

Volume 2

TAS RESEARCH AND RELATED STUDIES

Estimating the Impact of Audits on the Subsequent Reporting Compliance of Small Business Taxpayers:

Preliminary Results

ESTIMATING THE IMPACT OF AUDITS ON THE SUBSEQUENT REPORTING COMPLIANCE OF SMALL BUSINESS TAXPAYERS: Preliminary Results

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EXECUTIVE SUMMARY¹

Introduction

TAS Research is working on a multi-year study to identify the major factors that drive taxpayer compliance behavior. During the first two study phases, we analyzed the results of a telephone survey, conducted by a vendor, using a representative national sample of taxpayers with sole proprietor income (*i.e.*, Schedule C, *Profit or Loss from Business (Sole Proprietorship)*).² There were a number of significant study findings, including that trust in government, the tax laws, and the IRS are associated with the level of taxpayer compliance. Surprisingly, however, TAS found no significant evidence that economic deterrence (*i.e.*, the expected likelihood and cost of getting caught cheating) motivates sole proprietor compliance decisions.³

In the current study phase, TAS is exploring whether economic deterrence impacts sole proprietor tax compliance, because statistics show underreporting of individual business income represents the largest portion of the tax gap (*i.e.*, taxes not voluntarily and timely paid).⁴ Specifically, we are evaluating the impact of audits on the subsequent reporting compliance of sole proprietors.

The IRS generally needs to conduct audits to detect noncompliance by sole proprietors, since most sole proprietor income is not subject to third-party information reporting and therefore, cannot be detected by document matching. Thus, it is important for the IRS to gain a better understanding of how to improve compliance among sole proprietors, and in particular, to evaluate the effectiveness of its current audit strategy.

Objectives

The principal study objective is to evaluate the impact of audits on the subsequent reporting compliance of sole proprietor taxpayers. TAS also explored whether certain factors related to the audit appear to influence subsequent reporting compliance, including:

- The type of audit, *i.e.*, correspondence, field audit or office audit;
- The amount of the audit assessment; and
- Prior and subsequent audits of the test group taxpayers, *i.e.*, those audited in year one of the study.

1 The principal authors of this study are Mike Nestor and Tom Beers, TAS Research and Analysis.

2 The vendor also administered the survey to a sample of high and low compliance communities. Inclusion of the community sample enabled TAS to better evaluate whether sole proprietor taxpayers' affiliations within their communities appear to influence compliance behavior.

3 See National Taxpayer Advocate 2013 Annual Report to Congress vol. 2, 33-56 (Research Study: *Small Business Compliance: Further Analysis of Influential Factors*). See also National Taxpayer Advocate 2012 Annual Report to Congress vol. 2, 1-70 (Research Study: *Factors Influencing Voluntary Compliance by Small Businesses: Preliminary Survey Results*).

4 Individual business income includes income from sole proprietorships, farms and pass-through income on Schedule E (Supplemental Income and Loss). Schedule E income includes income from: partnerships, S-corporations, rents and royalties, and estates and trusts. See IR-2012-4, *IRS Releases New Tax Gap Estimates; Compliance Rates Remain Statistically Unchanged From Previous Study* (Jan. 6, 2012), <http://www.irs.gov/uac/IRS-Releases-New-Tax-Gap-Estimates;-Compliance-Rates-Remain-Statistically-Unchanged-From-Previous-Study>.

Methodology

TAS Research evaluated reporting compliance using the IRS's computer algorithms (called a Discriminant Index Function or "DIF" score) that estimate the likelihood that an audit of the taxpayer's return would produce an adjustment (*i.e.*, a higher DIF generally corresponds to lower reporting compliance).⁵

TAS Research used a test group and a separate control group to evaluate changes in reporting compliance over a five year period. The test group was comprised of the nearly 68,000 sole proprietor taxpayers (*i.e.*, taxpayers with Schedule C income) with high DIF scores⁶ who were audited and had their audits closed in calendar year 2007, the first study year. The control group was the population of over 2.3 million sole proprietor taxpayers with high DIF scores who were not audited in the first year of the study. To detect changes in reporting compliance, we tracked the test groups' DIF scores for the five years following the audit and compared them to the control groups' DIF scores during the same period.

Findings

Our study findings suggest that overall IRS audits have a modest deterrent effect that diminishes in the years following the audit, disappearing altogether by year five. This suggests that any initial impact of the audit on compliance is short lived. These findings are consistent with previous TAS studies that explored factors that influence compliance behavior of sole proprietor taxpayers.⁷ In those studies, TAS failed to find evidence that deterrence significantly influences the compliance behavior of sole proprietor taxpayers.

Current study findings suggest, however, that the deterrent effect may vary due to factors such as the type of audit and the amount of the audit assessment relative to the taxpayer's total positive income.⁸ In particular, our findings suggest that field and office audits may be more effective than correspondence audits in promoting subsequent reporting compliance. Also, audits with large assessments, relative to the taxpayer's total positive income, appear to be more effective in promoting subsequent reporting compliance. Based on our current analyses, it is unclear whether these large assessments are due to more effective audits or lower taxpayer reporting compliance.⁹

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- 5 See, e.g., IRM 4.19.11.1.4 (Nov. 9, 2007). The IRS selects some returns for examination using the Discriminant Index Function (DIF) computer scoring system. IRM 4.1.1.2.6 (Oct. 24, 2006). It develops DIF scores based on information obtained and periodically updated from National Research Program examinations. Returns with high DIF scores generally have a higher probability of being adjusted on audit than other returns of the same type. IRM Exhibit 4.1.7-1(12) (May 19, 1999). The IRS classifies tax returns into mutually exclusive groups called examination "activity codes" ("EAC"), and develops a separate compliance risk scoring algorithm (*i.e.*, a DIF algorithm) for each activity code. For Schedule C filers, the activity codes reflect the amount of gross receipts reported on the Schedule C and the taxpayer's total positive income (TPI), which is the taxpayer's positive income (*i.e.*, excluding negative income and losses) from all sources before adjusting for deductions and exemptions. For a more detailed discussion of the DIF score methodology, see National Taxpayer Advocate 2012 Annual Report to Congress vol. 2, 1-70 (Research Study: *Factors Influencing Voluntary Compliance by Small Businesses: Preliminary Survey Results*).
 - 6 We classified taxpayers with DIF scores in the top 20 percent as high DIF score taxpayers. We found 67,859 high DIF score sole proprietor taxpayers whose audits closed in calendar year 2007.
 - 7 See National Taxpayer Advocate 2013 Annual Report to Congress vol. 2, 33-56 (Research Study: *Small Business Compliance: Further Analysis of Influential Factors*). See also National Taxpayer Advocate 2012 Annual Report to Congress vol. 2, 1-70 (Research Study: *Factors Influencing Voluntary Compliance by Small Businesses: Preliminary Survey Results*).
 - 8 Total positive income is positive income from all sources before adjusting for deductions, exemptions or negative income.
 - 9 As discussed below in the Limitations Section of this report, a significant amount of noncompliance is frequently not detected during audits of sole proprietor taxpayers. It is therefore possible that many of the taxpayers who received low or no additional assessments at the conclusion of their audits were in fact significantly noncompliant, but that this noncompliance was not detected.

Our findings also suggest that there may be a group of taxpayers who are particularly resistant to the deterrent effect of audits, since these taxpayers continue to have higher DIF scores than other audited taxpayers despite being audited more than once during the study period.

In this report we present our preliminary study findings. TAS Research is working with independent researchers to further explore the impact of audits on taxpayer compliance behavior. Based on their preliminary review of this study, we anticipate working with them to explore:

- Refinement of the control group, *i.e.*, the population of sole proprietor taxpayers with high DIF scores who were not audited in 2007, by removing taxpayers who were audited in the years immediately preceding 2007 (the beginning of the study period) or during the study period;
- Whether the classification process that determines the type of audit, *i.e.*, correspondence, office, or field audit, introduced a selection bias that we should address with refinements to our analysis of the subsequent reporting compliance behavior of the taxpayers in these audit groups;
- Possible explanations for the significant decline of both the treatment and control groups' DIF scores in the year following the audit;
- A more detailed analysis of the impact of multiple audits that considers both the number and timing of the audits with respect to the audit that closed in 2007; and
- Alternative methodologies, such as panel regression, that would enable the addition of control variables (*e.g.*, demographic variables such as type of business, gender and age and other variables such as prior audit experience) to better isolate and distinguish the impact of the audit from other potential factors.¹⁰

We anticipate publishing the results of this collaborative effort by the end of 2015. We will also collaborate with these researchers throughout 2015 on new studies evaluating the impact of penalties and outreach and education on taxpayer compliance behavior.

¹⁰ For an in-depth discussion of the need for inclusion of demographic and other behavioral economic factors in the IRS workload selection process, see Most Serious Problem: *WORKLOAD SELECTION: The IRS Does Not Sufficiently Incorporate the Findings of Applied and Behavioral Research into Audit Selection Processes as Part of an Overall Compliance Strategy*, *supra*.

INTRODUCTION

TAS Research is working on a multi-year study exploring the factors that motivate taxpayer compliance behavior. Broadly speaking, these factors include not only the expected likelihood and cost of getting caught cheating (called “economic deterrence”), but also compliance norms, trust in the government and the tax administration process, the complexity and convenience of complying, and the influence of tax return preparers.

During the first two study phases, TAS analyzed the results of a telephone survey, conducted by a vendor, using a representative national sample of taxpayers with sole proprietor income (*i.e.*, Schedule C, *Profit or Loss from Business (Sole Proprietorship)*).¹¹ The principal objective was to identify the major factors that drive taxpayer compliance behavior. There were a number of significant study findings, including that trust in government, the tax laws, and the IRS are associated with the level of taxpayer compliance. Surprisingly, however, TAS found no significant evidence that economic deterrence motivates sole proprietor compliance decisions.¹²

In the current study phase, TAS is exploring whether economic deterrence impacts sole proprietor tax compliance. We believe this taxpayer segment is particularly important because underreporting of individual business income represents the largest portion of the tax gap (*i.e.*, taxes not voluntarily and timely paid).¹³ Specifically, we are evaluating the impact of audits on the subsequent reporting compliance of sole proprietors (*i.e.*, Schedule C filers).

The IRS is unlikely to be able to detect noncompliance by sole proprietors without expending significant enforcement resources to conduct audits, since most sole proprietor income is not subject to third-party information reporting, and can therefore not be detected by document matching. Thus, it is important for the IRS to gain a better understanding of how to improve compliance among sole proprietors, and in particular, to evaluate the effectiveness of its current audit strategy.

OBJECTIVES

The principal study objective is to evaluate the impact of audits on the subsequent reporting compliance of sole proprietor taxpayers. TAS also explored whether certain factors related to the audit appear to influence subsequent reporting compliance, including:

- The type of audit, *i.e.*, correspondence, field audit or office audit;
- The amount of the audit assessment; and
- Prior and subsequent audits of the test group taxpayers, *i.e.*, those audited in year one of the study.

11. The vendor also administered the survey to a sample of high and low compliance communities. Inclusion of the community sample enabled TAS to better evaluate whether sole proprietor taxpayers' affiliations within their communities appear to influence compliance behavior.

12. See National Taxpayer Advocate 2013 Annual Report to Congress vol. 2, 33-56 (Research Study: *Small Business Compliance: Further Analysis of Influential Factors*). See also National Taxpayer Advocate 2012 Annual Report to Congress vol. 2, 1-70 (Research Study: *Factors Influencing Voluntary Compliance by Small Businesses: Preliminary Survey Results*).

13. Individual business income includes income from sole proprietorships, farms and pass-through income reported on Schedule E (Supplemental Income and Loss). Schedule E income includes income from: partnerships, S-corporations, rents and royalties, and estates and trusts. See IR-2012-4, *IRS Releases New Tax Gap Estimates; Compliance Rates Remain Statistically Unchanged From Previous Study* (Jan. 6, 2012), available at <http://www.irs.gov/uac/IRS-Releases-New-Tax-Gap-Estimates;-Compliance-Rates-Remain-Statistically-Unchanged-From-Previous-Study>.

METHODOLOGY

TAS Research evaluated reporting compliance using the IRS's computer algorithms (called a Discriminant Index Function or "DIF" score) that estimate the likelihood an audit of the taxpayer's return would produce an adjustment (*i.e.*, a higher DIF generally corresponds to lower reporting compliance and therefore a higher tax due after audit).¹⁴

TAS Research used a test group and a separate control group to evaluate changes in reporting compliance over a five year period.¹⁵ The test group was comprised of the nearly 68,000 sole proprietor taxpayers (*i.e.*, taxpayers with Schedule C income) with high DIF scores¹⁶ who were audited and had their audits closed in calendar year 2007, the first study year. The control group was the population of over 2.3 million sole proprietor taxpayers with high DIF scores who were not audited in the first year of the study. To detect changes in reporting compliance, we tracked the test groups' DIF scores for the five years following the audit and compared them to the control groups' DIF scores during the same period.

We continued to include taxpayers in the test and control groups in the years subsequent to 2007 as long as they had Schedule C income. The table below shows the number of taxpayers in the audit and control groups by tax year during the study period.

FIGURE 1, Total taxpayers in audit and control groups by tax year

	Not Audited	Audited
Base Year	2,341,432	67,859
TY 2007	1,729,046	33,954
TY 2008	1,473,322	29,715
TY 2009	1,279,276	26,464
TY 2010	1,162,797	24,172
TY 2011	1,058,228	21,667

Scaling the DIF Score

Because DIF scores are computed separately for taxpayers in each "exam activity code" (EAC) each year, the scores of those in one EAC are not comparable to the scores of those in another EAC or to DIF scores computed for different tax years. To compare taxpayers in different EACs and for different years, TAS scaled the DIF scores. For each year, TAS first sorted all of the taxpayers in each EAC by DIF and then assigned the taxpayers a scaled DIF score based on the decile into which they fell. For example, TAS

14 See, e.g., IRM 4.19.11.1.4 (Nov. 9, 2007). The IRS selects some returns for examination using the Discriminant Function (DIF) computer scoring system. IRM 4.1.1.2.6 (Oct. 24, 2006). It develops DIF scores based on information obtained and periodically updated from National Research Program examinations. Returns with high DIF scores generally have a higher probability of being adjusted on audit than other returns of the same type. IRM Exhibit 4.1.7-1(12) (May 19, 1999). The IRS classifies tax returns into mutually exclusive groups called examination "activity codes" ("EAC"), and develops a separate compliance risk scoring algorithm (*i.e.*, a DIF algorithm) for each activity code. For Schedule C filers, the activity codes reflect the amount of gross receipts reported on the Schedule C and the taxpayer's total positive income (TPI), which is the taxpayer's positive income (*i.e.*, excluding negative income and losses) from all sources before adjusting for deductions and exemptions. For a more detailed discussion of the DIF score methodology, see National Taxpayer Advocate 2012 Annual Report to Congress vol. 2, 1-70 (Research Study: *Factors Influencing Voluntary Compliance by Small Businesses: Preliminary Survey Results*).

15 TAS Research conducted all study analyses using data from the IRS's Compliance Data Warehouse (CDW), which houses an extensive amount and variety of tax data and is available to the IRS research community.

16 We classified taxpayers with DIF scores in the top 20 percent as high DIF score taxpayers. We found 67,859 high DIF score sole proprietor taxpayers whose audits closed in calendar year 2007.

assigned those in the first decile a scaled DIF score of 1 and those in the 10th decile a scaled DIF score of 10. TAS used changes in the taxpayer's scaled DIF score as a proxy for changes in reporting compliance.¹⁷

For sole proprietor taxpayers, EACs are based on the taxpayer's total gross receipts (TGR) on Schedules C and F and total positive income (TPI), which is positive income from all sources before adjusting for deductions, exemptions or negative income.

TAS excluded the EACs for low income taxpayers claiming the earned income tax credit (EITC) because their low income status and reliance on the EITC refundable credit to support their standards of living may present a set of tax compliance issues that are atypical of other sole proprietor taxpayers. We also excluded the EACs for high income taxpayers who may have sole proprietor income (*i.e.*, those with TPI greater than \$200,000), because our research showed that identifying noncompliance based solely on the DIF may not be as effective for these taxpayers. The table below describes the EACs included in this study.

FIGURE 2, Total gross receipts (TGR) and total positive income (TPI) limits for certain Schedule C examination activity codes (EACs)¹⁸

EAC	TGR	TPI
274	<\$25,000	<\$200,000
275	\$25,000 - \$99,999	<\$200,000
276	\$100,000 - \$199,999	<\$200,000
277	>\$199,999	<\$200,000

The DIF Decile as an Estimator of Reporting Compliance

A key study assumption is that the DIF decile is a good proxy for taxpayer reporting compliance. To validate this assumption, TAS Research evaluated the predictive value of the DIF decile for the EACs included in this study (*i.e.*, EACs 274 – 277). To conduct this analysis, we used data from the National Research Program (NRP) for tax years 2006, 2007 and 2008.¹⁹

The NRP measures reporting compliance using the voluntary reporting rate (VRR). VRR is the total tax liability reported by the taxpayer divided by the total tax liability that should have been reported. For example, a VRR of .8 means that the taxpayer reported 80 percent of the total tax liability that should have been reported and a VRR greater than one means that the taxpayer reported a tax liability greater than the amount he or she actually owed.

17 This analysis assumes that reporting compliance behavior is similar for all the EACS included in this study. So, for example, we are assuming that the most compliant taxpayers in any given EAC included in the study have similar compliance to the most compliant taxpayers in the other EACs included in the study. More generally we assume that taxpayers who fall into any given DIF decile in TY 2007 have reporting compliance similar to taxpayers who fall into the same DIF decile for other EACs or tax years included in the study.

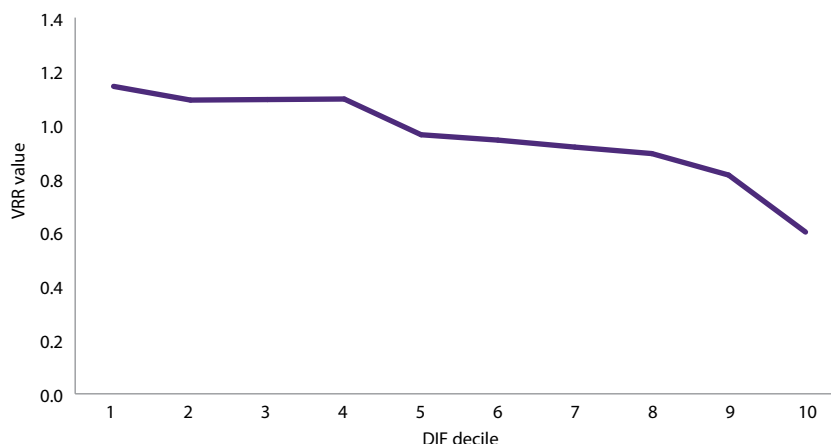
18 IRS, Document 6209, *IRS Processing Codes and Information* 12-16 (Jan. 2012). Many parts of Document 6209 are designated as “official use only,” but these EAC definitions are not.

19 Each year the IRS audits a representative national sample of individual taxpayers to estimate the level of voluntary tax compliance, track trends in voluntary compliance, and to develop DIF formulas to detect potential reporting noncompliance in tax returns. This program is referred to as the National Research Program.

To evaluate the effectiveness of the DIF decile as a predictor of reporting noncompliance, we computed the VRR for the 12,180 taxpayers in EACs 274 – 277 who were included in the NRP audits for tax years 2006 through 2008. Figure 3 below shows how the VRR varies with DIF decile.

FIGURE 3

VRR estimate for TPI classes 274–277 combined



As shown in the chart above, reporting compliance, as measured by VRR, starts at above 1 for the first decile (*i.e.*, on average taxpayers are actually reporting more than the owe) and continues to decline in subsequent deciles, bottoming at .60 for decile 10. The .60 VRR in decile 10 means that IRS NRP audit results showed that on average these taxpayers were reporting about 60 percent of what they owed.²⁰ Thus, the above analysis confirms the relationship between audit results and DIF scores, *i.e.*, that higher DIF scores generally correspond with larger audit adjustments, validating the DIF as an estimator of reporting compliance.

Limitations

IRS audit results are an imperfect measure of taxpayer reporting compliance, since not all noncompliance is detected. In fact, a recent study by Erard and Feinstein reports that the majority of noncompliance is generally not detected.²¹ So, changes in audit results from year to year for a given group of taxpayers may reflect changes in the quality of the audit rather than true changes in taxpayer reporting compliance.

Since the DIF is based on NRP audit results, it is also an imperfect measure of reporting compliance. Specifically, while a significant change in a large group of taxpayers' DIF scores probably reflects a change in potential audit results, it does not necessarily show that there has been an equivalent change in reporting compliance. This is a significant limitation of the study. In the absence of information reporting,

²⁰ We note that even IRS NRP audit results are an imperfect measure of taxpayer reporting compliance, since not all noncompliance is detected. The VRR is, however, our best available measure.

²¹ See IRS, Recent Research on Tax Administration and Compliance, *Selected Papers Given at the 2011 IRS-TPC Research Conference: New Perspectives on Tax Administration*; Brian Erard and Jonathan Feinstein, *The Individual Income Reporting Gap: What We See and What We Don't* (2011).

however, audit results are our best method for evaluating reporting compliance. So, we have used a method based on audit results.

Our use of a scaling approach for DIF scores also imposes a potential limitation on the study results. As discussed above in the Methodology Section, because DIF scores are computed separately for taxpayers in each “exam activity code” (EAC) each year, we needed to scale the DIF scores to enable us to compare compliance levels of taxpayers in different EACs and in different tax years. We scaled the DIF scores into DIF deciles.

This analysis assumes that reporting compliance behavior as measured by DIF decile is similar for all the EACs included in this study. So, for example, we are assuming that the most compliant taxpayers in any given EAC included in the study have similar compliance to the most compliant taxpayers in the other EACs included in the study.

More generally, we assume that taxpayers who fall into any given DIF decile for a given EAC and tax year have reporting compliance similar to taxpayers who fall into the same DIF decile for other EACs or tax years included in the study. We will explore this assumption in future research we plan to conduct in 2015.

Finally, in our analyses of the impact of different audit types on subsequent taxpayer reporting compliance, we assume that the different audit groups have similar initial compliance behavior. They were, however, selected for different audit treatments, suggesting that the groups may be different with respect to factors (other than the audit) that could affect their subsequent reporting compliance behavior. We will explore this concern in future research we plan to conduct in 2015.

FINDINGS

Our principal research objective was to evaluate how audits impact the subsequent reporting compliance of small business taxpayers. TAS also explored whether certain factors related to the audit appear to influence the subsequent reporting compliance of these taxpayers, including:

- The type of audit, *i.e.*, correspondence, field audit or office audit;
- The amount of the audit assessment; and
- Prior and subsequent audits of the test group taxpayers, *i.e.*, those audited in year one of the study.

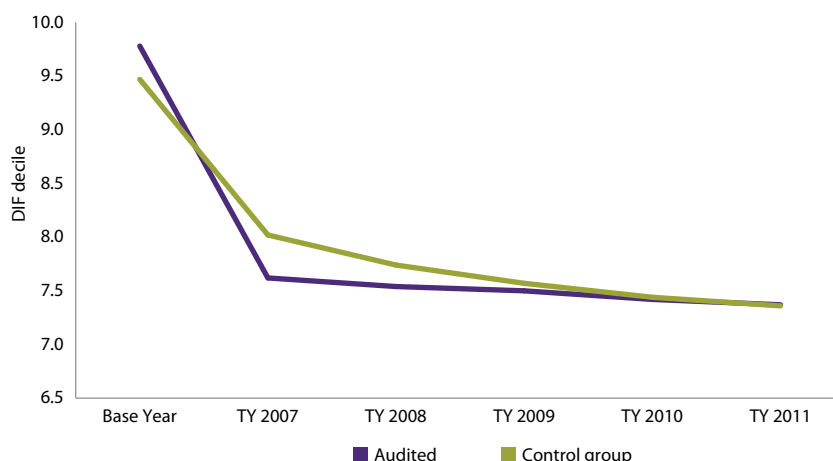
Our preliminary findings for each of the above objectives follow.

Subsequent Reporting Compliance of Sole Proprietor Taxpayers (EACs 274 – 277)

As discussed in the Methodology Section, TAS tracked the test groups’ mean DIF scores for the five years following the audit and compared them to the control groups’ mean DIF scores during the same period. Figure 4 below shows the results of this analysis.

FIGURE 4

Subsequent reporting compliance of audited taxpayers vs. control group



As shown in Figure 4 above, although the mean DIF decile score for the audit group is higher in year one (*i.e.*, the audit year) than the test group (9.78 for the audit group vs. 9.47 for the control group), it falls to a lower level in the first year following the audit (7.62 for the audit group vs. 8.02 for the control group). This represents a decrease of 22 percent for the audit group vs. 15 percent for the control group, a difference of about 7 percent, suggesting that the audit may have impacted taxpayer reporting compliance.²² In subsequent years the difference between the audit and control groups diminishes, disappearing altogether by year five. This suggests that any initial impact of the audit on compliance was short lived.

Subsequent Reporting Compliance of Sole Proprietor Taxpayers by Audit Type

The IRS uses three different methods to audit sole proprietorships:

- Correspondence audit – While the taxpayer may call the IRS to ask questions, the IRS uses mail to request and receive all documentation used to conduct the audit and reach a determination, and no one employee is assigned to work the case from start to finish.
- Tax Compliance Officer (TCO) audit – The taxpayer meets with a TCO in an IRS office and has the opportunity to bring in documentation and discuss issues directly with the TCO. We also refer to these as office audits in the text.
- Field audit – A revenue agent travels to the taxpayer's place of business to conduct the audit. The taxpayer has the opportunity to present documentation and to discuss issues directly with the revenue agent.

²² As noted above, the DIF score was used as a proxy for reporting compliance. The mean DIF scores for both the audit and control groups dropped significantly in the first year following the audit. We are using the difference between the audit and control group scores in the years following the audit to estimate the impact of the audit. We do not know what other factors caused the scores for both groups to drop significantly in the year following the audit. One possibility is that, in general, taxpayers do not have the same score every year. Instead, it will tend to go up or down from year to year. Since both groups of taxpayers initially are in the highest deciles, most scores can go down but can't go up. Also, reversion to the mean could be occurring to the extent that the scores of this group of taxpayers were elevated above their longer term mean in the base year. These are just possible explanations, however, and additional research would be required to identify the other factors causing the decline in DIF scores.

Figure 5 below shows the number of taxpayers who were audited for each audit type by tax year.

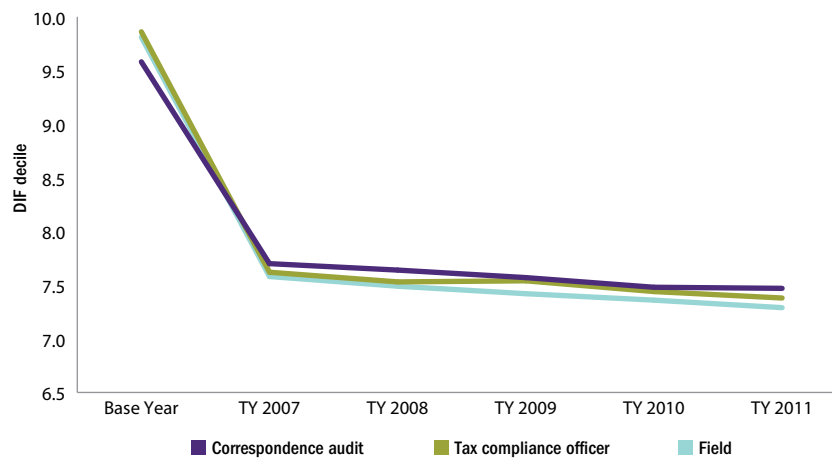
FIGURE 5, Audited taxpayers by audit type and tax year²³

	Correspondence Audit	Tax Compliance Officer	Field	Total
Base Year	17,144	32,023	18,626	67,793
TY 2007	6,809	16,797	10,324	33,930
TY 2008	5,852	14,691	9,150	29,693
TY 2009	5,146	13,017	8,281	26,444
TY 2010	4,661	11,912	7,581	24,154
TY 2011	4,169	10,767	6,719	21,655

TAS Research separately tracked the mean DIF decile scores for each of these audit groups for the five years following the audit. Figure 6 below shows the results of this analysis.

FIGURE 6

Subsequent reporting compliance of sole proprietor taxpayers by audit type



As shown in Figure 6 above, although the mean DIF decile scores for the TCO and Field audit groups are higher in year one (*i.e.*, the audit year) than the correspondence audit group (9.86 for the TCO audit group and 9.81 for the Field audit group, versus 9.58 for the Correspondence audit group), they fall to a lower level in the first year following the audit (7.62 for the TCO audit group and 7.58 for the Field audit group, versus 7.70 for the Correspondence audit group). This difference persists in subsequent years. This suggests that the TCO and Field audits may have a more positive impact on taxpayer reporting compliance.²⁴

²³ Totals vary slightly from those in Figure 1 shown earlier, because audit type information was not available for some taxpayers.

²⁴ As noted above in the Limitations Section, we assume that the different audit groups have similar initial compliance behavior. They were, however, selected for different audit treatments, suggesting that the groups may be different with respect to factors (other than the audit) that could affect their subsequent reporting compliance behavior.

Subsequent Reporting Compliance of Sole Proprietor Taxpayers by Amount of Audit Assessment

To evaluate whether the amount of the audit result (including the additional assessment, penalties, and interest) impacted subsequent reporting compliance, TAS Research divided the audited group into three subgroups:

- Taxpayers whose audits resulted in no additional tax or a reduction in their tax liabilities.
- Taxpayers who had audit results that totaled less than 20 percent of their total positive income.²⁵
- Taxpayers who had audit results that totaled at least 20 percent of their total positive income.

Figure 7 below shows the number of taxpayers by assessment amount and tax year.

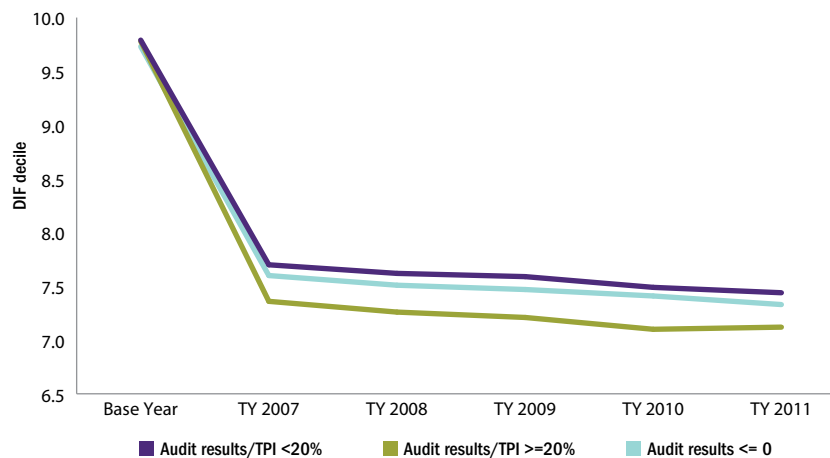
FIGURE 7, Total taxpayers by amount of audit result & tax year²⁶

	Audit Results/TPI <20%	Audit Results/TPI ≥20%	Audit Results ≤ 0	Total
Base Year	38,516	9,709	18,300	66,523
TY 2007	19,280	4,359	9,825	33,464
TY 2008	16,950	3,555	8,826	29,331
TY 2009	15,058	3,002	8,094	26,154
TY 2010	13,888	2,643	7,396	23,927
TY 2011	12,405	2,308	6,729	21,442

TAS Research separately tracked the mean DIF decile score for each of these audit groups for the five years following the audit. Figure 8 below shows the results of this analysis.

25 TAS Research had no preconceived breakpoint at 20 percent. We analyzed the data and found that 20 percent was the point at which the DIF scores in the year following the audit generally started to decline significantly more than for taxpayers with assessments of less than 20 percent.

26 The 1,336 taxpayers with zero or negative positive income are not included in the table.

FIGURE 8**Subsequent reporting compliance of sole proprietor taxpayers by amount of audit result**

As shown in Figure 8 above, while the initial mean DIF decile scores for all of the groups are almost identical, the score for the group with audit results which were at least 20 percent of their TPIs declined more in the year following the audit than the other groups (7.36 for the group with audit results at least 20 percent of TPI versus 7.70 for the group with audit results less than 20 percent of TPI and 7.60 for the group with audit results equal to or less than zero). This difference persists in subsequent years. These results suggest that the amount of the audit result does impact subsequent taxpayer reporting compliance.²⁷ Specifically, taxpayers who had to pay a significant amount of additional tax and penalty (*i.e.*, those with audit results at least 20 percent of TPI) may be more compliant in subsequent years.

Subsequent Reporting Compliance of Sole Proprietor Taxpayers who had Multiple Audits

To address our final objective, *i.e.*, whether auditing taxpayers more than once improved their reporting compliance, we looked at two groups of taxpayers:

- Taxpayers who were audited again after their initial audits closed in 2007; and
- Taxpayers who were audited both before 2007 and again after their audits closed in 2007

Figure 9 below shows the number of taxpayers in both of the above groups of taxpayers who were audited more than once in years immediately preceding or following 2007, the study base year. It also includes the number of taxpayers in our comparison group, all audited taxpayers.

27 As discussed above in the Limitations Section of this report, a significant amount of noncompliance is frequently not detected during audits of sole proprietor taxpayers. It is therefore possible that many of the taxpayers who received low or no additional assessments at the conclusion of their audits were in fact significantly noncompliant, but that this noncompliance was not detected.

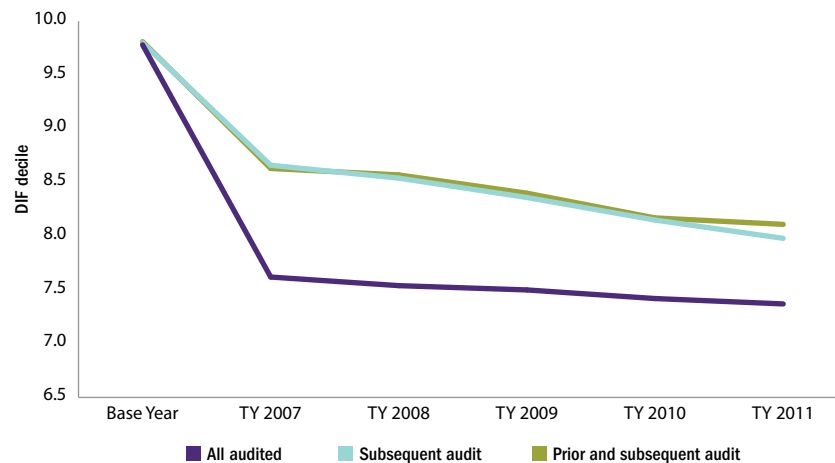
FIGURE 9, Taxpayers with multiple audits

	All Audited	Subsequent Audit	Prior & Subsequent Audit
Base Year	67,859	9,897	4,746
TY 2007	33,954	8,975	2,800
TY 2008	29,715	8,002	2,496
TY 2009	26,464	7,201	2,214
TY 2010	24,172	6,472	1,998
TY 2011	21,667	5,669	1,741

TAS Research separately tracked the mean DIF decile score for each of these audit groups for the five years following the 2007 audit and compared them to the scores for all taxpayers audited in 2007. Figure 10 below shows the results of this analysis.

FIGURE 10

**Subsequent reporting compliance of sole proprietor taxpayers
who had multiple audits**



As shown in Figure 10 above, the scores for both groups audited more than once remain higher throughout the study period than the score for all taxpayers audited in 2007. Also, the group audited both prior to and after 2007 has the highest mean DIF score at the end of the study period. These results suggest that there may be a group of taxpayers who are particularly resistant to the deterrence effect of audits.

CONCLUSION

Our study findings suggest that overall the IRS audits studied had a modest deterrent effect (about a seven percent reduction in the average DIF score compared to the control group) that diminished in the years following the audit, disappearing altogether by year five. This suggests that any initial impact of the audit on compliance was short lived. These findings are consistent with previous TAS studies that explored the

factors that influence compliance behavior of sole proprietor taxpayers.²⁸ In those studies, TAS failed to find evidence that deterrence significantly influences the compliance behavior of sole proprietor taxpayers.

Current study findings suggest, however, that the deterrent effect may vary due to factors such as the type of audit and the amount of the audit assessment relative to the taxpayer's total positive income. In particular, our findings suggest that field and office audits may be more effective than correspondence audits in promoting subsequent reporting compliance. Also, audits with large assessments, relative to the taxpayer's total positive income, appear to be more effective in promoting subsequent reporting compliance. Based on our current analyses, it is unclear whether these large assessments are due to more effective audits or lower taxpayer reporting compliance.²⁹

Our findings also suggest that there may be a group of taxpayers who are particularly resistant to the deterrent effect of audits, since these taxpayers continued to have higher DIF scores than other audited taxpayers despite being audited more than once during the study period.

TAS Research is working with independent researchers to further explore the impact of audits on taxpayer compliance behavior. Based on their preliminary review of this study, we anticipate working with them to explore:

- Refinement of the control group, *i.e.*, the population of sole proprietor taxpayers with high DIF scores who were not audited in 2007, by removing taxpayers who were audited in the years immediately preceding 2007 (the beginning of the study period) or during the study period;
- Whether the classification process that determines the type of audit, *i.e.*, correspondence audit, office audit, or field audit, introduced a selection bias that we should address with refinements to our analysis of the subsequent reporting compliance behavior of the taxpayers in these audit groups;
- Possible explanations for the significant decline of both the treatment and control groups' DIF scores in the year following the audit;
- A more detailed analysis of the impact of multiple audits that considers both the number and timing of the audits with respect to the audit that closed in 2007; and
- Alternative methodologies, such as panel regression, that would enable the addition of control variables (*e.g.*, demographic variables such as type of business, gender and age and other variables such as prior audit experience) to better isolate and distinguish the impact of the audit from other potential factors.³⁰

We anticipate publishing the results of this collaborative effort by the end of 2015. We will also collaborate with these researchers throughout 2015 on new studies evaluating the impact of penalties and outreach and education on taxpayer compliance behavior.

28 See National Taxpayer Advocate 2013 Annual Report to Congress vol. 2, 33-56 (Research Study: *Small Business Compliance: Further Analysis of Influential Factors*). See also National Taxpayer Advocate 2012 Annual Report to Congress vol. 2, 1-70 (Research Study: *Factors Influencing Voluntary Compliance by Small Businesses: Preliminary Survey Results*).

29 As discussed above in the Limitations Section of this report, a significant amount of noncompliance is frequently not detected during audits of sole proprietor taxpayers. It is therefore possible that many of the taxpayers who received low or no additional assessments at the conclusion of their audits were in fact significantly noncompliant, but that this noncompliance was not detected.

30 For an in-depth discussion of the need for inclusion of demographic and other behavioral economic factors in the IRS workload selection process, see Most Serious Problem: *WORKLOAD SELECTION: The IRS Does Not Sufficiently Incorporate the Findings of Applied and Behavioral Research into Audit Selection Processes as Part of an Overall Compliance Strategy*, *supra*.