal direct and indirect effects of ASFR on voluntary filing compliance two, three and four years after TDI assignment

Indirect effect is increasing and stable over the years as the direct effect reduces over time



Illustrating the effect of ASFR with a Simulation

Simulation

- Use estimated models to illustrate the impact of working more ASFR cases on dollars collected and subsequent voluntary filing
- Select randomly cases from the tax year 2009 unworked by ASFR
- Assume the initial ASFR letter (30-day letter) was sent immediately
- Increase the measure for Indirect Effect, $P(\text{ASFR})$, to reflect increase in proportion of available inventory
- Estimate increases in payments and subsequent returns filed from the fitted regressions. Compute:
 - Increase in payments = $\sum_{\forall i} (E(P_{ci}) - E(P_{ai}))$
 - Increase in returns = $\sum_{\forall i} (P(R_{ci}) - P(R_{ai}))$

Simulation Results

Table 5. Simulated Total Impact of Working 100,000 More ASFR Cases for Tax Year 2009

Model	Total Increase	Increase Per ASFR Case Started
Increase in Payments (Linear Model)	\$118,077,994	\$1,181
Increase in Payments (Tobit Model)	\$326,192,842	\$3,262
Increase in Voluntarily Filed Returns in 2011	19,469	0.19
Increase in Voluntarily Filed Returns in 2012	24,563	0.25
Increase in Voluntarily Filed Returns in 2013	29,166	0.29

**Increase in payments
per case by working
additional cases**

**Increase in voluntary
subsequent
compliance by
working additional
cases**

Simulation – Return on Investment

- Average cost to make an ASFR assessment is as much as \$80

(Office of the Chief Financial Officer, Financial Management, Office of Cost Accounting, Cost-Based Performance Measures Automated Substitute for Return (ASFR) FY2009 - FY2013, Unpublished Internal CFO document, 2014)

Thus

- Revenue collected relative to the cost is approximately (ignoring downstream treatment costs)
 - 15:1 for Linear Model
 - 40:1 using Tobit Model
- Every \$110 spent results in an additional voluntary filed return

Conclusions

- **Positive direct and indirect impacts of ASFR treatment**
 - ❖ The indirect effects are smaller than the direct effects for payment of taxes on delinquent returns
 - ❖ The indirect effects on subsequent filing compliance are large relative to the direct effects
 - ❖ Both direct and indirect effects of ASFR remain high and stable on subsequent voluntary filing compliance
- **Simulation Results suggest working additional cases increases ASFR revenue per case and promotes subsequent voluntary filing compliance, which is stable across the years**
- **Direction for further research:**
 - ❖ Perform similar analysis by considering all the non-filer treatment steams and impact on all taxpayers, including those who have always filed timely or at least have always resolved in the notice process
 - ❖ Taxpayer's expectations may depend on past probability of whether getting selected for treatment or not. This feature needs to be incorporated appropriately in the model
 - ❖ Extend the existing modeling framework by estimating dollars collected and subsequent voluntary compliance simultaneously in simultaneous equation framework



Thank You!

**Individual Non-Fileers and IRS Generated
Tax Assessments: Revenue and
Compliance Impacts of IRS Substitute
Assessment When Taxpayers Don't File**

Internal Revenue Service
Small Business / Self Employed, Collection Inventory Delivery & Selection , Strategic Analysis
and Modeling

Saurabh Datta, Economist
Stacy Orlett, Operations Research Analyst
Alex Turk, Supervisory Economist

DISCLAIMER: The views and opinions presented in this paper reflect those of the authors.
They do not necessarily reflect the views or the official position of the Internal Revenue Service



2015 IRS-TPC Research Conference

Session 2: Taxpayer Responses to Rules and Enforcement

Moderator:

Ron Hodge

IRS, RAS, Office of Research

Taxpayer Behavior under Audit Certainty

Erin Towery

University of Georgia

**2011-2012 Schedule M-3 Profiles of
Schedule UTP Filers by IRC Section Cited**

Lisa Rupert

IRS, Large Business & International

**Individual Nonfilers and IRS Generated Tax
Assessments**

Saurabh Datta

IRS, Small Business / Self-Employed

Discussant:

Danielle Higgins

City University of New York