Testing The UI-DIF Formulas

This paper was presented at the 2002 IRS Research Conference.

Office Of Research
Research, Analysis, And Statistics
National Headquarters

May 1, 2002

Executive Summary

SB/SE requested this study to test quickly the usefulness of the UI-DIF Formulas. Unreported Income (UI) formulas were developed by the Office Of Research to identify returns with unreported income, not already identified by computer matches. Study results were requested within several months without relying on new exams. Studies relying on new exams require several years to complete and evaluate.

Eleven experts in unreported income classified 400 returns in eight activity codes. In each activity code, the experts classified 50 returns, 25 returns from the top two percent UI Scores and 25 returns from the bottom 50 percent UI Scores. All information about the UI Scores was shielded from the classifiers.

Each classifier answered the question, "Should The Return Be Examined For Unreported Income?", 'Yes' or 'No'. Responses were tabulated for each activity code. Conditions necessary to validate the UI Scores were as follows:

(1) A strong association between 'Yes' and high UI Scores, and
(2) A strong association between 'No' and low UI Scores.

Weak associations would fail to validate the UI Scores.

The frequency that classifiers recommended a return for audit defined an Audit Sum. Audit Sums (audit frequencies) validated the UI-DIF Formulas for each activity code. In each activity code, returns with high UI Scores were identified most often for audit, while returns with low UI Scores were identified least often for audit. Overall results were the sum of results for each activity code and follow for optimal Audit Sums:

Overall Results From Optimal Audit Sums

	Unreported Income?		
UI SCORES	YES	NO	TOTAL
Top 2%	188	12	200
Bottom 50%	40	160	200
TOTAL	228	172	400

Overall, 188 of the 200 returns with high UI Scores were identified for audit, and 160 of the 200 returns with low UI Scores were accepted as filed. The associations were very high. UI-DIF Formulas were validated in each activity code tested. In each activity code tested, high UI Scores may justify probes for unreported income that might otherwise be prohibited.

High UI Scores could be used to select returns for examination. Classification in the field, however, is different than classification in this study. In the field, only returns with high UI Scores are classified and classification is by one classifier only. Field simulations suggested that UI-DIF Formulas are highly recommended for Nonfarm Business Activity Codes 535 to 537, are marginally recommended for Farm Business Activity Codes 538 and 539, and are not recommended for Nonbusiness Activity Codes 532 to 534, at this time.

Table Of Contents

Page

List of Tables iv

List of Figures iv

Acknowledgements v

Background 1

Study Plan 2

Procedures For Collecting Data 2

Procedures For Treating Data 3

1. Classification By Experts 3
2. Classification By Majority Audit Sum 4
3. Classification By Optimal Audit Sum Cutoff 5

Observations 5

1. Average Responses 5
2. Classification by Majority Audit Sum 7
3. Classification By Optimal Audit Sum Cutoff 8

Conclusions 9

Recommendations 10

Appendices

A. Sample Scorecard

B. Average Responses By 11 Classifiers

C. Majority Audit Sums

D. Optimal Audit Sums

E. Research Proposal For The UI Study

Tables

Table Page

1. Average Responses 6
2. Majority Audit Sum GE 6 7
3. Optimal Audit Sums 8

Figures

Figure Page

1. Activity Code 53X, Tabulation Of Classifier Responses 4
2. Activity Code 53X, Classification By Majority Audit Sums GE 6 4

Acknowledgments

This study would not have been possible without the 11 experts in unreported income who gave generously of their time and talents. They are listed alphabetically (not by their classifier number), as follows:

Paula Henderson
Richelle Jeffers
Judith Jewett
Helen Johnson
Ray Joyce
Edward Komacka
Christie Lyons
Edwin Marrero
Mary McClamb
Gabriel Navarro
Nora Villarosa

The classification process was proctored and controlled by both Christina Rivera, SB/SE Compliance Policy, and by Lou Ann Sandoval, SB/SE Research in Denver. They enforced the research guidelines and they maintained the integrity of the study.

Returns were sampled, three-year facsimiles were printed, and documentation was provided quickly and expertly by Randy Mastenbrook and by Bob Buchwald of the MACS (Midwest Automated Compliance System) Development Center.

The UI-DIF Formulas were developed by Fred Cox, Eli Intrator, and Lance Asner, at the Detroit Computing Center with the assistance of Rick Griffith.

Testing The UI-DIF Formulas

Lance Asner
NHQ, RAS, Office Of Research
May 1, 2002

==========

Background

Unreported Income (UI) DIF Formulas[1] were developed by the Office of Research. The customer for UI-DIF Formulas is Centralized Workload Selection and Delivery, Compliance Policy, SB/SE.

UI-DIF Formulas were developed from the most recent TCMP Survey of Individuals[2], and were developed for Activity Codes[3] 532 to 539. Activity Codes 530 and 531 were not included because they displayed too few sample returns with non-IRP unreported income, i.e. income not computer verified in the Information Returns Processing (IRP) program.

UI Formulas were developed using the DIF methodology, a proven technique for workload selection. Workload was defined as returns with non-IRP unreported income. Returns with high UI Scores are expected to yield unreported income much more often than returns with lower UI Scores.

High UI Scores may justify probes for unreported income that might otherwise be prohibited. Legislation enacted in RRA 98 stated, "The Secretary shall not use financial status or economic reality examination techniques to determine the existence of unreported income of any taxpayer unless the Secretary has a reasonable indication that there is a likelihood of such unreported income."[4] High UI Scores may satisfy this requirement to provide 'a reasonable indication that there is a likelihood of such unreported income'.

---

[1] The DIF methodology is a proprietary IRS enhancement of the statistical technique, DIscriminant Function (DIF). DIF involves the intensive preprocessing of continuous data into wide intervals and a pooled covariance matrix.

[2] The III-10 TCMP Survey involved Tax Year 1988 Individual returns filed in Processing Year 1989.

[3] Individual returns are arranged by IRS among ten homogeneous, mutually exclusive exam classes. The ten exam classes define Activity Codes 530 to 539. Individual Activity Codes are defined in terms of Total Positive Income (TPI) on Forms 1040,1040A, and 1040EZ and in terms of Total Gross Receipts (TGR) on Schedules C and F. Abridged definitions follow for Activity Codes 530 to 539:

Nonbusiness	530 – 1040A/EZ Type with TPI under $25,000.
	531 – 1040 Type with TPI under $25,000 and TPI greater than TGR.
	532 – 1040 Type with TPI $25,000 under $50,000 and TGR under $25,000.
	533 – 1040 Type with TPI $50,000 under $100,000 and TGR under $25,000.
	534 – 1040 Type with TPI $100,000 and over, and TGR under $100,000.
Nonfarm Business	535 – 1040 (C-TGR > F-TGR) with TGR under $25,000 and TGR greater than TPI.
	536 – 1040 (C-TGR > F-TGR) with TGR $25,000 under $100,000 and TPI under $100,000.
	537 – 1040 (C-TGR > F-TGR) with TGR $100,000 and over.
Farm Business	538 – 1040 (C-TGR < F-TGR) with TGR under $100,000 and TPI under $100,000.
	539 – 1040 (C-TGR < F-TGR) with TGR $100,000 and over.

Study Plan

The Office of Research developed the study plan that met SB/SE requirements to test the usefulness of UI Scores in several months, without new examinations. New return examinations require several years to complete and evaluate.

Eleven experts in unreported income classified 400 Individual returns with very high and low UI Scores. All information about the UI Scores was shielded from the classifiers. For each return, each classifier answered the question, "Should The Return Be Examined For Unreported Income?", 'Yes' or 'No'. 'Yes' and 'No' responses were tabulated and associated with high and low UI Scores. Two conditions were necessary to validate the UI Scores: (1) A strong association between 'Yes' and high UI Scores, and (2) a strong association between 'No' and low UI Scores. Weak associations fail to validate the UI Scores.

The study tested all eight UI Formulas (Activity Codes 532 to 539). For each activity code, 50 returns were classified, 25 returns with high UI Scores and 25 returns with low UI Scores. The 25 returns with high UI Scores were randomly selected from among the two percent of returns with highest UI Scores. The 25 returns with low UI Scores were randomly selected from among the fifty percent of returns with lowest UI Scores. The experts classified returns with no knowledge that UI Scores were involved in this study.[5]

Eleven experts in unreported income classified 400 returns (50 returns per activity code, for eight activity codes). In Phase 1, facsimile returns were classified for Tax Year 2000 and for the two prior years.[6] This paper is limited in scope to the Phase 1 results.

Phase 2 tested classification with facsimile returns, with case building tools,[7] and with original returns. Original returns may include line items not displayed on facsimile returns, as some line items were not transcribed during return processing. Phase 2 results are outside the scope of this paper.

Procedures For Collecting Data

The research proposal for the UI Study was prepared by the Office of Research. The proposal included instructions for selecting the 400 sample returns and guidelines for data collection. Appendix E contains the research proposal for the UI Study.

Data was collected by two experienced researchers; (1) a representative of SB/SE Compliance Policy in DC (Rep-DC), and (2) a representative of SB/SE Research in Denver (Rep-Denver). The Rep-DC and Rep-Denver preserved the integrity of the UI Study by enforcing the following guidelines:

---

[4] The IRS Restructuring and Reform Act of 1998, Code Sec. 7602, "Examination Of Books And Witnesses", (e), "Limitation On Examination On Unreported Income."

[5] One-sample runs tests verified the random mix of the 25 high and 25 low UI Scores in each activity code.

[6] Facsimile returns for Tax Year 2000 and for the two prior years were printed by MACS (Midwest Automated Compliance System).

[7] Case building tools provide classifiers with related return information from IDRS and with third party information from CBRS and Choice Point.

1. The Rep-DC and the Rep-Denver were the **only** persons to communicate with the eleven classifiers on items pertaining to the UI Study.
2. Classifiers were instructed **NOT** to discuss the returns, the classification process, nor the study in general, with anyone other than the Rep-DC or the Rep-Denver. Communications about the study were public and were observed by all classifiers.
3. Each classifier was provided their own set of returns. Returns were classified in the same order for each activity code.
4. Classifiers independently reviewed each return and recorded if it should (or should not) be examined for unreported income. Results of classification were recorded on a scorecard. Appendix A contains a sample scorecard.
5. Classifiers were instructed to safeguard their scorecards. Whenever scorecards were not in use, they were collected and secured by the Rep-DC or Rep-Denver.
6. Completed scorecards were sent to the Office of Research for analysis and a report of findings.

Procedures For Treating Data

1. Classification By Experts

Scorecards were used by the experts to classify the 50 returns in each activity code. Eleven experts generated 88 scorecards (11 scorecards for each of eight activity codes). Scorecards were tabulated and analized in two-by-two tables. Two-by-two tables displayed (1) counts of "Yes" and "No" unreported income, with (2) counts of high and low UI Scores. A statistical test of independence of classification[8] was applied to each table. Chi-Square was calculated, and when it was greater than 3.841, tables were statistically significant (i.e. the probability of such counts occurring randomly was less than five percent). [9]

Appendix B contains the responses of each classifier and their average responses for each activity code. Classifier responses were tabulated and tested for statistical significance in a two-by-two table, as in Figure 1.

[8] Charles T. Clark and Lawrence L. Schkade, Statistical Analysis For Administrative Decisions (Cincinnati: South-West Publishing Co., 1974), pp. 376-378.

[9] The statistical test of independence of classification follows:

1. H_o: Hypothesis - Responses of "YES" and "NO" to examine returns for unreported income were independent of High and Low UI Scores.
2. H_a: Alternative Hypothesis - Responses of "YES" and "NO" to examine returns for unreported income were associated with High and Low UI Scores at levels that were statistically significant.
3. A five percent probability if H_o occurring randomly requires a Chi-Square of 3.841. (one degree of freedom).
4. Criterion: Reject H_o (Accept H_a) if Chi-Square > 3.841.

Reference: Clark and Schkade, loc. cit.

Figure 1

Activity Code 53X,
Tabulation Of Classifier Responses

UI SCORES	"YES" UI	"NO" UI	TOTAL
Top 2%	XX	XX	25
Bottom 50%	XX	XX	25
TOTAL	XX	XX	50

2. Classification By Majority Audit Sum

Returns were also classified by Audit Sum. An Audit Sum was the frequency with which the eleven classifiers recommended a return be examined for unreported income. The maximum Audit Sum was eleven; all eleven classifiers recommended auditing a return. The minimum Audit Sum was zero; no classifiers recommended auditing a return.

Appendix C contains classification by majority Audit Sums of six or more. Six or more classifiers were a majority. For each return, classification by Majority Audit Sum resulted in one of two outcomes; (1) audit the return if the Audit Sum was six or more, or (2) do not audit the return if the Audit Sum was five or less. Audit Sums were tabulated and tested for statistical significance[10] in a two-by-two table, as in Figure 2.

Figure 2

Activity Code 53X
Classification By Majority Audit Sums GE 6

Audit Sum ...

UI SCORES	GE 6	LE 5	TOTAL
Top 2%	XX	XX	25
Bottom 50%	XX	XX	25
TOTAL	XX	XX	50

[10] The statistical test of independence of classification follows for majority responses:

1. H_o: Hypothesis - Six or more Classifiers responding "YES" (to examine returns for unreported income) or “NO” (to accept returns as filed) were independent of High or Low UI Scores.
2. H_a: Alternative Hypothesis - Six or more Classifiers responding "YES" (to examine returns for unreported income) or “NO” (to accept returns as filed) were associated with High or Low UI Scores at levels that were statistically significant.
3. A five percent probability if H_o occurring randomly requires a Chi-Square of 3.841. (one degree of freedom).
4. Criterion: Reject H_o (Accept H_a) if Chi-Square > 3.841.

Reference: Clark and Schkade, loc. cit.

3. Classification By Optimal Audit Sum Cutoff

Audit Sums were used as a scoring system. The 50 returns in each activity code were sorted by Audit Sums, highest to lowest, from Audit Sum 11 to Audit Sum zero. With no other information for return selection, one might logically select an Audit Sum cutoff of six; selection by a majority of classifiers. However, with UI Scores as additional information, the optimal Audit Sum cutoff was derived for each activity code.

Among the 50 returns in each activity code, 25 had high UI Scores and 25 had low UI Scores. If there were an association between UI Scores and Audit Sums, it should be evident at the Audit Sum cutoff that evenly split the inventory at about 25 returns. Audit Sum cutoffs could range from one to eleven. If classifiers, on average, selected 10 of the 50 returns for audit, the Audit Sum cutoff could be as low as one. On the other hand, if classifiers, on average, selected 40 of the 50 returns for audit, the Audit Sum cutoff could be as high as 11.

The optimal Audit Sum cutoff was determined using the Chi-Square statistic. At each alternative cutoff of one to eleven, Chi-Square was computed to measure the association above and below the Audit Sum cutoff with the number of high and low UI Scores. The cutoff with the greatest value of Chi-Square was defined as the optimal Audit Sum cutoff. [11]

Appendix C contains summary results for the alternative cutoffs of one to eleven. The cutoff with the largest value of Chi-Square in Appendix C is fully displayed in Appendix D, for each activity code.

Observations

1. Average Responses

Appendix B contains the average responses of classifiers for each activity code. Average responses are summarized in Table 1.

In Table 1,[12] average responses varied widely by activity code grouping. Nonbusiness Activity Codes 532, 533, and 534, displayed the lowest number identified for audit. However, almost all the returns identified for audit had high UI Scores. Only 11 to 13 returns were identified for audit, while 9 to 12 of these returns displayed high UI Scores, on average.[13] The responses of all classifiers were statistically significant in Activity Code 532, ten were significant in Activity Code 533, and eight were significant in Activity Code 534.

[11] Chi-Square was applied similarly in segmentation modeling by the software package, CHAID (Chi-squared Automatic Interaction Detector), SPSS for Windows: CHAID, Release 6.0 (Chicago: SPSS Inc., 1993).

[12] In Tables 1, 2, and 3, two-by-two tables were displayed in a linear format for ease of viewing. The following mathematical relationships in Tables 1, 2, and 3, may not be apparent;

1. (Top 2% under YES UI) + (Top 2% under NO UI) = 25 for activity codes & 200 for total.
2. (Bot. 50% under YES UI) + (Bot. 50% under NO UI) = 25 for activity codes & 200 for total.
3. (YES UI Total) + (NO UI Total) = 50 for activity codes & 400 for total.

[13] Average values were rounded to whole numbers in the text to ease communication and understanding.

Table 1

Average Responses

Phase 1	"YES" Unreported Income			"NO" Unreported Income			
Activity Code	Top 2% Scores	Bot. 50% Scores	Total	Top 2% Scores	Bot. 50% Scores	Total	Chi-Square
532	11.8	1.3	13.1	13.2	23.7	36.9	11.508
533	10.9	0.9	11.8	14.1	24.1	38.2	11.081
534	9.0	1.6	10.6	16.0	23.4	39.4	6.475
535	23.7	16.4	40.1	1.3	8.6	9.9	6.825
536	22.2	9.7	31.9	2.8	15.3	18.1	13.435
537	21.1	5.7	26.8	3.9	19.3	23.2	18.984
538	16.6	7.7	24.4	8.4	17.3	25.6	6.354
539	14.5	6.9	21.5	10.5	18.1	28.5	4.761
TOTAL	129.9	50.3	180.2	70.1	149.7	219.8	64.048

Nonfarm Business Activity Codes 535, 536, and 537, displayed the highest number of returns identified for audit, and, most noteworthy, this number included the bulk of returns with high UI Scores. Among Nonfarm Businesses, 27 to 40 returns were identified for audit, while 21 to 24 of these returns displayed high UI Scores, on average. The responses of eight classifiers were statistically significant in Activity Code 535, while the responses of all eleven classifiers were significant in Activity Codes 536 and 537.

Farm Business Activity Codes 538 and 539 displayed about half the 50 returns for audit, while about two-thirds of this number were returns with high UI Scores. In Activity Codes 538 and 539, the responses of only six of the eleven classifiers were statistically significant.

Total average responses were the sums of the average responses for each activity code. Overall, 130 returns of the 200 returns with high UI Scores were identified for examination, and 150 of the 200 returns with low UI Scores were accepted as filed, on average.

2. Classification By Majority Audit Sum

Appendix C contains classification by Majority Audit Sums for each activity code. Results are summarized in Table 2. Audit Sums were the numbers of classifiers that identified each return for audit. The majority Audit Sum was six or more classifiers, a majority of the eleven. Classification was statistically significant for each activity code.

In Table 2, classification by Majority Audit Sum varied widely by activity code grouping. Nonbusiness Activity Codes 532, 533, and 534, displayed the lowest number identified for audit. Only 7 to 12 returns were identified for examination. However, **all** of these returns displayed high UI Scores.

Nonfarm Business Activity Codes 535, 536, and 537, displayed the highest number of returns (28 to 43) identified for audit, and, most noteworthy, this number included **all** returns with high UI Scores. As a consequence, **all** returns identified as 'No UI' had low UI Scores.

Farm Business Activity Codes 538 and 539, displayed about half the 50 returns for audit, and about 75 percent of these were returns with high UI Scores.

Total results were the sum of results for each Activity Code. Overall, 142 returns of the 200 returns with high UI Scores were identified for examination, and 158 of the 200 returns with low UI Scores were accepted as filed.

Table 2

Majority Audit Sum GE 6

Phase 1		"YES" Unreported Income			"NO" Unreported Income			
Activity Code	"YES" UI Audit Sums GE ...	Top 2% Scores	Bot. 50% Scores	Total	Top 2% Scores	Bot. 50% Scores	Total	Chi-Square
532	6	12	0	12	13	25	38	15.789
533	6	10	0	10	15	25	40	12.500
534	6	7	0	7	18	25	43	8.140
535	6	25	18	43	0	7	7	8.140
536	6	25	10	35	0	15	15	21.429
537	6	25	3	28	0	22	22	39.286
538	6	19	6	25	6	19	25	13.520
539	6	19	5	24	6	20	26	15.705
TOTAL	N/A	142	42	184	58	158	216	100.644

3. Classification By Optimal Audit Sum Cutoff

Appendix D contains classification by the optimal Audit Sum cutoff for each activity code. Results are summarized in Table 3. The optimal cutoff was that with the greatest association between classification by Audit Sums and high and low UI Scores. The cutoff with greatest value of Chi-Square was optimal. Results were statistically significant for all activity codes.

In Table 3, classification by optimal cutoff did not vary widely by activity code grouping. Returns identified for audit varied from 24 to 36, of which 22 to 25 displayed high UI Scores. In every activity code, **almost all** the returns with high UI Scores were identified for audit.

Nonbusiness Activity Codes 532, 533, and 534, displayed the lowest optimal cutoffs of one and two; Nonfarm Business Activity Codes 535, 536, and 537, displayed the highest optimal cutoffs of seven to ten; and Farm Business Activity Codes 538 and 539 displayed intermediate optimal cutoffs of four and five.

Total results were the sum of results for each activity code. Overall, 188 returns of the 200 returns with high UI Scores were identified for examination, and 160 of the 200 returns with low UI Scores were accepted as filed.

Table 3

Optimal Audit Sums

Phase 1		"YES" Unreported Income			"NO" Unreported Income			
Activity Code	"YES" UI Audit Sums GE …	Top 2% Scores	Bot. 50% Scores	Total	Top 2% Scores	Bot. 50% Scores	Total	Chi-Square
532	2	22	2	24	3	23	26	32.051
533	2	24	2	26	1	23	24	38.782
534	1	25	11	36	0	14	14	19.444
535	10	22	6	28	3	19	22	20.779
536	8	25	3	28	0	22	22	39.286
537	7	24	0	24	1	25	26	46.154
538	5	22	7	29	3	18	21	18.473
539	4	24	9	33	1	16	17	20.053
TOTAL	N/A	188	40	228	12	160	172	223.419

Conclusions

1. The UI-DIF Formulas were validated for Activity Codes 532 to 539.

The UI-DIF Formulas were validated in Table 3. In each activity code, returns with high UI Scores were identified most often for audit, while returns with low UI Scores were identified least often for audit. Returns with high UI Scores were almost identical to returns with high audit frequencies, and returns with low UI Scores were almost identical to returns with low audit frequencies.

NOTE: Operational classification in the field is different than classification by 11 experts in unreported income. Operationally, classification is by one classifier and only returns with high UI Scores are classified. Average results from returns with high UI Scores were most similar within activity code groupings. Activity code groupings follow;

Nonbusiness -	Activity Codes 532, 533, and 534
Nonfarm Business -	Activity Codes 535, 536, and 537
Farm Business -	Activity Codes 538 and 539

2. In Activity Codes 535, 536, and 537, high UI Scores were almost always selected for audit.

On average, classifiers identified for audit over 20 of the 25 returns with high UI Scores. Select rates ranged from 84 percent to 96 percent among average responses (Table 1) and were 100 percent for majority responses (Table 2) in each of the three classes. Such high select rates by experts in unreported income suggest acceptable rates by less experienced classifiers. **Nonfarm Business Activity Codes 535, 536, and 537 were the best candidates for UI Scores.**

3. In Activity Codes 538 and 539, high UI Scores were often selected for audit.

On average, classifiers identified for audit over half the returns with high UI Scores. Select rates were 60 and 68 percent among average responses (Table 1) and were 76 percent for majority responses (Table 2) in each of the two classes. The moderate select rates by experts in unreported income suggest low to acceptable rates by less experienced classifiers. **Farm Business Activity Codes 538 and 539 were marginal candidates for UI Scores.**

4. In Activity Codes 532, 533, and 534, high UI Scores were often accepted as filed.

On average, classifiers identified for audit less than half the returns with high UI Scores. Select rates ranged from 36 percent to 48 percent among average responses (Table1) and from 28 percent to 48 percent for majority responses (Table 2). Such low select rates by experts in unreported income suggest even lower select rates by less experienced classifiers. **Nonbusiness Activity Codes 532, 533, and 534 were the worst candidates for UI Scores.**

Recommendations

1. Chief Counsel should be prepared to defend the UI Scores as "a reasonable indication that there is a likelihood of unreported income", if UI Scores are intended to justify "financial status or economic reality examination techniques to determine the existence of unreported income." [14]

2. Nonfarm Business Activity Codes 535, 536, and 537 are highly recommended for UI-DIF Formulas and for further testing. Nonfarm Business returns with high UI Scores were almost always classified for audit by experts in unreported income.

3. Farm Business Activity Codes 538 and 539 are marginally recommended for UI-DIF Formulas and for further testing. Farm Business returns with high UI Scores were usually classified for audit by experts in unreported income.

4. Nonbusiness Activity Codes 532, 533, and 534 are not recommended for UI-DIF Formulas, at this time, but are recommended for further testing. Nonbusiness returns with high UI Scores were usually accepted as filed by experts in unreported income.

[14] The IRS Restructuring and Reform Act of 1998, Code Sec. 7602, "Examination Of Books And Witnesses", (e), "Limitation On Examination On Unreported Income", states as follows:

> The Secretary shall not use financial status or economic reality examination techniques to determine the existence of unreported income of any taxpayer unless the Secretary has a reasonable indication that there is a likelihood of such unreported income.

Appendix A

Sample Scorecard

Unreported Income Study (Phase 1)

Activity Code:
Classifier:

Should The Return Be Examined For Unreported Income?

Seq#		TIN		YES		NO
1		xxxxxxxxx				
2		xxxxxxxxx				
3		xxxxxxxxx				
4		xxxxxxxxx				
5		xxxxxxxxx				
6		xxxxxxxxx				
7		xxxxxxxxx				
8		xxxxxxxxx				
9		xxxxxxxxx				
10		xxxxxxxxx				
11		xxxxxxxxx				
12		xxxxxxxxx				
13		xxxxxxxxx				
14		xxxxxxxxx				
15		xxxxxxxxx				
16		xxxxxxxxx				
17		xxxxxxxxx				
18		xxxxxxxxx				
19		xxxxxxxxx				
20		xxxxxxxxx				
21		xxxxxxxxx				
22		xxxxxxxxx				
23		xxxxxxxxx				
24		xxxxxxxxx				
25		xxxxxxxxx				
26		xxxxxxxxx				
27		xxxxxxxxx				
28		xxxxxxxxx				
29		xxxxxxxxx				
30		xxxxxxxxx				
31		xxxxxxxxx				
32		xxxxxxxxx				
33		xxxxxxxxx				
34		xxxxxxxxx				
35		xxxxxxxxx				
36		xxxxxxxxx				
37		xxxxxxxxx				
38		xxxxxxxxx				
39		xxxxxxxxx				
40		xxxxxxxxx				
41		xxxxxxxxx				
42		xxxxxxxxx				
43		xxxxxxxxx				
44		xxxxxxxxx				
45		xxxxxxxxx				
46		xxxxxxxxx				
47		xxxxxxxxx				
48		xxxxxxxxx				
49		xxxxxxxxx				
50		xxxxxxxxx				

Appendix B

Average Responses By 11 Classifiers

Unrerported Income Study (Phase 1)

Activity Code: 532

Seq #	UI Score	TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM
1	1869	1	1	1	1	1	1	1	1	1	1	1	1	11
2	1635	1	0	0	0	0	0	0	0	0	0	0	0	0
3	1365	1	1	1	1	1	1	1	1	1	1	1	1	11
4	223	0	0	0	0	0	0	0	0	0	0	0	0	0
5	223	0	0	0	0	0	0	0	0	0	0	0	0	0
6	223	0	0	0	0	0	0	0	0	0	0	0	0	0
7	223	0	0	0	0	0	0	0	0	1	0	0	0	1
8	223	0	0	0	0	0	0	0	0	1	0	0	0	1
9	223	0	0	0	0	0	0	0	0	0	0	0	0	0
10	1707	1	0	1	0	1	1	1	1	1	1	1	0	8
11	223	0	0	0	0	0	0	0	0	0	0	0	0	0
12	1707	1	0	1	0	1	0	0	1	0	0	0	0	3
13	1385	1	1	1	0	1	0	0	0	1	0	1	0	5
14	1385	1	1	0	0	1	0	1	0	1	1	1	0	6
15	1707	1	1	1	0	0	0	0	0	0	0	0	0	2
16	223	0	0	0	1	0	0	0	0	1	0	0	0	2
17	1386	1	1	0	0	0	0	0	1	1	0	0	0	3
18	1386	1	1	1	1	1	0	1	1	1	0	1	0	8
19	1707	1	0	1	0	0	0	0	0	0	0	0	0	1
20	223	0	0	0	0	0	0	0	0	0	0	0	0	0
21	223	0	0	0	0	0	0	0	0	0	0	0	0	0
22	223	0	0	0	0	1	0	0	0	0	0	0	0	1
23	223	0	0	0	1	0	0	0	0	0	0	0	0	1
24	1732	1	0	0	0	0	0	0	0	0	0	1	0	1
25	1603	1	0	0	0	0	0	1	0	0	0	1	0	2
26	223	0	0	0	0	0	0	0	0	0	0	0	0	0
27	1676	1	0	0	1	0	1	1	0	1	1	1	0	6
28	223	0	0	0	0	0	0	0	0	0	0	0	0	0
29	223	0	0	0	0	0	0	0	0	0	0	0	0	0
30	223	0	0	0	0	0	0	0	0	0	0	0	0	0
31	223	0	1	0	0	0	0	0	0	0	0	0	0	1
32	1707	1	1	1	0	1	1	1	1	1	1	1	1	10
33	1386	1	1	1	1	0	0	0	1	0	1	1	0	6
34	223	0	0	0	0	0	0	0	0	0	0	0	0	0
35	223	0	0	0	0	0	0	0	0	1	0	0	0	1
36	223	0	0	0	0	0	0	0	0	0	0	0	0	0
37	223	0	0	0	0	0	0	0	0	1	0	0	0	1
38	2055	1	1	0	1	1	0	0	0	1	0	1	1	6
39	223	0	0	0	1	0	0	1	0	1	1	1	0	5
40	2183	1	1	1	1	0	0	0	0	1	0	1	0	5
41	1478	1	1	0	0	1	0	1	1	1	0	1	0	6
42	1707	1	1	1	1	1	1	1	1	0	1	1	1	10
43	223	0	0	0	0	0	0	0	0	0	0	0	0	0
44	1385	1	1	0	0	0	0	1	0	1	1	1	0	5
45	1707	1	0	1	0	1	0	0	0	0	1	1	0	4
46	223	0	0	0	0	0	0	0	0	0	0	0	0	0
47	1707	1	0	0	0	0	1	0	1	1	0	0	0	3
48	1603	1	0	0	0	0	0	0	0	1	0	1	0	2
49	223	0	0	0	0	0	0	0	0	0	0	0	0	0
50	1611	1	0	1	1	1	0	0	1	1	0	1	0	6
(YES UI) & (Top 2%)			14	14	9	13	7	11	12	16	10	19	5	11.82
YES UI Total			15	14	12	14	7	12	12	22	11	20	5	13.09
(NO UI) & (Bottom 50%)			24	25	22	24	25	24	25	19	24	24	25	23.73
NO UI Total			35	36	38	36	43	38	38	28	39	30	45	36.91

Activity Code 532

Average Responses

Classifiers	"YES" UI Top 2%	"YES" UI Bot. 50%	"YES" UI Total	"NO" UI Top 2%	"NO" UI Bot. 50%	"NO" UI Total	Chi-Square
Classifier 1	14	1	15	11	24	35	16.095
Classifier 2	14	0	14	11	25	36	19.444
Classifier 3	9	3	12	16	22	38	3.947
Classifier 4	13	1	14	12	24	36	14.286
Classifier 5	7	0	7	18	25	43	8.140
Classifier 6	11	1	12	14	24	38	10.965
Classifier 7	12	0	12	13	25	38	15.789
Classifier 8	16	6	22	9	19	28	8.117
Classifier 9	10	1	11	15	24	39	9.441
Classifier 10	19	1	20	6	24	30	27.000
Classifier 11	5	0	5	20	25	45	5.556
Classifier Averages	11.82	1.27	13.09	13.18	23.73	36.91	N/A

UI SCORES	"YES" UI	"NO" UI	TOTAL
Top 2%	11.82	13.18	25
Bottom 50%	1.27	23.73	25
TOTAL	13.09	36.91	50

1. H_o: Average Classifier responces were independent of High or Low UI Scores.

2. Ha: Average Classifier responces were associated with High or Low UI Scores.

3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.

4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	11.8182	6.5455	5.2727	27.8017	4.247
"YES" UI & Bottom 50	1.2727	6.5455	-5.2727	27.8017	4.247
"NO" UI & Top 2%	13.1818	18.4545	-5.2727	27.8017	1.506
"NO" UI & Bottom 50	23.7273	18.4545	5.2727	27.8017	1.506
				Chi-Square:	11.508

Unrerported Income Study (Phase 1)

Activity Code: 533

Seq #	UI Score	TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM
1	2272	1	1	0	1	1	0	1	0	0	0	0	0	4
2	380	0	0	0	0	0	0	0	0	0	0	0	0	0
3	380	0	0	0	0	0	0	0	0	1	0	0	0	1
4	1777	1	0	1	0	0	0	1	0	1	0	1	0	4
5	1693	1	0	1	0	0	0	1	0	0	0	1	0	3
6	352	0	0	0	0	0	0	0	0	0	0	0	0	0
7	352	0	0	0	0	0	0	0	0	0	0	0	0	0
8	1742	1	1	1	1	0	0	0	1	1	0	1	0	6
9	1824	1	0	1	1	1	1	1	1	1	0	1	0	8
10	1782	1	1	1	1	0	0	0	0	1	0	0	0	4
11	1895	1	1	0	1	1	0	1	0	0	0	0	0	4
12	352	0	0	0	0	0	0	0	0	0	0	0	0	0
13	1824	1	0	1	0	0	1	1	1	0	1	1	1	7
14	380	0	0	0	0	0	0	0	0	0	0	0	0	0
15	380	0	1	0	0	0	1	0	0	0	0	0	0	2
16	1769	1	0	1	0	0	0	0	0	0	0	1	0	2
17	352	0	0	0	0	0	0	0	0	0	0	0	0	0
18	380	0	0	0	0	0	0	0	0	0	0	0	0	0
19	2085	1	1	1	0	1	0	1	1	1	1	1	1	9
20	1741	1	0	0	0	0	0	1	1	0	0	1	0	3
21	1663	1	0	1	0	0	0	1	0	0	1	0	1	4
22	1780	1	0	0	0	0	0	0	0	0	1	0	0	1
23	352	0	0	0	0	0	0	0	0	0	0	0	0	0
24	1781	1	0	1	0	0	0	0	0	0	0	1	0	2
25	380	0	0	0	0	0	0	0	0	0	0	0	0	0
26	380	0	0	0	0	0	0	0	0	0	0	0	0	0
27	1832	1	1	1	1	0	0	0	1	0	0	1	0	5
28	1808	1	1	1	1	1	0	1	1	0	0	1	1	8
29	378	0	0	0	0	0	0	0	0	0	0	0	0	0
30	380	0	0	0	0	0	0	0	0	1	0	0	0	1
31	380	0	0	0	0	0	0	0	0	0	0	0	0	0
32	352	0	1	0	0	0	0	0	0	0	0	0	0	1
33	380	0	0	0	1	0	0	1	1	0	0	0	0	3
34	1701	1	0	1	0	0	0	0	0	0	0	1	0	2
35	1914	1	1	1	0	0	0	0	0	0	1	1	0	4
36	352	0	0	0	0	0	0	0	0	0	0	0	0	0
37	1697	1	1	1	0	0	0	0	0	1	1	1	1	6
38	380	0	0	0	0	0	0	0	0	0	0	0	0	0
39	1765	1	0	1	0	1	0	1	1	0	1	1	0	6
40	352	0	1	0	0	0	0	0	0	0	0	0	0	1
41	352	0	0	0	0	0	0	0	0	0	0	0	0	0
42	1689	1	0	0	0	0	0	0	0	1	0	1	0	2
43	380	0	0	0	0	0	0	0	0	0	0	0	0	0
44	1896	1	0	0	0	0	0	0	0	1	0	1	0	2
45	2329	1	1	1	0	0	1	1	1	0	1	1	1	8
46	1924	1	1	0	0	1	0	1	1	1	1	1	1	8
47	1699	1	1	0	0	1	1	1	1	0	1	1	1	8
48	352	0	1	0	0	0	0	0	0	0	0	0	0	1
49	352	0	0	0	0	0	0	0	0	0	0	0	0	0
50	380	0	0	0	0	0	0	0	0	0	0	0	0	0
(YES UI) & (Top 2%)			12	17	7	8	4	14	11	9	10	20	8	10.91
YES UI Total			16	17	8	8	5	15	12	11	10	20	8	11.82
(NO UI) & (Bottom 50%)			21	25	24	25	24	24	24	23	25	25	25	24.09
NO UI Total			34	33	42	42	45	35	38	39	40	30	42	38.18

Activity Code 533

Average Responses

Classifiers	"YES" UI Top 2%	"YES" UI Bot. 50%	"YES" UI Total	"NO" UI Top 2%	"NO" UI Bot. 50%	"NO" UI Total	Chi-Square	
Classifier 1	12	4	16	13	21	34	5.882	
Classifier 2	17	0	17	8	25	33	25.758	
Classifier 3	7	1	8	18	24	42	5.357	
Classifier 4	8	0	8	17	25	42	9.524	
Classifier 5	4	1	5	21	24	45	2.000	X
Classifier 6	14	1	15	11	24	35	16.095	
Classifier 7	11	1	12	14	24	38	10.965	
Classifier 8	9	2	11	16	23	39	5.711	
Classifier 9	10	0	10	15	25	40	12.500	
Classifier 10	20	0	20	5	25	30	33.333	
Classifier 11	8	0	8	17	25	42	9.524	
Classifier Averages	10.91	0.91	11.82	14.09	24.09	38.18	N/A	

UI SCORES	"YES" UI	"NO" UI	TOTAL
Top 2%	10.91	14.09	25
Bottom 50%	0.91	24.09	25
TOTAL	11.82	38.18	50

1. H_o: Average Classifier responces were independent of High or Low UI Scores.

2. Ha: Average Classifier responces were associated with High or Low UI Scores.

3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.

4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	10.9091	5.9091	5.0000	25.0000	4.231
"YES" UI & Bottom 5(	0.9091	5.9091	-5.0000	25.0000	4.231
"NO" UI & Top 2%	14.0909	19.0909	-5.0000	25.0000	1.310
"NO" UI & Bottom 50'	24.0909	19.0909	5.0000	25.0000	1.310
				Chi-Square:	**11.081**

Unrerported Income Study (Phase 1)

Activity Code: 534

Seq #	UI Score	TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM
1	1507	1	1	0	0	0	0	1	0	1	0	1	0	4
2	1374	1	0	0	0	0	0	0	0	0	0	1	0	1
3	1534	1	1	0	0	0	0	0	0	1	0	1	0	3
4	1535	1	1	1	1	0	1	1	0	1	0	1	0	7
5	401	0	1	0	0	0	0	0	0	0	0	0	0	1
6	375	0	0	0	0	0	0	0	0	0	0	0	0	0
7	1423	1	0	0	0	0	0	0	0	0	0	1	0	1
8	375	0	0	0	0	0	0	0	0	0	0	0	0	0
9	375	0	1	0	0	0	0	0	0	0	0	0	0	1
10	375	0	0	0	0	0	0	0	0	0	0	0	0	0
11	1424	1	1	1	0	0	0	0	0	1	0	1	0	4
12	375	0	0	0	0	0	0	0	0	0	0	0	0	0
13	375	0	0	0	0	0	0	0	0	0	0	0	0	0
14	395	0	0	0	0	0	0	0	0	0	0	0	0	0
15	395	0	0	0	0	0	0	0	0	0	0	0	0	0
16	375	0	1	0	0	0	0	0	0	1	0	0	0	2
17	1499	1	0	0	0	0	0	0	0	1	0	0	0	1
18	1407	1	1	1	1	0	1	1	0	1	0	1	0	7
19	1379	1	0	0	0	0	0	0	0	1	0	1	0	2
20	375	0	0	0	0	0	0	0	0	0	0	0	0	0
21	375	0	0	0	0	1	0	0	0	0	0	0	0	1
22	375	0	0	0	0	0	0	0	0	0	0	0	0	0
23	375	0	0	0	0	0	0	0	0	0	0	0	0	0
24	401	0	1	0	0	0	0	0	0	1	0	0	0	2
25	375	0	0	0	0	0	0	0	0	0	0	0	0	0
26	1440	1	0	1	0	0	0	0	0	0	0	1	0	2
27	395	0	1	0	0	0	1	1	0	0	0	0	0	3
28	417	0	1	0	0	0	0	1	0	0	0	1	0	3
29	1470	1	1	0	0	0	0	0	0	0	0	0	0	1
30	1486	1	1	1	0	1	0	1	1	0	0	0	0	5
31	401	0	0	0	0	0	0	0	0	0	0	0	0	0
32	1402	1	0	0	0	0	0	0	0	1	0	1	0	2
33	1519	1	0	0	0	0	0	1	0	0	0	1	0	2
34	295	0	0	0	0	0	0	0	0	1	0	0	0	1
35	1363	1	1	1	0	1	0	1	0	1	1	1	0	7
36	1688	1	1	1	1	0	0	1	1	1	1	1	1	9
37	1554	1	1	1	1	1	0	1	0	0	0	1	0	6
38	397	0	0	0	0	0	0	0	0	0	0	0	0	0
39	1419	1	0	0	1	1	0	1	0	0	1	0	0	4
40	375	0	0	0	0	0	1	0	0	0	0	0	0	1
41	1649	1	1	1	0	0	0	0	0	1	0	1	0	4
42	1542	1	0	1	0	1	0	0	0	0	0	1	0	3
43	1362	1	1	1	1	0	0	0	0	1	0	1	0	5
44	375	0	0	0	0	0	0	0	0	0	0	0	0	0
45	420	0	0	1	0	0	0	0	0	1	0	0	0	2
46	379	0	0	0	0	0	0	0	0	1	0	0	0	1
47	1376	1	1	0	0	0	0	0	0	0	0	0	0	1
48	1406	1	1	1	1	1	0	1	0	0	0	1	1	7
49	1436	1	1	1	1	1	0	1	0	1	1	1	1	9
50	1397	1	1	0	0	0	1	0	0	0	0	0	0	2
(YES UI) & (Top 2%)			16	13	8	7	3	11	2	13	4	19	3	9
YES UI Total			22	14	8	8	5	13	2	18	4	20	3	10.64
(NO UI) & (Bottom 50%)			19	24	25	24	23	23	25	20	25	24	25	23.36
NO UI Total			28	36	42	42	45	37	48	32	46	30	47	39.36

Activity Code 534

Average Responses

Classifiers	"YES" UI Top 2%	"YES" UI Bot. 50%	"YES" UI Total	"NO" UI Top 2%	"NO" UI Bot. 50%	"NO" UI Total	Chi-Square	
Classifier 1	16	6	22	9	19	28	8.117	
Classifier 2	13	1	14	12	24	36	14.286	
Classifier 3	8	0	8	17	25	42	9.524	
Classifier 4	7	1	8	18	24	42	5.357	
Classifier 5	3	2	5	22	23	45	0.222	X
Classifier 6	11	2	13	14	23	37	8.420	
Classifier 7	2	0	2	23	25	48	2.083	X
Classifier 8	13	5	18	12	20	32	5.556	
Classifier 9	4	0	4	21	25	46	4.348	
Classifier 10	19	1	20	6	24	30	27.000	
Classifier 11	3	0	3	22	25	47	3.191	X
Classifier Averages	9.00	1.64	10.64	16.00	23.36	39.36	N/A	

UI SCORES	"YES" UI	"NO" UI	TOTAL
Top 2%	9.00	16.00	25
Bottom 50%	1.64	23.36	25
TOTAL	10.64	39.36	50

1. H_o: Average Classifier responces were independent of High or Low UI Scores.

2. Ha: Average Classifier responces were associated with High or Low UI Scores.

3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.

4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	9.0000	5.3182	3.6818	13.5558	2.549
"YES" UI & Bottom 5(	1.6364	5.3182	-3.6818	13.5558	2.549
"NO" UI & Top 2%	16.0000	19.6818	-3.6818	13.5558	0.689
"NO" UI & Bottom 50'	23.3636	19.6818	3.6818	13.5558	0.689
				Chi-Square:	**6.475**

Unrerported Income Study (Phase 1)

Activity Code: 535

Seq #	UI Score	TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM
1	963	1	1	1	1	1	1	1	1	1	1	1	0	10
2	427	0	1	1	1	1	1	1	1	1	1	0	0	9
3	460	0	1	1	1	1	0	1	1	1	1	0	0	8
4	456	0	1	1	1	1	1	1	1	1	1	0	1	10
5	1036	1	1	1	1	1	1	1	1	1	1	1	1	11
6	456	0	1	1	0	1	1	0	1	1	1	0	0	7
7	379	0	0	1	1	1	0	0	1	1	0	0	0	5
8	963	1	1	1	1	1	1	1	1	1	1	1	1	11
9	491	0	1	1	1	0	1	1	1	1	1	1	0	9
10	924	1	1	1	1	1	1	0	1	1	1	1	1	10
11	919	1	1	1	1	1	1	1	1	1	1	1	1	11
12	872	1	1	1	1	1	1	1	1	1	1	1	1	11
13	485	0	1	1	1	1	0	1	1	1	0	0	1	8
14	449	0	0	0	1	0	0	1	1	0	0	0	0	3
15	1019	1	1	1	1	0	1	1	1	1	1	1	0	9
16	460	0	1	0	1	0	0	1	1	1	0	1	0	6
17	957	1	1	1	1	1	1	1	1	1	1	1	1	11
18	963	1	1	1	1	1	1	1	1	1	1	1	1	11
19	886	1	1	1	1	1	1	1	1	1	1	1	1	11
20	998	1	1	1	1	1	1	1	1	1	1	1	1	11
21	886	1	1	1	1	1	1	1	1	1	1	1	1	11
22	427	0	1	1	1	0	0	1	1	1	0	0	0	6
23	427	0	1	1	1	1	1	1	1	1	1	0	0	9
24	948	1	1	1	1	1	1	1	1	1	1	1	1	11
25	427	0	1	0	0	0	0	0	1	1	0	0	0	3
26	460	0	1	1	1	1	1	1	1	1	1	1	1	11
27	460	0	1	1	1	1	1	1	1	1	1	1	0	10
28	466	0	0	0	0	0	0	1	1	1	1	1	0	5
29	460	0	1	1	1	1	1	1	1	1	1	0	0	9
30	886	1	1	1	1	1	1	1	1	1	1	1	0	10
31	932	1	1	1	1	1	1	1	1	1	0	1	1	10
32	924	1	1	1	1	1	0	1	1	1	1	1	1	10
33	886	1	1	1	1	1	0	1	1	1	1	1	1	10
34	502	0	0	0	1	1	0	1	1	1	1	0	0	6
35	872	1	1	1	1	1	1	1	1	1	1	1	1	11
36	427	0	1	1	1	1	1	1	1	1	1	0	1	10
37	439	0	0	0	1	0	0	1	0	1	0	0	0	3
38	957	1	1	1	1	0	0	1	1	1	1	1	1	9
39	851	1	1	1	1	1	1	1	1	1	1	1	1	11
40	456	0	1	1	1	1	0	1	1	1	1	0	0	8
41	460	0	0	0	0	0	0	1	0	1	0	0	0	2
42	934	1	1	1	1	1	0	0	1	1	0	1	0	7
43	930	1	1	1	1	1	1	1	1	1	1	1	1	11
44	460	0	1	1	1	1	0	1	1	1	1	1	1	10
45	930	1	1	1	1	1	1	1	1	1	1	1	1	11
46	427	0	1	1	1	1	1	1	1	1	1	0	1	10
47	1009	1	1	1	1	1	1	1	1	1	1	1	1	11
48	872	1	1	1	1	1	1	1	1	1	1	1	1	11
49	439	0	0	0	0	1	0	1	1	1	0	0	0	4
50	460	0	1	1	1	1	1	1	1	1	1	0	0	9
(YES UI) & (Top 2%)			25	25	25	23	21	23	25	25	23	25	21	23.73
YES UI Total			43	42	45	40	32	45	48	49	39	31	27	40.09
(NO UI) & (Bottom 50%)			7	8	5	8	14	3	2	1	9	19	19	8.64
NO UI Total			7	8	5	10	18	5	2	1	11	19	23	9.91

Activity Code 535

Average Responses

Classifiers	"YES" UI Top 2%	"YES" UI Bot. 50%	"YES" UI Total	"NO" UI Top 2%	"NO" UI Bot. 50%	"NO" UI Total	Chi-Square	
Classifier 1	25	18	43	0	7	7	8.140	
Classifier 2	25	17	42	0	8	8	9.524	
Classifier 3	25	20	45	0	5	5	5.556	
Classifier 4	23	17	40	2	8	10	4.500	
Classifier 5	21	11	32	4	14	18	8.681	
Classifier 6	23	22	45	2	3	5	0.222	X
Classifier 7	25	23	48	0	2	2	2.083	X
Classifier 8	25	24	49	0	1	1	1.020	X
Classifier 9	23	16	39	2	9	11	5.711	
Classifier 10	25	6	31	0	19	19	30.645	
Classifier 11	21	6	27	4	19	23	18.116	
Classifier Averages	23.73	16.36	40.09	1.27	8.64	9.91	N/A	

UI SCORES	"YES" UI	"NO" UI	TOTAL
Top 2%	23.73	1.27	25
Bottom 50%	16.36	8.64	25
TOTAL	40.09	9.91	50

1. H_o: Average Classifier responces were independent of High or Low UI Scores.
2. Ha: Average Classifier responces were associated with High or Low UI Scores.
3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.
4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	23.7273	20.0455	3.6818	13.5558	0.676
"YES" UI & Bottom 50	16.3636	20.0455	-3.6818	13.5558	0.676
"NO" UI & Top 2%	1.2727	4.9545	-3.6818	13.5558	2.736
"NO" UI & Bottom 50	8.6364	4.9545	3.6818	13.5558	2.736
				Chi-Square:	**6.825**

Unrerported Income Study (Phase 1)

Activity Code: 536

Seq #	UI Score	TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM
1	497	0	0	0	1	0	0	1	0	0	0	0	0	2
2	486	0	0	1	1	0	0	0	0	1	0	0	0	3
3	746	1	1	1	1	1	0	1	1	0	1	1	0	8
4	753	1	1	1	1	1	0	1	1	1	1	1	0	9
5	489	0	0	1	1	1	0	1	1	1	1	0	0	7
6	497	0	0	1	1	1	0	1	1	1	0	0	0	6
7	727	1	1	1	1	1	0	1	1	1	1	0	1	9
8	723	1	1	1	1	1	1	1	1	1	1	1	1	11
9	726	1	1	1	1	1	1	1	1	1	1	1	1	11
10	732	1	1	1	1	1	1	1	1	1	1	1	1	11
11	748	1	0	1	1	1	0	1	1	1	1	1	1	9
12	445	0	0	0	1	0	0	1	0	0	0	1	0	3
13	470	0	1	1	1	0	0	1	1	0	1	1	1	8
14	479	0	0	0	1	0	0	1	0	0	0	0	0	2
15	498	0	0	0	1	1	0	1	1	0	0	0	0	4
16	753	1	1	1	1	1	0	1	1	0	1	1	0	8
17	464	0	0	0	0	0	0	0	0	0	0	1	0	1
18	496	0	1	1	1	1	1	1	1	1	1	1	0	10
19	753	1	1	1	1	1	1	1	1	1	1	1	1	11
20	730	1	1	1	1	1	1	1	1	1	1	1	1	11
21	744	1	1	1	1	1	0	1	1	1	1	1	0	9
22	475	0	1	0	1	1	0	1	1	0	0	1	1	7
23	746	1	1	1	1	1	1	1	1	1	1	1	1	11
24	506	0	1	1	1	0	0	0	1	0	0	1	0	5
25	802	1	1	1	1	1	1	1	1	1	1	1	1	11
26	768	1	1	1	1	1	1	1	1	0	1	1	1	10
27	732	1	1	1	1	1	0	0	1	0	1	1	1	8
28	804	1	1	1	1	1	0	1	1	1	1	1	0	9
29	456	0	0	0	0	0	0	0	0	0	0	0	0	0
30	505	0	1	0	1	0	0	0	0	0	0	0	0	2
31	754	1	1	1	1	1	0	1	1	1	1	1	1	10
32	738	1	1	1	1	1	0	1	1	0	1	0	1	8
33	496	0	1	0	1	0	0	1	1	1	0	0	1	6
34	505	0	0	0	1	1	0	1	0	0	1	0	0	4
35	472	0	0	1	1	0	0	0	0	0	0	0	0	2
36	511	0	1	1	1	1	0	1	1	1	1	1	1	10
37	467	0	0	0	0	1	0	1	0	0	0	0	0	2
38	513	0	0	1	1	0	0	1	1	1	0	1	1	7
39	488	0	0	0	1	0	0	0	0	0	0	0	0	1
40	486	0	1	0	0	1	0	1	1	0	0	1	1	6
41	753	1	1	1	1	1	0	1	1	1	1	1	1	10
42	761	1	1	1	1	1	1	1	1	1	1	1	1	11
43	822	1	1	1	1	1	1	1	1	1	1	1	1	11
44	411	0	0	0	1	0	0	0	0	0	0	0	1	2
45	790	1	1	0	1	1	1	1	1	1	1	1	1	10
46	824	1	1	1	1	1	0	1	1	1	1	1	1	10
47	498	0	0	0	1	0	0	0	0	0	0	0	0	1
48	766	1	1	1	1	1	0	0	1	1	1	1	0	8
49	756	1	1	1	1	1	0	1	1	1	1	1	1	10
50	471	0	1	0	1	1	0	1	1	0	1	0	0	6
(YES UI) & (Top 2%)			24	24	25	25	11	23	25	20	25	23	19	22.18
YES UI Total			33	33	46	35	12	39	37	27	31	32	26	31.91
(NO UI) & (Bottom 50%)			16	16	4	15	24	9	13	18	19	16	18	15.27
NO UI Total			17	17	4	15	38	11	13	23	19	18	24	18.09

Activity Code 536

Average Responses

Classifiers	"YES" UI Top 2%	"YES" UI Bot. 50%	"YES" UI Total	"NO" UI Top 2%	"NO" UI Bot. 50%	"NO" UI Total	Chi-Square
Classifier 1	24	9	33	1	16	17	20.053
Classifier 2	24	9	33	1	16	17	20.053
Classifier 3	25	21	46	0	4	4	4.348
Classifier 4	25	10	35	0	15	15	21.429
Classifier 5	11	1	12	14	24	38	10.965
Classifier 6	23	16	39	2	9	11	5.711
Classifier 7	25	12	37	0	13	13	17.568
Classifier 8	20	7	27	5	18	23	13.607
Classifier 9	25	6	31	0	19	19	30.645
Classifier 10	23	9	32	2	16	18	17.014
Classifier 11	19	7	26	6	18	24	11.538
Classifier Averages	22.18	9.73	31.91	2.82	15.27	18.09	N/A

UI SCORES	"YES" UI	"NO" UI	TOTAL
Top 2%	22.18	2.82	25
Bottom 50%	9.73	15.27	25
TOTAL	31.91	18.09	50

1. H_o: Average Classifier responces were independent of High or Low UI Scores.

2. Ha: Average Classifier responces were associated with High or Low UI Scores.

3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.

4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	22.1818	15.9545	6.2273	38.7789	2.431
"YES" UI & Bottom 5(	9.7273	15.9545	-6.2273	38.7789	2.431
"NO" UI & Top 2%	2.8182	9.0455	-6.2273	38.7789	4.287
"NO" UI & Bottom 50'	15.2727	9.0455	6.2273	38.7789	4.287
				Chi-Square:	**13.435**

Unrerported Income Study (Phase 1)

Activity Code: 537

Seq #	UI Score	TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM
1	920	1	1	1	1	0	0	1	1	1	1	1	1	9
2	326	0	0	0	0	0	0	0	0	0	0	0	0	0
3	380	0	1	0	0	0	0	1	1	1	0	1	1	6
4	397	0	1	0	0	0	0	0	0	1	0	1	0	3
5	980	1	1	1	1	1	1	1	1	1	1	1	0	10
6	920	1	1	1	1	0	1	1	1	1	1	1	1	10
7	405	0	1	0	0	0	0	1	0	1	0	0	0	3
8	986	1	1	1	1	0	1	1	1	1	1	1	0	9
9	935	1	1	1	0	0	0	1	1	0	1	1	0	6
10	1018	1	1	1	1	0	1	1	1	0	1	1	0	8
11	328	0	1	0	1	1	0	1	1	0	0	0	1	6
12	957	1	1	1	1	1	1	1	1	0	1	1	0	9
13	966	1	1	0	1	0	0	1	1	0	1	1	1	7
14	396	0	1	0	1	0	0	1	0	0	0	0	0	3
15	969	1	1	0	1	0	1	1	1	0	1	1	0	7
16	337	0	1	0	0	0	0	1	0	1	0	1	0	4
17	282	0	1	0	0	0	0	0	0	0	0	0	0	1
18	390	0	1	1	1	1	0	1	0	1	0	0	0	6
19	1009	1	1	1	1	1	1	1	1	1	1	1	1	11
20	969	1	1	1	1	1	1	1	1	1	1	1	1	11
21	337	0	0	0	1	0	0	1	0	0	1	1	0	4
22	351	0	1	0	0	0	0	1	0	0	0	0	0	2
23	382	0	0	1	1	0	0	1	0	0	0	0	0	3
24	920	1	1	1	1	1	1	1	0	1	1	1	0	9
25	326	0	0	0	0	0	0	0	0	0	0	0	0	0
26	394	0	1	1	1	0	0	0	1	0	0	1	0	5
27	1014	1	1	1	1	1	1	1	1	1	1	1	1	11
28	401	0	0	0	1	0	0	0	0	0	0	1	0	2
29	409	0	1	0	1	1	0	1	0	0	0	0	0	4
30	935	1	1	1	1	1	0	1	1	0	1	1	1	9
31	388	0	0	0	1	0	0	0	0	0	0	0	0	1
32	986	1	1	1	1	1	1	1	1	1	1	1	1	11
33	337	0	1	0	0	0	0	0	0	0	0	0	0	1
34	1064	1	1	1	1	1	1	1	1	0	1	1	1	10
35	337	0	0	0	0	0	0	0	0	0	0	0	0	0
36	337	0	1	0	0	0	0	0	0	0	0	1	0	2
37	949	1	1	1	1	1	1	1	1	1	1	1	1	11
38	969	1	1	1	1	0	1	1	1	1	1	1	1	10
39	387	0	0	0	1	0	0	0	0	1	0	0	0	2
40	920	1	1	1	1	1	0	1	0	1	1	1	0	8
41	326	0	0	0	0	0	0	0	0	0	0	0	0	0
42	1026	1	1	1	1	0	0	1	1	0	1	1	1	8
43	368	0	1	0	0	0	0	0	0	0	0	0	0	1
44	1064	1	1	1	1	0	1	1	1	0	1	1	1	9
45	373	0	0	0	0	0	0	1	0	0	0	1	0	2
46	931	1	1	1	1	0	0	1	1	1	1	1	1	9
47	405	0	1	0	0	0	0	1	0	0	0	0	0	2
48	984	1	1	1	1	1	1	1	1	0	1	1	1	10
49	1026	1	1	1	1	0	1	1	1	1	1	1	1	10
50	938	1	1	1	1	1	1	1	1	0	1	1	1	10
(YES UI) & (Top 2%)			25	23	24	13	18	25	23	14	25	25	17	21.09
YES UI Total			40	26	34	16	18	37	26	20	26	33	19	26.82
(NO UI) & (Bottom 50%)			10	22	15	22	25	13	22	19	24	17	23	19.27
NO UI Total			10	24	16	34	32	13	24	30	24	17	31	23.18

Activity Code 537

Average Responses

Classifiers	"YES" UI Top 2%	"YES" UI Bot. 50%	"YES" UI Total	"NO" UI Top 2%	"NO" UI Bot. 50%	"NO" UI Total	Chi-Square
Classifier 1	25	15	40	0	10	10	12.500
Classifier 2	23	3	26	2	22	24	32.051
Classifier 3	24	10	34	1	15	16	18.015
Classifier 4	13	3	16	12	22	34	9.191
Classifier 5	18	0	18	7	25	32	28.125
Classifier 6	25	12	37	0	13	13	17.568
Classifier 7	23	3	26	2	22	24	32.051
Classifier 8	14	6	20	11	19	30	5.333
Classifier 9	25	1	26	0	24	24	46.154
Classifier 10	25	8	33	0	17	17	25.758
Classifier 11	17	2	19	8	23	31	19.100
Classifier Averages	21.09	5.73	26.82	3.91	19.27	23.18	N/A

UI SCORES	"YES" UI	"NO" UI	TOTAL
Top 2%	21.09	3.91	25
Bottom 50%	5.73	19.27	25
TOTAL	26.82	23.18	50

1. H_o: Average Classifier responces were independent of High or Low UI Scores.

2. Ha: Average Classifier responces were associated with High or Low UI Scores.

3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.

4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	21.0909	13.4091	7.6818	59.0103	4.401
"YES" UI & Bottom 5(	5.7273	13.4091	-7.6818	59.0103	4.401
"NO" UI & Top 2%	3.9091	11.5909	-7.6818	59.0103	5.091
"NO" UI & Bottom 50'	19.2727	11.5909	7.6818	59.0103	5.091
				Chi-Square:	**18.984**

Unrerported Income Study (Phase 1)

Activity Code: 538

Should The Return Be Examined For Unreported Income? (1=YES) (0=NO)

Seq #	UI Score	TOP 2%	CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM
1	758	1	1	1	0	1	1	1	1	1	1	1	1	10
2	706	1	1	1	0	1	1	1	1	1	1	1	0	9
3	341	0	0	1	0	0	0	0	0	0	0	0	0	1
4	691	1	1	1	0	0	1	1	1	0	1	1	0	7
5	769	1	0	1	0	0	0	1	0	0	1	1	0	4
6	310	0	0	1	0	1	0	1	1	1	0	0	0	5
7	773	1	1	1	0	1	1	1	1	1	1	1	0	9
8	846	1	1	1	0	1	1	1	1	1	1	1	0	9
9	377	0	0	1	0	1	0	0	1	1	0	0	0	4
10	402	0	0	0	0	0	0	0	0	1	0	1	0	2
11	691	1	0	1	0	1	0	1	1	0	1	0	0	5
12	763	1	1	1	1	1	1	1	1	1	1	0	0	9
13	790	1	1	1	0	1	0	1	0	0	1	1	0	6
14	687	1	1	1	1	1	1	1	1	1	1	1	1	11
15	437	0	0	0	0	1	0	1	0	0	0	0	0	2
16	724	1	0	1	0	0	0	1	0	1	1	0	0	4
17	710	1	1	1	0	0	1	1	1	1	1	1	0	8
18	437	0	0	0	0	0	0	0	0	0	0	0	0	0
19	758	1	1	1	0	1	1	1	1	0	1	1	0	8
20	364	0	0	1	0	0	0	0	0	0	0	0	0	1
21	408	0	0	0	0	1	0	1	0	1	0	0	0	3
22	322	0	0	0	0	0	0	0	0	0	0	0	0	0
23	349	0	1	1	0	1	1	1	1	1	1	0	0	8
24	761	1	1	1	0	1	1	1	0	1	1	1	0	8
25	405	0	1	1	0	0	0	1	1	0	1	1	1	7
26	715	1	1	1	0	1	1	1	1	1	1	1	1	10
27	347	0	0	0	0	0	0	0	0	0	0	0	0	0
28	379	0	0	0	0	1	0	0	1	0	0	1	0	3
29	394	0	0	0	0	0	0	0	0	0	0	0	0	0
30	408	0	0	0	0	0	0	0	0	1	1	1	0	3
31	291	0	0	1	0	0	0	1	1	1	0	0	0	4
32	669	1	0	1	0	1	0	1	0	0	1	1	0	5
33	366	0	0	1	0	0	1	1	1	1	1	0	1	7
34	431	0	1	1	0	0	1	0	1	1	1	1	0	7
35	374	0	1	1	0	1	1	1	1	1	1	1	0	9
36	371	0	0	0	0	0	0	0	1	0	0	0	0	1
37	688	1	1	1	0	1	0	1	1	1	1	0	1	8
38	310	0	1	0	0	0	0	0	0	1	0	0	0	2
39	429	0	0	0	0	0	0	0	0	0	0	0	0	0
40	702	1	1	1	0	0	1	1	1	1	1	1	0	8
41	396	0	1	1	0	1	1	1	1	1	1	1	0	9
42	379	0	0	0	0	1	0	0	1	1	0	1	0	4
43	676	1	1	1	0	0	0	1	0	1	1	1	0	6
44	747	1	1	1	0	0	1	1	1	0	1	1	1	8
45	341	0	0	0	0	0	0	1	0	1	0	1	0	3
46	746	1	1	1	1	1	1	1	1	1	1	1	1	11
47	666	1	1	1	0	0	1	1	1	1	1	1	0	8
48	674	1	1	1	0	0	0	0	0	1	1	1	0	5
49	674	1	1	1	0	0	0	1	1	0	1	1	1	7
50	669	1	0	0	0	0	0	0	0	0	0	0	0	0
(YES UI) & (Top 2%)			20	24	3	14	15	23	17	16	24	20	7	16.64
YES UI Total			26	35	3	23	20	33	29	30	31	29	9	24.36
(NO UI) & (Bottom 50%)			19	14	25	16	20	15	13	11	18	16	23	17.27
NO UI Total			24	15	47	27	30	17	21	20	19	21	41	25.64

Activity Code 538

Average Responses

Classifiers	"YES" UI Top 2%	"YES" UI Bot. 50%	"YES" UI Total	"NO" UI Top 2%	"NO" UI Bot. 50%	"NO" UI Total	Chi-Square	
Classifier 1	20	6	26	5	19	24	15.705	
Classifier 2	24	11	35	1	14	15	16.095	
Classifier 3	3	0	3	22	25	47	3.191	X
Classifier 4	14	9	23	11	16	27	2.013	X
Classifier 5	15	5	20	10	20	30	8.333	
Classifier 6	23	10	33	2	15	17	15.062	
Classifier 7	17	12	29	8	13	21	2.053	X
Classifier 8	16	14	30	9	11	20	0.333	X
Classifier 9	24	7	31	1	18	19	24.533	
Classifier 10	20	9	29	5	16	21	9.934	
Classifier 11	7	2	9	18	23	41	3.388	X
Classifier Averages	16.64	7.73	24.36	8.36	17.27	25.64	N/A	

UI SCORES	"YES" UI	"NO" UI	TOTAL
Top 2%	16.64	8.36	25
Bottom 50%	7.73	17.27	25
TOTAL	24.36	25.64	50

1. H_o: Average Classifier responces were independent of High or Low UI Scores.

2. Ha: Average Classifier responces were associated with High or Low UI Scores.

3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.

4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	16.6364	12.1818	4.4545	19.8430	1.629
"YES" UI & Bottom 50	7.7273	12.1818	-4.4545	19.8430	1.629
"NO" UI & Top 2%	8.3636	12.8182	-4.4545	19.8430	1.548
"NO" UI & Bottom 50	17.2727	12.8182	4.4545	19.8430	1.548
				Chi-Square:	**6.354**

Unrerported Income Study (Phase 1)

Activity Code: 539

Should The Return Be Examined For Unreported Income? (1=YES) (0=NO)

Seq #	UI Score	TOP 2%	CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM
1	1009	1	1	0	0	0	0	0	0	0	1	1	0	3
2	1045	1	1	0	0	0	1	1	1	0	1	1	0	6
3	1064	1	1	0	0	0	1	1	1	1	1	0	0	6
4	575	0	0	1	0	0	0	1	1	0	0	0	0	3
5	573	0	0	0	0	1	0	1	1	0	0	0	0	3
6	571	0	0	0	0	0	0	1	1	1	0	1	0	4
7	535	0	0	0	0	0	0	0	0	0	0	0	0	0
8	619	0	0	1	0	1	1	1	1	1	1	0	0	7
9	1044	1	1	0	0	0	0	1	0	0	1	1	0	4
10	481	0	0	0	0	0	0	1	0	0	0	0	0	1
11	611	0	1	1	1	1	1	1	1	1	1	1	1	11
12	510	0	1	0	0	1	0	1	1	0	1	1	0	6
13	1003	1	1	1	0	0	1	1	1	0	1	1	0	7
14	582	0	0	0	0	1	1	1	1	1	1	0	0	6
15	1024	1	1	1	0	0	1	1	1	1	1	1	0	8
16	504	0	0	0	0	0	0	1	0	0	0	0	0	1
17	594	0	0	1	0	0	0	0	1	0	0	1	0	3
18	503	0	0	0	0	0	0	1	0	0	0	0	0	1
19	607	0	0	0	0	0	1	1	0	0	0	1	0	3
20	1057	1	0	1	0	0	1	1	1	1	1	1	0	7
21	593	0	1	1	0	0	0	1	1	0	0	1	0	5
22	594	0	0	0	0	0	0	1	0	0	0	0	0	1
23	1049	1	0	1	0	0	1	1	1	1	0	1	0	6
24	477	0	0	0	0	1	0	0	0	1	0	0	0	2
25	556	0	0	0	0	0	0	0	0	0	0	0	0	0
26	539	0	0	0	0	0	0	0	0	0	0	0	0	0
27	1009	1	1	0	0	0	1	0	1	0	0	1	0	4
28	528	0	0	0	0	1	0	1	1	0	0	1	0	4
29	548	0	1	0	0	0	0	1	1	1	1	1	0	6
30	520	0	0	0	0	0	0	0	0	0	0	0	0	0
31	994	1	0	0	0	0	0	1	0	1	1	1	0	4
32	603	0	0	0	0	1	0	0	1	0	0	0	0	2
33	618	0	1	1	0	0	0	0	0	1	0	1	0	4
34	1094	1	1	1	0	0	1	1	0	0	0	1	0	5
35	999	1	1	1	0	0	1	1	1	0	0	1	0	6
36	1058	1	1	1	0	0	1	1	1	0	0	1	1	7
37	1016	1	1	1	0	0	1	1	1	1	1	1	1	9
38	1044	1	1	0	0	0	0	1	1	1	1	1	0	6
39	1020	1	1	1	0	1	1	1	1	0	1	1	0	8
40	1023	1	1	1	0	0	1	1	1	1	1	1	0	8
41	1023	1	1	1	0	1	1	1	1	1	1	1	0	9
42	1002	1	1	0	0	0	1	1	1	1	1	1	0	7
43	485	0	0	0	0	0	0	1	0	0	0	0	0	1
44	1012	1	1	1	0	0	0	1	0	0	0	1	0	4
45	551	0	0	0	0	0	0	1	0	1	0	0	0	2
46	1013	1	1	0	0	0	0	1	1	1	1	1	0	6
47	996	1	1	1	0	0	0	1	1	1	0	1	0	6
48	1051	1	1	1	1	0	1	1	1	1	1	1	0	9
49	1045	1	1	1	0	0	1	1	1	1	1	1	0	8
50	1128	1	1	0	0	1	1	1	1	0	1	1	0	7
(YES UI) & (Top 2%)			22	15	1	3	18	23	20	14	18	24	2	14.55
YES UI Total			27	21	2	11	22	40	32	22	23	33	3	21.45
(NO UI) & (Bottom 50%)			20	19	24	17	21	8	13	17	20	16	24	18.09
NO UI Total			23	29	48	39	28	10	18	28	27	17	47	28.55

Activity Code 539

Average Responses

Classifiers	"YES" UI Top 2%	"YES" UI Bot. 50%	"YES" UI Total	"NO" UI Top 2%	"NO" UI Bot. 50%	"NO" UI Total	Chi-Square	
Classifier 1	22	5	27	3	20	23	23.269	
Classifier 2	15	6	21	10	19	29	6.650	
Classifier 3	1	1	2	24	24	48	0.000	X
Classifier 4	3	8	11	22	17	39	2.914	X
Classifier 5	18	4	22	7	21	28	15.909	
Classifier 6	23	17	40	2	8	10	4.500	
Classifier 7	20	12	32	5	13	18	5.556	
Classifier 8	14	8	22	11	17	28	2.922	X
Classifier 9	18	5	23	7	20	27	13.607	
Classifier 10	24	9	33	1	16	17	20.053	
Classifier 11	2	1	3	23	24	47	0.355	X
Classifier Averages	14.55	6.91	21.45	10.45	18.09	28.55	N/A	

UI SCORES	"YES" UI	"NO" UI	TOTAL
Top 2%	14.55	10.45	25
Bottom 50%	6.91	18.09	25
TOTAL	21.45	28.55	50

1. H_o: Average Classifier responces were independent of High or Low UI Scores.

2. Ha: Average Classifier responces were associated with High or Low UI Scores.

3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.

4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	14.5455	10.7273	3.8182	14.5785	1.359
"YES" UI & Bottom 50	6.9091	10.7273	-3.8182	14.5785	1.359
"NO" UI & Top 2%	10.4545	14.2727	-3.8182	14.5785	1.021
"NO" UI & Bottom 50	18.0909	14.2727	3.8182	14.5785	1.021
				Chi-Square:	**4.761**

Appendix C

Majority Audit Sums

Unrerported Income Study (Phase 1)

Activity Code: 532

Seq #	UI Score	(A) TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM	(B) Audit Sum 1 = GE 6 0 = LE 5	(A) + (B) 2 = "GE 6" was Top 2% 0 = "LE 5" was Bot. 50% 1 = Misclassified
1	1869	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
2	1635	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3	1365	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
4	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	223	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
8	223	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
9	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	1707	1	0	1	0	1	1	1	1	1	1	1	0	8	1	2
11	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	1707	1	0	1	0	1	0	0	1	0	0	0	0	3	0	1
13	1385	1	1	1	0	1	0	0	0	1	0	1	0	5	0	1
14	1385	1	1	0	0	1	0	1	0	1	1	1	0	6	1	2
15	1707	1	1	1	0	0	0	0	0	0	0	0	0	2	0	1
16	223	0	0	0	1	0	0	0	0	1	0	0	0	2	0	0
17	1386	1	1	0	0	0	0	0	1	1	0	0	0	3	0	1
18	1386	1	1	1	1	1	0	1	1	1	0	1	0	8	1	2
19	1707	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1
20	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	223	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
23	223	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
24	1732	1	0	0	0	0	0	0	0	0	0	1	0	1	0	1
25	1603	1	0	0	0	0	0	1	0	0	0	1	0	2	0	1
26	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	1676	1	0	0	1	0	1	1	0	1	1	1	0	6	1	2
28	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	223	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
32	1707	1	1	1	0	1	1	1	1	1	1	1	1	10	1	2
33	1386	1	1	1	1	0	0	0	1	0	1	1	0	6	1	2
34	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	223	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
36	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	223	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
38	2055	1	1	0	1	1	0	0	0	1	0	1	1	6	1	2
39	223	0	0	0	1	0	0	1	0	1	1	1	0	5	0	0
40	2183	1	1	1	1	0	0	0	0	1	0	1	0	5	0	1
41	1478	1	1	0	0	1	0	1	1	1	0	1	0	6	1	2
42	1707	1	1	1	1	1	1	1	1	0	1	1	1	10	1	2
43	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	1385	1	1	0	0	0	0	1	0	1	1	1	0	5	0	1
45	1707	1	0	1	0	1	0	0	0	0	1	1	0	4	0	1
46	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	1707	1	0	0	0	0	1	0	1	1	0	0	0	3	0	1
48	1603	1	0	0	0	0	0	0	0	1	0	1	0	2	0	1
49	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	1611	1	0	1	1	1	0	0	1	1	0	1	0	6	1	2
(YES UI) & (Top 2%)			14	14	9	13	7	11	12	16	10	19	5	11.82		
YES UI Total			15	14	12	14	7	12	12	22	11	20	5	13.09		
(NO UI) & (Bottom 50%)			24	25	22	24	25	24	25	19	24	24	25	23.73		
NO UI Total			35	36	38	36	43	38	38	28	39	30	45	36.91		

Activity Code 532

Classification By Majority Audit Sums GE 6

Audit Sum ...

UI-DIF SCORES	GE 6	LE 5	TOTAL
Top 2%	12	13	25
Bottom 50%	0	25	25
TOTAL	12	38	50

1. H_o: Six or more Classifiers responding "YES" (to examine a return for unreported income) were independent of High or Low UI Scores.
2. H_a: Six or more Classifiers responding "YES" (to examine a return for unreported income) were associated with High or Low UI Scores.
3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.
4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	12	6	6	36	6.000
"YES" UI & Bottom 5(	0	6	-6	36	6.000
"NO" UI & Top 2%	13	19	-6	36	1.895
"NO" UI & Bottom 50'	25	19	6	36	1.895
				Chi-Square:	**15.789**

Hi & Low UI Scores Per Audit Sum

AUDIT SUM	Top 2%	Bottom 50%	AUDIT SUM GE ...	CUM Top 2%	CUM Bot. 50%	Chi-Square	
11	2	0	**11**	2	0	2.083	
10	2	0	**10**	4	0	4.348	
9	0	0	**9**	4	0	4.348	
8	2	0	**8**	6	0	6.818	
7	0	0	**7**	6	0	6.818	
6	6	0	**6**	12	0	15.789	<= GE 6
5	3	1	**5**	15	1	18.015	
4	1	0	**4**	16	1	20.053	
3	3	0	**3**	19	1	27.000	
2	3	1	**2**	22	2	32.051	
1	2	7	**1**	24	9	20.053	
0	1	16	**0**	25	25	N/A	

Unrerported Income Study (Phase 1)

Activity Code: 533

Seq #	UI Score	(A) TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM	(B) Audit Sum 1 = GE 6 0 = LE 5	(A) + (B) 2 = "GE 6" was Top 2% 0 = "LE 5" was Bot. 50% 1 = Misclassified
1	2272	1	1	0	1	1	0	1	0	0	0	0	0	4	0	1
2	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	380	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
4	1777	1	0	1	0	0	0	1	0	1	0	1	0	4	0	1
5	1693	1	0	1	0	0	0	1	0	0	0	1	0	3	0	1
6	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	1742	1	1	1	1	0	0	0	1	1	0	1	0	6	1	2
9	1824	1	0	1	1	1	1	1	1	1	0	1	0	8	1	2
10	1782	1	1	1	1	0	0	0	0	1	0	0	0	4	0	1
11	1895	1	1	0	1	1	0	1	0	0	0	0	0	4	0	1
12	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	1824	1	0	1	0	0	1	1	1	0	1	1	1	7	1	2
14	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	380	0	1	0	0	0	1	0	0	0	0	0	0	2	0	0
16	1769	1	0	1	0	0	0	0	0	0	0	1	0	2	0	1
17	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	2085	1	1	1	0	1	0	1	1	1	1	1	1	9	1	2
20	1741	1	0	0	0	0	0	1	1	0	0	1	0	3	0	1
21	1663	1	0	1	0	0	0	1	0	0	1	0	1	4	0	1
22	1780	1	0	0	0	0	0	0	0	0	1	0	0	1	0	1
23	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	1781	1	0	1	0	0	0	0	0	0	0	1	0	2	0	1
25	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	1832	1	1	1	1	0	0	0	1	0	0	1	0	5	0	1
28	1808	1	1	1	1	1	0	1	1	0	0	1	1	8	1	2
29	378	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	380	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
31	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	352	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
33	380	0	0	0	1	0	0	1	1	0	0	0	0	3	0	0
34	1701	1	0	1	0	0	0	0	0	0	0	1	0	2	0	1
35	1914	1	1	1	0	0	0	0	0	0	1	1	0	4	0	1
36	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	1697	1	1	1	0	0	0	0	0	1	1	1	1	6	1	2
38	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	1765	1	0	1	0	1	0	1	1	0	1	1	0	6	1	2
40	352	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
41	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	1689	1	0	0	0	0	0	0	0	1	0	1	0	2	0	1
43	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	1896	1	0	0	0	0	0	0	0	1	0	1	0	2	0	1
45	2329	1	1	1	0	0	1	1	1	0	1	1	1	8	1	2
46	1924	1	1	0	0	1	0	1	1	1	1	1	1	8	1	2
47	1699	1	1	0	0	1	1	1	1	0	1	1	1	8	1	2
48	352	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
49	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(YES UI) & (Top 2%)			12	17	7	8	4	14	11	9	10	20	8	10.91		
YES UI Total			16	17	8	8	5	15	12	11	10	20	8	11.82		
(NO UI) & (Bottom 50%)			21	25	24	25	24	24	24	23	25	25	25	24.09		
NO UI Total			34	33	42	42	45	35	38	39	40	30	42	38.18		

Activity Code 533

Classification By Majority Audit Sums GE 6

Audit Sum ...

UI-DIF SCORES	GE 6	LE 5	TOTAL
Top 2%	10	15	25
Bottom 50%	0	25	25
TOTAL	10	40	50

1. H_o: Six or more Classifiers responding "YES" (to examine a return for unreported income) were independent of High or Low UI Scores.

2. H_a: Six or more Classifiers responding "YES" (to examine a return for unreported income) were associated with High or Low UI Scores.

3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.

4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	10	5	5	25	5.000
"YES" UI & Bottom 5(	0	5	-5	25	5.000
"NO" UI & Top 2%	15	20	-5	25	1.250
"NO" UI & Bottom 50'	25	20	5	25	1.250
			Chi-Square:		**12.500**

Hi & Low UI Scores Per Audit Sum

AUDIT SUM	Top 2%	Bottom 50%	AUDIT SUM GE ...	CUM Top 2%	CUM Bot. 50%	Chi-Square	
11	0	0	11	0	0	N/A	
10	0	0	10	0	0	N/A	
9	1	0	9	1	0	1.020	
8	5	0	8	6	0	6.818	
7	1	0	7	7	0	8.140	
6	3	0	6	10	0	12.500	<= GE 6
5	1	0	5	11	0	14.103	
4	6	0	4	17	0	25.758	
3	2	1	3	19	1	27.000	
2	5	1	2	24	2	38.782	
1	1	5	1	25	7	28.125	
0	0	18	0	25	25	N/A	

Unrerported Income Study (Phase 1)

Activity Code: 534

Seq #	UI Score	(A) TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM	(B) Audit Sum 1 = GE 6 0 = LE 5	(A) + (B) 2 = "GE 6" was Top 2% 0 = "LE 5" was Bot. 50% 1 = Misclassified
1	1507	1	1	0	0	0	0	1	0	1	0	1	0	4	0	1
2	1374	1	0	0	0	0	0	0	0	0	0	1	0	1	0	1
3	1534	1	1	0	0	0	0	0	0	1	0	1	0	3	0	1
4	1535	1	1	1	1	0	1	1	0	1	0	1	0	7	1	2
5	401	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
6	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	1423	1	0	0	0	0	0	0	0	0	0	1	0	1	0	1
8	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	375	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
10	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	1424	1	1	1	0	0	0	0	0	1	0	1	0	4	0	1
12	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	395	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	395	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	375	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0
17	1499	1	0	0	0	0	0	0	0	1	0	0	0	1	0	1
18	1407	1	1	1	1	0	1	1	0	1	0	1	0	7	1	2
19	1379	1	0	0	0	0	0	0	0	1	0	1	0	2	0	1
20	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	375	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
22	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	401	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0
25	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	1440	1	0	1	0	0	0	0	0	0	0	1	0	2	0	1
27	395	0	1	0	0	0	1	1	0	0	0	0	0	3	0	0
28	417	0	1	0	0	0	0	1	0	0	0	1	0	3	0	0
29	1470	1	1	0	0	0	0	0	0	0	0	0	0	1	0	1
30	1486	1	1	1	0	1	0	1	1	0	0	0	0	5	0	1
31	401	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	1402	1	0	0	0	0	0	0	0	1	0	1	0	2	0	1
33	1519	1	0	0	0	0	0	1	0	0	0	1	0	2	0	1
34	295	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
35	1363	1	1	1	0	1	0	1	0	1	1	1	0	7	1	2
36	1688	1	1	1	1	0	0	1	1	1	1	1	1	9	1	2
37	1554	1	1	1	1	1	0	1	0	0	0	1	0	6	1	2
38	397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	1419	1	0	0	1	1	0	1	0	0	1	0	0	4	0	1
40	375	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
41	1649	1	1	1	0	0	0	0	0	1	0	1	0	4	0	1
42	1542	1	0	1	0	1	0	0	0	0	0	1	0	3	0	1
43	1362	1	1	1	1	0	0	0	0	1	0	1	0	5	0	1
44	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	420	0	0	1	0	0	0	0	0	1	0	0	0	2	0	0
46	379	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
47	1376	1	1	0	0	0	0	0	0	0	0	0	0	1	0	1
48	1406	1	1	1	1	1	0	1	0	0	0	1	1	7	1	2
49	1436	1	1	1	1	1	0	1	0	1	1	1	1	9	1	2
50	1397	1	1	0	0	0	1	0	0	0	0	0	0	2	0	1
(YES UI) & (Top 2%)			16	13	8	7	3	11	2	13	4	19	3	9		
YES UI Total			22	14	8	8	5	13	2	18	4	20	3	10.64		
(NO UI) & (Bottom 50%)			19	24	25	24	23	23	25	20	25	24	25	23.36		
NO UI Total			28	36	42	42	45	37	48	32	46	30	47	39.36		

Activity Code 534

Classification By Majority Audit Sums GE 6

Audit Sum ...

UI-DIF SCORES	GE 6	LE 5	TOTAL
Top 2%	7	18	25
Bottom 50%	0	25	25
TOTAL	7	43	50

1. **H_o**: Six or more Classifiers responding "YES" (to examine a return for unreported income) were independent of High or Low UI Scores.
2. **H_a**: Six or more Classifiers responding "YES" (to examine a return for unreported income) were associated with High or Low UI Scores.
3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.
4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	7	3.5	3.5	12.25	3.500
"YES" UI & Bottom 5(	0	3.5	-3.5	12.25	3.500
"NO" UI & Top 2%	18	21.5	-3.5	12.25	0.570
"NO" UI & Bottom 50'	25	21.5	3.5	12.25	0.570
				Chi-Square:	**8.140**

Hi & Low UI Scores Per Audit Sum

AUDIT SUM	Top 2%	Bottom 50%	AUDIT SUM GE ...	CUM Top 2%	CUM Bot. 50%	Chi-Square	
11	0	0	**11**	0	0	N/A	
10	0	0	**10**	0	0	N/A	
9	2	0	**9**	2	0	2.083	
8	0	0	**8**	2	0	2.083	
7	4	0	**7**	6	0	6.818	
6	1	0	**6**	7	0	8.140	**<= GE 6**
5	2	0	**5**	9	0	10.976	
4	4	0	**4**	13	0	17.568	
3	2	2	**3**	15	2	15.062	
2	5	3	**2**	20	5	18.000	
1	5	6	**1**	25	11	19.444	
0	0	14	**0**	25	25	N/A	

Unrerported Income Study (Phase 1)

Activity Code: 535

Seq #	UI Score	(A) TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER … 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM	(B) Audit Sum 1 = GE 6 0 = LE 5	(A) + (B) 2 = "GE 6" was Top 2% 0 = "LE 5" was Bot. 50% 1 = Misclassified
1	963	1	1	1	1	1	1	1	1	1	1	1	0	10	1	2
2	427	0	1	1	1	1	1	1	1	1	1	0	0	9	1	1
3	460	0	1	1	1	1	0	1	1	1	1	0	0	8	1	1
4	456	0	1	1	1	1	1	1	1	1	1	0	1	10	1	1
5	1036	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
6	456	0	1	1	0	1	1	0	1	1	1	0	0	7	1	1
7	379	0	0	1	1	1	0	0	1	1	0	0	0	5	0	0
8	963	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
9	491	0	1	1	1	0	1	1	1	1	1	1	0	9	1	1
10	924	1	1	1	1	1	1	0	1	1	1	1	1	10	1	2
11	919	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
12	872	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
13	485	0	1	1	1	1	0	1	1	1	0	0	1	8	1	1
14	449	0	0	0	1	0	0	1	1	0	0	0	0	3	0	0
15	1019	1	1	1	1	0	1	1	1	1	1	1	0	9	1	2
16	460	0	1	0	1	0	0	1	1	1	0	1	0	6	1	1
17	957	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
18	963	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
19	886	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
20	998	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
21	886	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
22	427	0	1	1	1	0	0	1	1	1	0	0	0	6	1	1
23	427	0	1	1	1	1	1	1	1	1	1	0	0	9	1	1
24	948	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
25	427	0	1	0	0	0	0	0	1	1	0	0	0	3	0	0
26	460	0	1	1	1	1	1	1	1	1	1	1	1	11	1	1
27	460	0	1	1	1	1	1	1	1	1	1	1	0	10	1	1
28	466	0	0	0	0	0	0	1	1	1	1	1	0	5	0	0
29	460	0	1	1	1	1	1	1	1	1	1	0	0	9	1	1
30	886	1	1	1	1	1	1	1	1	1	1	1	0	10	1	2
31	932	1	1	1	1	1	1	1	1	1	0	1	1	10	1	2
32	924	1	1	1	1	1	0	1	1	1	1	1	1	10	1	2
33	886	1	1	1	1	1	0	1	1	1	1	1	1	10	1	2
34	502	0	0	0	1	1	0	1	1	1	1	0	0	6	1	1
35	872	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
36	427	0	1	1	1	1	1	1	1	1	1	0	1	10	1	1
37	439	0	0	0	1	0	0	1	0	1	0	0	0	3	0	0
38	957	1	1	1	1	0	0	1	1	1	1	1	1	9	1	2
39	851	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
40	456	0	1	1	1	1	0	1	1	1	1	0	0	8	1	1
41	460	0	0	0	0	0	0	1	0	1	0	0	0	2	0	0
42	934	1	1	1	1	1	0	0	1	1	0	1	0	7	1	2
43	930	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
44	460	0	1	1	1	1	0	1	1	1	1	1	1	10	1	1
45	930	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
46	427	0	1	1	1	1	1	1	1	1	1	0	1	10	1	1
47	1009	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
48	872	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
49	439	0	0	0	0	1	0	1	1	1	0	0	0	4	0	0
50	460	0	1	1	1	1	1	1	1	1	1	0	0	9	1	1
(YES UI) & (Top 2%)			25	25	25	23	21	23	25	25	23	25	21	23.73		
YES UI Total			43	42	45	40	32	45	48	49	39	31	27	40.09		
(NO UI) & (Bottom 50%)			7	8	5	8	14	3	2	1	9	19	19	8.636		
NO UI Total			7	8	5	10	18	5	2	1	11	19	23	9.909		

Activity Code 535

Classification By Majority Audit Sums GE 6

Audit Sum …

UI-DIF SCORES	GE 6	LE 5	TOTAL
Top 2%	25	0	25
Bottom 50%	18	7	25
TOTAL	43	7	50

1. H_o: Six or more Classifiers responding "YES" (to examine a return for unreported income) were independent of High or Low UI Scores.
2. H_a: Six or more Classifiers responding "YES" (to examine a return for unreported income) were associated with High or Low UI Scores.
3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.
4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	25	21.5	3.5	12.25	0.570
"YES" UI & Bottom 5(	18	21.5	-3.5	12.25	0.570
"NO" UI & Top 2%	0	3.5	-3.5	12.25	3.500
"NO" UI & Bottom 50'	7	3.5	3.5	12.25	3.500
				Chi-Square:	**8.140**

Hi & Low UI Scores Per Audit Sum

AUDIT SUM	Top 2%	Bottom 50%	AUDIT SUM GE …	CUM Top 2%	CUM Bot. 50%	Chi-Square	
11	16	1	11	16	1	20.053	
10	6	5	10	22	6	20.779	
9	2	5	9	24	11	16.095	
8	0	3	8	24	14	10.965	
7	1	1	7	25	15	12.500	
6	0	3	6	25	18	8.140	<= GE 6
5	0	2	5	25	20	5.556	
4	0	1	4	25	21	4.348	
3	0	3	3	25	24	1.020	
2	0	1	2	25	25	N/A	
1	0	0	1	25	25	N/A	
0	0	0	0	25	25	N/A	

Unrerported Income Study (Phase 1)

Activity Code: 536

Seq #	UI Score	(A) TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM	(B) Audit Sum 1 = GE 6 0 = LE 5	(A) + (B) 2 = "GE 6" was Top 2% 0 = "LE 5" was Bot. 50% 1 = Misclassified
1	497	0	0	0	1	0	0	1	0	0	0	0	0	2	0	0
2	486	0	0	1	1	0	0	0	0	1	0	0	0	3	0	0
3	746	1	1	1	1	1	0	1	1	0	1	1	0	8	1	2
4	753	1	1	1	1	1	0	1	1	1	1	1	0	9	1	2
5	489	0	0	1	1	1	0	1	1	1	1	0	0	7	1	1
6	497	0	0	1	1	1	0	1	1	1	0	0	0	6	1	1
7	727	1	1	1	1	1	0	1	1	1	1	0	1	9	1	2
8	723	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
9	726	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
10	732	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
11	748	1	0	1	1	1	0	1	1	1	1	1	1	9	1	2
12	445	0	0	0	1	0	0	1	0	0	0	1	0	3	0	0
13	470	0	1	1	1	0	0	1	1	0	1	1	1	8	1	1
14	479	0	0	0	1	0	0	1	0	0	0	0	0	2	0	0
15	498	0	0	0	1	1	0	1	1	0	0	0	0	4	0	0
16	753	1	1	1	1	1	0	1	1	0	1	1	0	8	1	2
17	464	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
18	496	0	1	1	1	1	1	1	1	1	1	1	0	10	1	1
19	753	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
20	730	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
21	744	1	1	1	1	1	0	1	1	1	1	1	0	9	1	2
22	475	0	1	0	1	1	0	1	1	0	0	1	1	7	1	1
23	746	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
24	506	0	1	1	1	0	0	0	1	0	0	1	0	5	0	0
25	802	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
26	768	1	1	1	1	1	1	1	1	0	1	1	1	10	1	2
27	732	1	1	1	1	1	0	0	1	0	1	1	1	8	1	2
28	804	1	1	1	1	1	0	1	1	1	1	1	0	9	1	2
29	456	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	505	0	1	0	1	0	0	0	0	0	0	0	0	2	0	0
31	754	1	1	1	1	1	0	1	1	1	1	1	1	10	1	2
32	738	1	1	1	1	1	0	1	1	0	1	0	1	8	1	2
33	496	0	1	0	1	0	0	1	1	1	0	0	1	6	1	1
34	505	0	0	0	1	1	0	1	0	0	1	0	0	4	0	0
35	472	0	0	1	1	0	0	0	0	0	0	0	0	2	0	0
36	511	0	1	1	1	1	0	1	1	1	1	1	1	10	1	1
37	467	0	0	0	0	1	0	1	0	0	0	0	0	2	0	0
38	513	0	0	1	1	0	0	1	1	1	0	1	1	7	1	1
39	488	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
40	486	0	1	0	0	1	0	1	1	0	0	1	1	6	1	1
41	753	1	1	1	1	1	0	1	1	1	1	1	1	10	1	2
42	761	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
43	822	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
44	411	0	0	0	1	0	0	0	0	0	0	0	1	2	0	0
45	790	1	1	0	1	1	1	1	1	1	1	1	1	10	1	2
46	824	1	1	1	1	1	0	1	1	1	1	1	1	10	1	2
47	498	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
48	766	1	1	1	1	1	0	0	1	1	1	1	0	8	1	2
49	756	1	1	1	1	1	0	1	1	1	1	1	1	10	1	2
50	471	0	1	0	1	1	0	1	1	0	1	0	0	6	1	1
(YES UI) & (Top 2%)			24	24	25	25	11	23	25	20	25	23	19	22.18		
YES UI Total			33	33	46	35	12	39	37	27	31	32	26	31.91		
(NO UI) & (Bottom 50%)			16	16	4	15	24	9	13	18	19	16	18	15.27		
NO UI Total			17	17	4	15	38	11	13	23	19	18	24	18.09		

Activity Code 536

Classification By Majority Audit Sums GE 6

Audit Sum ...

UI-DIF SCORES	GE 6	LE 5	TOTAL
Top 2%	25	0	25
Bottom 50%	10	15	25
TOTAL	35	15	50

1. H_o: Six or more Classifiers responding "YES" (to examine a return for unreported income) were independent of High or Low UI Scores.
2. H_a: Six or more Classifiers responding "YES" (to examine a return for unreported income) were associated with High or Low UI Scores.
3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.
4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	25	17.5	7.5	56.25	3.214
"YES" UI & Bottom 5(	10	17.5	-7.5	56.25	3.214
"NO" UI & Top 2%	0	7.5	-7.5	56.25	7.500
"NO" UI & Bottom 50'	15	7.5	7.5	56.25	7.500
				Chi-Square:	**21.429**

Hi & Low UI Scores Per Audit Sum

AUDIT SUM	Top 2%	Bottom 50%	AUDIT SUM GE ...	CUM Top 2%	CUM Bot. 50%	Chi-Square	
11	9	0	**11**	9	0	10.976	
10	6	2	**10**	15	2	15.062	
9	5	0	**9**	20	2	26.299	
8	5	1	**8**	25	3	39.286	
7	0	3	**7**	25	6	30.645	
6	0	4	**6**	25	10	21.429	<= GE 6
5	0	1	**5**	25	11	19.444	
4	0	2	**4**	25	13	15.789	
3	0	2	**3**	25	15	12.500	
2	0	6	**2**	25	21	4.348	
1	0	3	**1**	25	24	1.020	
0	0	1	**0**	25	25	N/A	

Unrerported Income Study (Phase 1)

Activity Code: 537

Seq #	UI Score	(A) TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER … 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM	(B) Audit Sum 1 = GE 6 0 = LE 5	(A) + (B) 2 = "GE 6" was Top 2% 0 = "LE 5" was Bot. 50% 1 = Misclassified
1	920	1	1	1	1	0	0	1	1	1	1	1	1	9	1	2
2	326	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	380	0	1	0	0	0	0	1	1	1	0	1	1	6	1	1
4	397	0	1	0	0	0	0	0	0	1	0	1	0	3	0	0
5	980	1	1	1	1	1	1	1	1	1	1	1	0	10	1	2
6	920	1	1	1	1	0	1	1	1	1	1	1	1	10	1	2
7	405	0	1	0	0	0	0	1	0	1	0	0	0	3	0	0
8	986	1	1	1	1	0	1	1	1	1	1	1	0	9	1	2
9	935	1	1	1	0	0	0	1	1	0	1	1	0	6	1	2
10	1018	1	1	1	1	0	1	1	1	0	1	1	0	8	1	2
11	328	0	1	0	1	1	0	1	1	0	0	0	1	6	1	1
12	957	1	1	1	1	1	1	1	1	0	1	1	0	9	1	2
13	966	1	1	0	1	0	0	1	1	0	1	1	1	7	1	2
14	396	0	1	0	1	0	0	1	0	0	0	0	0	3	0	0
15	969	1	1	0	1	0	1	1	1	0	1	1	0	7	1	2
16	337	0	1	0	0	0	0	1	0	1	0	1	0	4	0	0
17	282	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
18	390	0	1	1	1	1	0	1	0	1	0	0	0	6	1	1
19	1009	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
20	969	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
21	337	0	0	0	1	0	0	1	0	0	1	1	0	4	0	0
22	351	0	1	0	0	0	0	1	0	0	0	0	0	2	0	0
23	382	0	0	1	1	0	0	1	0	0	0	0	0	3	0	0
24	920	1	1	1	1	1	1	1	0	1	1	1	0	9	1	2
25	326	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	394	0	1	1	1	0	0	0	1	0	0	1	0	5	0	0
27	1014	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
28	401	0	0	0	1	0	0	0	0	0	0	1	0	2	0	0
29	409	0	1	0	1	1	0	1	0	0	0	0	0	4	0	0
30	935	1	1	1	1	1	0	1	1	0	1	1	1	9	1	2
31	388	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
32	986	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
33	337	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
34	1064	1	1	1	1	1	1	1	1	0	1	1	1	10	1	2
35	337	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	337	0	1	0	0	0	0	0	0	0	0	1	0	2	0	0
37	949	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
38	969	1	1	1	1	0	1	1	1	1	1	1	1	10	1	2
39	387	0	0	0	1	0	0	0	0	1	0	0	0	2	0	0
40	920	1	1	1	1	1	0	1	0	1	1	1	0	8	1	2
41	326	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	1026	1	1	1	1	0	0	1	1	0	1	1	1	8	1	2
43	368	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
44	1064	1	1	1	1	0	1	1	1	0	1	1	1	9	1	2
45	373	0	0	0	0	0	0	1	0	0	0	1	0	2	0	0
46	931	1	1	1	1	0	0	1	1	1	1	1	1	9	1	2
47	405	0	1	0	0	0	0	1	0	0	0	0	0	2	0	0
48	984	1	1	1	1	1	1	1	1	0	1	1	1	10	1	2
49	1026	1	1	1	1	0	1	1	1	1	1	1	1	10	1	2
50	938	1	1	1	1	1	1	1	1	0	1	1	1	10	1	2
(YES UI) & (Top 2%)			25	23	24	13	18	25	23	14	25	25	17	21.09		
YES UI Total			40	26	34	16	18	37	26	20	26	33	19	26.82		
(NO UI) & (Bottom 50%)			10	22	15	22	25	13	22	19	24	17	23	19.27		
NO UI Total			10	24	16	34	32	13	24	30	24	17	31	23.18		

Activity Code 537

Classification By Majority Audit Sums GE 6

Audit Sum …

UI-DIF SCORES	GE 6	LE 5	TOTAL
Top 2%	25	0	25
Bottom 50%	3	22	25
TOTAL	28	22	50

1. H_o: Six or more Classifiers responding "YES" (to examine a return for unreported income) were independent of High or Low UI Scores.

2. H_a: Six or more Classifiers responding "YES" (to examine a return for unreported income) were associated with High or Low UI Scores.

3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.

4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	25	14	11	121	8.643
"YES" UI & Bottom 5(	3	14	-11	121	8.643
"NO" UI & Top 2%	0	11	-11	121	11.000
"NO" UI & Bottom 50'	22	11	11	121	11.000
				Chi-Square:	**39.286**

Hi & Low UI Scores Per Audit Sum

AUDIT SUM	Top 2%	Bottom 50%	AUDIT SUM GE …	CUM Top 2%	CUM Bot. 50%	Chi-Square	
11	5	0	**11**	5	0	5.556	
10	7	0	**10**	12	0	15.789	
9	7	0	**9**	19	0	30.645	
8	3	0	**8**	22	0	39.286	
7	2	0	**7**	24	0	46.154	
6	1	3	**6**	25	3	39.286	<= GE 6
5	0	1	**5**	25	4	36.207	
4	0	3	**4**	25	7	28.125	
3	0	4	**3**	25	11	19.444	
2	0	6	**2**	25	17	9.524	
1	0	4	**1**	25	21	4.348	
0	0	4	**0**	25	25	N/A	

Unrerported Income Study (Phase 1)

Activity Code: 538

Seq #	UI Score	(A) TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM	(B) Audit Sum 1 = GE 6 0 = LE 5	(A) + (B) 2 = "GE 6" was Top 2% 0 = "LE 5" was Bot. 50% 1 = Misclassified
1	758	1	1	1	0	1	1	1	1	1	1	1	1	10	1	2
2	706	1	1	1	0	1	1	1	1	1	1	1	0	9	1	2
3	341	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
4	691	1	1	1	0	0	1	1	1	0	1	1	0	7	1	2
5	769	1	0	1	0	0	0	1	0	0	1	1	0	4	0	1
6	310	0	0	1	0	1	0	1	1	1	0	0	0	5	0	0
7	773	1	1	1	0	1	1	1	1	1	1	1	0	9	1	2
8	846	1	1	1	0	1	1	1	1	1	1	1	0	9	1	2
9	377	0	0	1	0	1	0	0	1	1	0	0	0	4	0	0
10	402	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0
11	691	1	0	1	0	1	0	1	1	0	1	0	0	5	0	1
12	763	1	1	1	1	1	1	1	1	1	1	0	0	9	1	2
13	790	1	1	1	0	1	0	1	0	0	1	1	0	6	1	2
14	687	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
15	437	0	0	0	0	1	0	1	0	0	0	0	0	2	0	0
16	724	1	0	1	0	0	0	1	0	1	1	0	0	4	0	1
17	710	1	1	1	0	0	1	1	1	1	1	1	0	8	1	2
18	437	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	758	1	1	1	0	1	1	1	1	0	1	1	0	8	1	2
20	364	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
21	408	0	0	0	0	1	0	1	0	1	0	0	0	3	0	0
22	322	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	349	0	1	1	0	1	1	1	1	1	1	0	0	8	1	1
24	761	1	1	1	0	1	1	1	0	1	1	1	0	8	1	2
25	405	0	1	1	0	0	0	1	1	0	1	1	1	7	1	1
26	715	1	1	1	0	1	1	1	1	1	1	1	1	10	1	2
27	347	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	379	0	0	0	0	1	0	0	1	0	0	1	0	3	0	0
29	394	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	408	0	0	0	0	0	0	0	0	1	1	1	0	3	0	0
31	291	0	0	1	0	0	0	1	1	1	0	0	0	4	0	0
32	669	1	0	1	0	1	0	1	0	0	1	1	0	5	0	1
33	366	0	0	1	0	0	1	1	1	1	1	0	1	7	1	1
34	431	0	1	1	0	0	1	0	1	1	1	1	0	7	1	1
35	374	0	1	1	0	1	1	1	1	1	1	1	0	9	1	1
36	371	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
37	688	1	1	1	0	1	0	1	1	1	1	0	1	8	1	2
38	310	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0
39	429	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	702	1	1	1	0	0	1	1	1	1	1	1	0	8	1	2
41	396	0	1	1	0	1	1	1	1	1	1	1	0	9	1	1
42	379	0	0	0	0	1	0	0	1	1	0	1	0	4	0	0
43	676	1	1	1	0	0	0	1	0	1	1	1	0	6	1	2
44	747	1	1	1	0	0	1	1	1	0	1	1	1	8	1	2
45	341	0	0	0	0	0	0	1	0	1	0	1	0	3	0	0
46	746	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
47	666	1	1	1	0	0	1	1	1	1	1	1	0	8	1	2
48	674	1	1	1	0	0	0	0	0	1	1	1	0	5	0	1
49	674	1	1	1	0	0	0	1	1	0	1	1	1	7	1	2
50	669	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
(YES UI) & (Top 2%)			20	24	3	14	15	23	17	16	24	20	7	16.64		
YES UI Total			26	35	3	23	20	33	29	30	31	29	9	24.36		
(NO UI) & (Bottom 50%)			19	14	25	16	20	15	13	11	18	16	23	17.27		
NO UI Total			24	15	47	27	30	17	21	20	19	21	41	25.64		

Activity Code 538

Classification By Majority Audit Sums GE 6

Audit Sum ...

UI-DIF SCORES	GE 6	LE 5	TOTAL
Top 2%	19	6	25
Bottom 50%	6	19	25
TOTAL	25	25	50

1. **H_o**: Six or more Classifiers responding "YES" (to examine a return for unreported income) were independent of High or Low UI Scores.

2. **H_a**: Six or more Classifiers responding "YES" (to examine a return for unreported income) were associated with High or Low UI Scores.

3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.

4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	19	12.5	6.5	42.25	3.380
"YES" UI & Bottom 5(	6	12.5	-6.5	42.25	3.380
"NO" UI & Top 2%	6	12.5	-6.5	42.25	3.380
"NO" UI & Bottom 50'	19	12.5	6.5	42.25	3.380
				Chi-Square:	**13.520**

Hi & Low UI Scores Per Audit Sum

AUDIT SUM	Top 2%	Bottom 50%	AUDIT SUM GE ...	CUM Top 2%	CUM Bot. 50%	Chi-Square	
11	2	0	**11**	2	0	2.083	
10	2	0	**10**	4	0	4.348	
9	4	2	**9**	8	2	4.500	
8	7	1	**8**	15	3	12.500	
7	2	3	**7**	17	6	9.742	
6	2	0	**6**	19	6	13.520	**<= GE 6**
5	3	1	**5**	22	7	18.473	
4	2	3	**4**	24	10	18.015	
3	0	4	**3**	24	14	10.965	
2	0	3	**2**	24	17	6.640	
1	0	3	**1**	24	20	3.030	
0	1	5	**0**	25	25	N/A	

Unrerported Income Study (Phase 1)

Activity Code: 539

Seq #	UI Score	(A) TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM	(B) Audit Sum 1 = GE 6 0 = LE 5	(A) + (B) 2 = "GE 6" was Top 2% 0 = "LE 5" was Bot. 50% 1 = Misclassified
1	1009	1	1	0	0	0	0	0	0	0	1	1	0	3	0	1
2	1045	1	1	0	0	0	1	1	1	0	1	1	0	6	1	2
3	1064	1	1	0	0	0	1	1	1	1	1	0	0	6	1	2
4	575	0	0	1	0	0	0	1	1	0	0	0	0	3	0	0
5	573	0	0	0	0	1	0	1	1	0	0	0	0	3	0	0
6	571	0	0	0	0	0	0	1	1	1	0	1	0	4	0	0
7	535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	619	0	0	1	0	1	1	1	1	1	1	0	0	7	1	1
9	1044	1	1	0	0	0	0	1	0	0	1	1	0	4	0	1
10	481	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
11	611	0	1	1	1	1	1	1	1	1	1	1	1	11	1	1
12	510	0	1	0	0	1	0	1	1	0	1	1	0	6	1	1
13	1003	1	1	1	0	0	1	1	1	0	1	1	0	7	1	2
14	582	0	0	0	0	1	1	1	1	1	1	0	0	6	1	1
15	1024	1	1	1	0	0	1	1	1	1	1	1	0	8	1	2
16	504	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
17	594	0	0	1	0	0	0	0	1	0	0	1	0	3	0	0
18	503	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
19	607	0	0	0	0	0	1	1	0	0	0	1	0	3	0	0
20	1057	1	0	1	0	0	1	1	1	1	1	1	0	7	1	2
21	593	0	1	1	0	0	0	1	1	0	0	1	0	5	0	0
22	594	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
23	1049	1	0	1	0	0	1	1	1	1	0	1	0	6	1	2
24	477	0	0	0	0	1	0	0	0	1	0	0	0	2	0	0
25	556	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	1009	1	1	0	0	0	1	0	1	0	0	1	0	4	0	1
28	528	0	0	0	0	1	0	1	1	0	0	1	0	4	0	0
29	548	0	1	0	0	0	0	1	1	1	1	1	0	6	1	1
30	520	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	994	1	0	0	0	0	0	1	0	1	1	1	0	4	0	1
32	603	0	0	0	0	1	0	0	1	0	0	0	0	2	0	0
33	618	0	1	1	0	0	0	0	0	1	0	1	0	4	0	0
34	1094	1	1	1	0	0	1	1	0	0	0	1	0	5	0	1
35	999	1	1	1	0	0	1	1	1	0	0	1	0	6	1	2
36	1058	1	1	1	0	0	1	1	1	0	0	1	1	7	1	2
37	1016	1	1	1	0	0	1	1	1	1	1	1	1	9	1	2
38	1044	1	1	0	0	0	0	1	1	1	1	1	0	6	1	2
39	1020	1	1	1	0	1	1	1	1	0	1	1	0	8	1	2
40	1023	1	1	1	0	0	1	1	1	1	1	1	0	8	1	2
41	1023	1	1	1	0	1	1	1	1	1	1	1	0	9	1	2
42	1002	1	1	0	0	0	1	1	1	1	1	1	0	7	1	2
43	485	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
44	1012	1	1	1	0	0	0	1	0	0	0	1	0	4	0	1
45	551	0	0	0	0	0	0	1	0	1	0	0	0	2	0	0
46	1013	1	1	0	0	0	0	1	1	1	1	1	0	6	1	2
47	996	1	1	1	0	0	0	1	1	1	0	1	0	6	1	2
48	1051	1	1	1	1	0	1	1	1	1	1	1	0	9	1	2
49	1045	1	1	1	0	0	1	1	1	1	1	1	0	8	1	2
50	1128	1	1	0	0	1	1	1	1	0	1	1	0	7	1	2
(YES UI) & (Top 2%)			22	15	1	3	18	23	20	14	18	24	2	14.55		
YES UI Total			27	21	2	11	22	40	32	22	23	33	3	21.45		
(NO UI) & (Bottom 50%)			20	19	24	17	21	8	13	17	20	16	24	18.09		
NO UI Total			23	29	48	39	28	10	18	28	27	17	47	28.55		

Activity Code 539

Classification By Majority Audit Sums GE 6

Audit Sum ...

UI-DIF SCORES	GE 6	LE 5	TOTAL
Top 2%	19	6	25
Bottom 50%	5	20	25
TOTAL	24	26	50

1. H_o: Six or more Classifiers responding "YES" (to examine a return for unreported income) were independent of High or Low UI Scores.
2. H_a: Six or more Classifiers responding "YES" (to examine a return for unreported income) were associated with High or Low UI Scores.
3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.
4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	19	12	7	49	4.083
"YES" UI & Bottom 5(	5	12	-7	49	4.083
"NO" UI & Top 2%	6	13	-7	49	3.769
"NO" UI & Bottom 50'	20	13	7	49	3.769
				Chi-Square:	**15.705**

Hi & Low UI Scores Per Audit Sum

AUDIT SUM	Top 2%	Bottom 50%
11	0	1
10	0	0
9	3	0
8	4	0
7	5	1
6	7	3
5	1	1
4	4	3
3	1	4
2	0	3
1	0	5
0	0	4

AUDIT SUM GE ...	CUM Top 2%	CUM Bot. 50%	Chi-Square	
11	0	1	N/A	
10	0	1	N/A	
9	3	1	1.087	
8	7	1	5.357	
7	12	2	9.921	
6	19	5	15.705	<= GE 6
5	20	6	15.705	
4	24	9	20.053	
3	25	13	15.789	
2	25	16	10.976	
1	25	21	4.348	
0	25	25	N/A	

Appendix D

Optimal Audit Sums

Unrerported Income Study (Phase 1)

Activity Code: 532

Seq #	UI Score	(A) TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER … 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM	(B) Audit Sum 1 = GE 2 0 = LE 1	(A) + (B) 2 = "GE 2" was Top 2% 0 = "LE 1" was Bot. 50% 1 = Misclassified
1	1869	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
2	1635	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3	1365	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
4	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	223	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
8	223	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
9	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	1707	1	0	1	0	1	1	1	1	1	1	1	0	8	1	2
11	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	1707	1	0	1	0	1	0	0	1	0	0	0	0	3	1	2
13	1385	1	1	1	0	1	0	0	0	1	0	1	0	5	1	2
14	1385	1	1	0	0	1	0	1	0	1	1	1	0	6	1	2
15	1707	1	1	1	0	0	0	0	0	0	0	0	0	2	1	2
16	223	0	0	0	1	0	0	0	0	1	0	0	0	2	1	1
17	1386	1	1	0	0	0	0	0	1	1	0	0	0	3	1	2
18	1386	1	1	1	1	1	0	1	1	1	0	1	0	8	1	2
19	1707	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1
20	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	223	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
23	223	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
24	1732	1	0	0	0	0	0	0	0	0	0	1	0	1	0	1
25	1603	1	0	0	0	0	0	1	0	0	0	1	0	2	1	2
26	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	1676	1	0	0	1	0	1	1	0	1	1	1	0	6	1	2
28	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	223	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
32	1707	1	1	1	0	1	1	1	1	1	1	1	1	10	1	2
33	1386	1	1	1	1	0	0	0	1	0	1	1	0	6	1	2
34	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	223	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
36	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	223	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
38	2055	1	1	0	1	1	0	0	0	1	0	1	1	6	1	2
39	223	0	0	0	1	0	0	1	0	1	1	1	0	5	1	1
40	2183	1	1	1	1	0	0	0	0	1	0	1	0	5	1	2
41	1478	1	1	0	0	1	0	1	1	1	0	1	0	6	1	2
42	1707	1	1	1	1	1	1	1	1	0	1	1	1	10	1	2
43	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	1385	1	1	0	0	0	0	1	0	1	1	1	0	5	1	2
45	1707	1	0	1	0	1	0	0	0	0	1	1	0	4	1	2
46	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	1707	1	0	0	0	0	1	0	1	1	0	0	0	3	1	2
48	1603	1	0	0	0	0	0	0	0	1	0	1	0	2	1	2
49	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	1611	1	0	1	1	1	0	0	1	1	0	1	0	6	1	2
(YES UI) & (Top 2%)			14	14	9	13	7	11	12	16	10	19	5	11.82		
YES UI Total			15	14	12	14	7	12	12	22	11	20	5	13.09		
(NO UI) & (Bottom 50%)			24	25	22	24	25	24	25	19	24	24	25	23.73		
NO UI Total			35	36	38	36	43	38	38	28	39	30	45	36.91		

Activity Code 532

Classification By Optimal Audit Sums

Audit Sum …

UI-DIF SCORES	GE 2	LE 1	TOTAL
Top 2%	22	3	25
Bottom 50%	2	23	25
TOTAL	24	26	50

1. H_o: Two or more Classifiers responding "YES" (to examine a return for unreported income) were independent of High or Low UI Scores.
2. H_a: Two or more Classifiers responding "YES" (to examine a return for unreported income) were associated with High or Low UI Scores.
3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.
4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	22	12	10	100	8.333
"YES" UI & Bottom 5(	2	12	-10	100	8.333
"NO" UI & Top 2%	3	13	-10	100	7.692
"NO" UI & Bottom 50'	23	13	10	100	7.692
				Chi-Square:	**32.051**

Hi & Low UI Scores Per Audit Sum

AUDIT SUM	Top 2%	Bottom 50%	AUDIT SUM GE …	CUM Top 2%	CUM Bot. 50%	Chi-Square	
11	2	0	**11**	2	0	2.083	
10	2	0	**10**	4	0	4.348	
9	0	0	**9**	4	0	4.348	
8	2	0	**8**	6	0	6.818	
7	0	0	**7**	6	0	6.818	
6	6	0	**6**	12	0	15.789	
5	3	1	**5**	15	1	18.015	
4	1	0	**4**	16	1	20.053	
3	3	0	**3**	19	1	27.000	
2	3	1	**2**	22	2	32.051	<= MAX
1	2	7	**1**	24	9	20.053	
0	1	16	**0**	25	25	N/A	

Unrerported Income Study (Phase 1)

Activity Code: 533

Seq #	UI Score	(A) TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM	(B) Audit Sum 1 = GE 2 0 = LE 1	(A) + (B) 2 = "GE 2" was Top 2% 0 = "LE 1" was Bot. 50% 1 = Misclassified
1	2272	1	1	0	1	1	0	1	0	0	0	0	0	4	1	2
2	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	380	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
4	1777	1	0	1	0	0	0	1	0	1	0	1	0	4	1	2
5	1693	1	0	1	0	0	0	1	0	0	0	1	0	3	1	2
6	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	1742	1	1	1	1	0	0	0	1	1	0	1	0	6	1	2
9	1824	1	0	1	1	1	1	1	1	1	0	1	0	8	1	2
10	1782	1	1	1	1	0	0	0	0	1	0	0	0	4	1	2
11	1895	1	1	0	1	1	0	1	0	0	0	0	0	4	1	2
12	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	1824	1	0	1	0	0	1	1	1	0	1	1	1	7	1	2
14	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	380	0	1	0	0	0	1	0	0	0	0	0	0	2	1	1
16	1769	1	0	1	0	0	0	0	0	0	0	1	0	2	1	2
17	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	2085	1	1	1	0	1	0	1	1	1	1	1	1	9	1	2
20	1741	1	0	0	0	0	0	1	1	0	0	1	0	3	1	2
21	1663	1	0	1	0	0	0	1	0	0	1	0	1	4	1	2
22	1780	1	0	0	0	0	0	0	0	0	0	1	0	1	0	1
23	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	1781	1	0	1	0	0	0	0	0	0	0	1	0	2	1	2
25	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	1832	1	1	1	1	0	0	0	1	0	0	1	0	5	1	2
28	1808	1	1	1	1	1	0	1	1	0	0	1	1	8	1	2
29	378	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	380	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
31	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	352	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
33	380	0	0	0	1	0	0	1	1	0	0	0	0	3	1	1
34	1701	1	0	1	0	0	0	0	0	0	0	1	0	2	1	2
35	1914	1	1	1	0	0	0	0	0	0	1	1	0	4	1	2
36	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	1697	1	1	1	0	0	0	0	0	1	1	1	1	6	1	2
38	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	1765	1	0	1	0	1	0	1	1	0	1	1	0	6	1	2
40	352	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
41	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	1689	1	0	0	0	0	0	0	0	1	0	1	0	2	1	2
43	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	1896	1	0	0	0	0	0	0	0	1	0	1	0	2	1	2
45	2329	1	1	1	0	0	1	1	1	0	1	1	1	8	1	2
46	1924	1	1	0	0	1	0	1	1	1	1	1	1	8	1	2
47	1699	1	1	0	0	1	1	1	1	0	1	1	1	8	1	2
48	352	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
49	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(YES UI) & (Top 2%)			12	17	7	8	4	14	11	9	10	20	8	10.91		
YES UI Total			16	17	8	8	5	15	12	11	10	20	8	11.82		
(NO UI) & (Bottom 50%)			21	25	24	25	24	24	24	23	25	25	25	24.09		
NO UI Total			34	33	42	42	45	35	38	39	40	30	42	38.18		

Activity Code 533

Classification By Optimal Audit Sums

Audit Sum ...

UI-DIF SCORES	GE 2	LE 1	TOTAL
Top 2%	24	1	25
Bottom 50%	2	23	25
TOTAL	26	24	50

1. H_o: Two or more Classifiers responding "YES" (to examine a return for unreported income) were independent of High or Low UI Scores.
2. H_a: Two or more Classifiers responding "YES" (to examine a return for unreported income) were associated with High or Low UI Scores.
3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.
4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	24	13	11	121	9.308
"YES" UI & Bottom 5(	2	13	-11	121	9.308
"NO" UI & Top 2%	1	12	-11	121	10.083
"NO" UI & Bottom 50'	23	12	11	121	10.083
				Chi-Square:	**38.782**

Hi & Low UI Scores Per Audit Sum

AUDIT SUM	Top 2%	Bottom 50%
11	0	0
10	0	0
9	1	0
8	5	0
7	1	0
6	3	0
5	1	0
4	6	0
3	2	1
2	5	1
1	1	5
0	0	18

AUDIT SUM GE ...	CUM Top 2%	CUM Bot. 50%	Chi-Square	
11	0	0	N/A	
10	0	0	N/A	
9	1	0	1.020	
8	6	0	6.818	
7	7	0	8.140	
6	10	0	12.500	
5	11	0	14.103	
4	17	0	25.758	
3	19	1	27.000	
2	24	2	38.782	<= MAX
1	25	7	28.125	
0	25	25	N/A	

Unrerported Income Study (Phase 1)

Activity Code: 534

Seq #	UI Score	(A) TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM	(B) Audit Sum 1 = GE 1 0 = EQ 0	(A) + (B) 2 = "GE 1" was Top 2% 0 = "EQ 0" was Bot. 50% 1 = Misclassified
1	1507	1	1	0	0	0	0	1	0	1	0	1	0	4	1	2
2	1374	1	0	0	0	0	0	0	0	0	0	1	0	1	1	2
3	1534	1	1	0	0	0	0	0	0	1	0	1	0	3	1	2
4	1535	1	1	1	1	0	1	1	0	1	0	1	0	7	1	2
5	401	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1
6	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	1423	1	0	0	0	0	0	0	0	0	0	1	0	1	1	2
8	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	375	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1
10	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	1424	1	1	1	0	0	0	0	0	1	0	1	0	4	1	2
12	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	395	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	395	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	375	0	1	0	0	0	0	0	0	1	0	0	0	2	1	1
17	1499	1	0	0	0	0	0	0	0	1	0	0	0	1	1	2
18	1407	1	1	1	1	0	1	1	0	1	0	1	0	7	1	2
19	1379	1	0	0	0	0	0	0	0	1	0	1	0	2	1	2
20	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	375	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1
22	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	401	0	1	0	0	0	0	0	0	1	0	0	0	2	1	1
25	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	1440	1	0	1	0	0	0	0	0	0	0	1	0	2	1	2
27	395	0	1	0	0	0	1	1	0	0	0	0	0	3	1	1
28	417	0	1	0	0	0	0	1	0	0	0	1	0	3	1	1
29	1470	1	1	0	0	0	0	0	0	0	0	0	0	1	1	2
30	1486	1	1	1	0	1	0	1	1	0	0	0	0	5	1	2
31	401	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	1402	1	0	0	0	0	0	0	0	1	0	1	0	2	1	2
33	1519	1	0	0	0	0	0	1	0	0	0	1	0	2	1	2
34	295	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1
35	1363	1	1	1	0	1	0	1	0	1	1	1	0	7	1	2
36	1688	1	1	1	1	0	0	1	1	1	1	1	1	9	1	2
37	1554	1	1	1	1	1	0	1	0	0	0	1	0	6	1	2
38	397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	1419	1	0	0	1	1	0	1	0	0	1	0	0	4	1	2
40	375	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1
41	1649	1	1	1	0	0	0	0	0	1	0	1	0	4	1	2
42	1542	1	0	1	0	1	0	0	0	0	0	1	0	3	1	2
43	1362	1	1	1	1	0	0	0	0	1	0	1	0	5	1	2
44	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	420	0	0	1	0	0	0	0	0	1	0	0	0	2	1	1
46	379	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1
47	1376	1	1	0	0	0	0	0	0	0	0	0	0	1	1	2
48	1406	1	1	1	1	0	1	0	0	0	1	1	1	7	1	2
49	1436	1	1	1	1	0	1	0	1	1	1	1	1	9	1	2
50	1397	1	1	0	0	0	1	0	0	0	0	0	0	2	1	2
(YES UI) & (Top 2%)			16	13	8	7	3	11	2	13	4	19	3	9		
YES UI Total			22	14	8	8	5	13	2	18	4	20	3	10.64		
(NO UI) & (Bottom 50%)			19	24	25	24	23	23	25	20	25	24	25	23.36		
NO UI Total			28	36	42	42	45	37	48	32	46	30	47	39.36		

Activity Code 534

Classification By Optimal Audit Sums

Audit Sum ...

UI-DIF SCORES	GE 1	EQ 0	TOTAL
Top 2%	25	0	25
Bottom 50%	11	14	25
TOTAL	36	14	50

1. H_o: One or more Classifiers responding "YES" (to examine a return for unreported income) were independent of High or Low UI Scores.
2. H_a: One or more Classifiers responding "YES" (to examine a return for unreported income) were associated with High or Low UI Scores.
3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.
4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	25	18	7	49	2.722
"YES" UI & Bottom 5(	11	18	-7	49	2.722
"NO" UI & Top 2%	0	7	-7	49	7.000
"NO" UI & Bottom 50'	14	7	7	49	7.000
				Chi-Square:	**19.444**

Hi & Low UI Scores Per Audit Sum

AUDIT SUM	Top 2%	Bottom 50%
11	0	0
10	0	0
9	2	0
8	0	0
7	4	0
6	1	0
5	2	0
4	4	0
3	2	2
2	5	3
1	5	6
0	0	14

AUDIT SUM GE ...	CUM Top 2%	CUM Bot. 50%	Chi-Square	
11	0	0	N/A	
10	0	0	N/A	
9	2	0	2.083	
8	2	0	2.083	
7	6	0	6.818	
6	7	0	8.140	
5	9	0	10.976	
4	13	0	17.568	
3	15	2	15.062	
2	20	5	18.000	
1	25	11	19.444	<= MAX
0	25	25	N/A	

Unrerported Income Study (Phase 1)

Activity Code: 535

Seq #	UI Score	TOP 2%	(A) Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER … 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM	(B) Audit Sum 1 = GE 10 0 = LE 9	(A) + (B) 2 = "GE 10" was Top 2% 0 = "LE 9" was Bot. 50% 1 = Misclassified
1	963	1	1	1	1	1	1	1	1	1	1	1	0	10	1	2
2	427	0	1	1	1	1	1	1	1	1	1	0	0	9	0	0
3	460	0	1	1	1	1	0	1	1	1	1	0	0	8	0	0
4	456	0	1	1	1	1	1	1	1	1	1	0	1	10	1	1
5	1036	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
6	456	0	1	1	0	1	1	0	1	1	1	0	0	7	0	0
7	379	0	0	1	1	1	0	0	1	1	0	0	0	5	0	0
8	963	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
9	491	0	1	1	1	0	1	1	1	1	1	1	0	9	0	0
10	924	1	1	1	1	1	1	0	1	1	1	1	1	10	1	2
11	919	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
12	872	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
13	485	0	1	1	1	1	0	1	1	1	0	0	1	8	0	0
14	449	0	0	0	1	0	0	1	1	0	0	0	0	3	0	0
15	1019	1	1	1	1	0	1	1	1	1	1	1	0	9	0	1
16	460	0	1	0	1	0	0	1	1	1	0	1	0	6	0	0
17	957	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
18	963	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
19	886	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
20	998	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
21	886	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
22	427	0	1	1	1	0	0	1	1	1	0	0	0	6	0	0
23	427	0	1	1	1	1	1	1	1	1	1	0	0	9	0	0
24	948	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
25	427	0	1	0	0	0	0	0	1	1	0	0	0	3	0	0
26	460	0	1	1	1	1	1	1	1	1	1	1	1	11	1	1
27	460	0	1	1	1	1	1	1	1	1	1	1	0	10	1	1
28	466	0	0	0	0	0	0	1	1	1	1	1	0	5	0	0
29	460	0	1	1	1	1	1	1	1	1	1	0	0	9	0	0
30	886	1	1	1	1	1	1	1	1	1	1	1	0	10	1	2
31	932	1	1	1	1	1	1	1	1	1	0	1	1	10	1	2
32	924	1	1	1	1	1	0	1	1	1	1	1	1	10	1	2
33	886	1	1	1	1	1	0	1	1	1	1	1	1	10	1	2
34	502	0	0	0	1	1	0	1	1	1	1	0	0	6	0	0
35	872	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
36	427	0	1	1	1	1	1	1	1	1	1	0	1	10	1	1
37	439	0	0	0	1	0	0	1	0	1	0	0	0	3	0	0
38	957	1	1	1	1	0	0	1	1	1	1	1	1	9	0	1
39	851	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
40	456	0	1	1	1	1	0	1	1	1	1	0	0	8	0	0
41	460	0	0	0	0	0	0	1	0	1	0	0	0	2	0	0
42	934	1	1	1	1	1	0	0	1	1	0	1	0	7	0	1
43	930	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
44	460	0	1	1	1	1	0	1	1	1	1	1	1	10	1	1
45	930	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
46	427	0	1	1	1	1	1	1	1	1	1	0	1	10	1	1
47	1009	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
48	872	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
49	439	0	0	0	0	1	0	1	1	1	0	0	0	4	0	0
50	460	0	1	1	1	1	1	1	1	1	1	0	0	9	0	0
(YES UI) & (Top 2%)			25	25	25	23	21	23	25	25	23	25	21	23.73		
YES UI Total			43	42	45	40	32	45	48	49	39	31	27	40.09		
(NO UI) & (Bottom 50%)			7	8	5	8	14	3	2	1	9	19	19	8.636		
NO UI Total			7	8	5	10	18	5	2	1	11	19	23	9.909		

Activity Code 535

Classification By Optimal Audit Sums

Audit Sum …

UI-DIF SCORES	GE 10	LE 9	TOTAL
Top 2%	22	3	25
Bottom 50%	6	19	25
TOTAL	28	22	50

1. H_o: Ten or more Classifiers responding "YES" (to examine a return for unreported income) were independent of High or Low UI Scores.

2. H_a: Ten or more Classifiers responding "YES" (to examine a return for unreported income) were associated with High or Low UI Scores.

3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.

4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	22	14	8	64	4.571
"YES" UI & Bottom 5(	6	14	-8	64	4.571
"NO" UI & Top 2%	3	11	-8	64	5.818
"NO" UI & Bottom 50'	19	11	8	64	5.818
				Chi-Square:	**20.779**

Hi & Low UI Scores Per Audit Sum

AUDIT SUM	Top 2%	Bottom 50%
11	16	1
10	6	5
9	2	5
8	0	3
7	1	1
6	0	3
5	0	2
4	0	1
3	0	3
2	0	1
1	0	0
0	0	0

AUDIT SUM GE …	CUM Top 2%	CUM Bot. 50%	Chi-Square	
11	16	1	20.053	
10	22	6	20.779	<= MAX
9	24	11	16.095	
8	24	14	10.965	
7	25	15	12.500	
6	25	18	8.140	
5	25	20	5.556	
4	25	21	4.348	
3	25	24	1.020	
2	25	25	N/A	
1	25	25	N/A	
0	25	25	N/A	

Unrerported Income Study (Phase 1)

Activity Code: 536

Seq #	UI Score	(A) TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER … 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM	(B) Audit Sum 1 = GE 8 0 = LE 7	(A) + (B) 2 = "GE 8" was Top 2% 0 = "LE 7" was Bot. 50% 1 = Misclassified
1	497	0	0	0	1	0	0	1	0	0	0	0	0	2	0	0
2	486	0	0	1	1	0	0	0	0	1	0	0	0	3	0	0
3	746	1	1	1	1	1	0	1	1	0	1	1	0	8	1	2
4	753	1	1	1	1	1	0	1	1	1	1	1	0	9	1	2
5	489	0	0	1	1	1	0	1	1	1	1	0	0	7	0	0
6	497	0	0	1	1	1	0	1	1	1	0	0	0	6	0	0
7	727	1	1	1	1	1	0	1	1	1	1	0	1	9	1	2
8	723	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
9	726	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
10	732	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
11	748	1	0	1	1	1	0	1	1	1	1	1	1	9	1	2
12	445	0	0	0	1	0	0	1	0	0	0	1	0	3	0	0
13	470	0	1	1	1	0	0	1	1	0	1	1	1	8	1	1
14	479	0	0	0	1	0	0	1	0	0	0	0	0	2	0	0
15	498	0	0	0	1	1	0	1	1	0	0	0	0	4	0	0
16	753	1	1	1	1	1	0	1	1	0	1	1	0	8	1	2
17	464	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
18	496	0	1	1	1	1	1	1	1	1	1	1	0	10	1	1
19	753	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
20	730	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
21	744	1	1	1	1	1	0	1	1	1	1	1	0	9	1	2
22	475	0	1	0	1	1	0	1	1	0	0	1	1	7	0	0
23	746	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
24	506	0	1	1	1	0	0	0	1	0	0	1	0	5	0	0
25	802	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
26	768	1	1	1	1	1	1	1	1	0	1	1	1	10	1	2
27	732	1	1	1	1	1	0	0	1	0	1	1	1	8	1	2
28	804	1	1	1	1	1	0	1	1	1	1	1	0	9	1	2
29	456	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	505	0	1	0	1	0	0	0	0	0	0	0	0	2	0	0
31	754	1	1	1	1	1	0	1	1	1	1	1	1	10	1	2
32	738	1	1	1	1	1	0	1	1	0	1	0	1	8	1	2
33	496	0	1	0	1	0	0	1	1	1	0	0	1	6	0	0
34	505	0	0	0	1	1	0	1	0	0	1	0	0	4	0	0
35	472	0	0	1	1	0	0	0	0	0	0	0	0	2	0	0
36	511	0	1	1	1	1	0	1	1	1	1	1	1	10	1	1
37	467	0	0	0	0	1	0	1	0	0	0	0	0	2	0	0
38	513	0	0	1	1	0	0	1	1	1	0	1	1	7	0	0
39	488	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
40	486	0	1	0	0	1	0	1	1	0	0	1	1	6	0	0
41	753	1	1	1	1	1	0	1	1	1	1	1	1	10	1	2
42	761	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
43	822	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
44	411	0	0	0	1	0	0	0	0	0	0	0	1	2	0	0
45	790	1	1	0	1	1	1	1	1	1	1	1	1	10	1	2
46	824	1	1	1	1	1	0	1	1	1	1	1	1	10	1	2
47	498	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
48	766	1	1	1	1	1	0	0	1	1	1	1	0	8	1	2
49	756	1	1	1	1	1	0	1	1	1	1	1	1	10	1	2
50	471	0	1	0	1	1	0	1	1	0	1	0	0	6	0	0
(YES UI) & (Top 2%)			24	24	25	25	11	23	25	20	25	23	19	22.18		
YES UI Total			33	33	46	35	12	39	37	27	31	32	26	31.91		
(NO UI) & (Bottom 50%)			16	16	4	15	24	9	13	18	19	16	18	15.27		
NO UI Total			17	17	4	15	38	11	13	23	19	18	24	18.09		

Activity Code 536

Classification By Optimal Audit Sums

Audit Sum …

UI-DIF SCORES	GE 8	LE 7	TOTAL
Top 2%	25	0	25
Bottom 50%	3	22	25
TOTAL	28	22	50

1. H_o: Eight or more Classifiers responding "YES" (to examine a return for unreported income) were independent of High or Low UI Scores.
2. H_a: Eight or more Classifiers responding "YES" (to examine a return for unreported income) were associated with High or Low UI Scores.
3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.
4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	25	14	11	121	8.643
"YES" UI & Bottom 5(	3	14	-11	121	8.643
"NO" UI & Top 2%	0	11	-11	121	11.000
"NO" UI & Bottom 50'	22	11	11	121	11.000
				Chi-Square:	**39.286**

Hi & Low UI Scores Per Audit Sum

AUDIT SUM	Top 2%	Bottom 50%	AUDIT SUM GE …	CUM Top 2%	CUM Bot. 50%	Chi-Square	
11	9	0	11	9	0	10.976	
10	6	2	10	15	2	15.062	
9	5	0	9	20	2	26.299	
8	5	1	8	25	3	39.286	<= MAX
7	0	3	7	25	6	30.645	
6	0	4	6	25	10	21.429	
5	0	1	5	25	11	19.444	
4	0	2	4	25	13	15.789	
3	0	2	3	25	15	12.500	
2	0	6	2	25	21	4.348	
1	0	3	1	25	24	1.020	
0	0	1	0	25	25	N/A	

Unrerported Income Study (Phase 1)

Activity Code: 537

Seq #	UI Score	(A) TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER … 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM	(B) Audit Sum 1 = GE 7 0 = LE 6	(A) + (B) 2 = "GE 7" was Top 2% 0 = "LE 6" was Bot. 50% 1 = Misclassified
1	920	1	1	1	1	0	0	1	1	1	1	1	1	9	1	2
2	326	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	380	0	1	0	0	0	0	1	1	1	0	1	1	6	0	0
4	397	0	1	0	0	0	0	0	0	1	0	1	0	3	0	0
5	980	1	1	1	1	1	1	1	1	1	1	1	0	10	1	2
6	920	1	1	1	1	0	1	1	1	1	1	1	1	10	1	2
7	405	0	1	0	0	0	0	1	0	1	0	0	0	3	0	0
8	986	1	1	1	1	0	1	1	1	1	1	1	0	9	1	2
9	935	1	1	1	0	0	0	1	1	0	1	1	0	6	0	1
10	1018	1	1	1	1	0	1	1	1	0	1	1	0	8	1	2
11	328	0	1	0	1	1	0	1	1	0	0	0	1	6	0	0
12	957	1	1	1	1	1	1	1	1	0	1	1	0	9	1	2
13	966	1	1	0	1	0	0	1	1	0	1	1	1	7	1	2
14	396	0	1	0	1	0	0	1	0	0	0	0	0	3	0	0
15	969	1	1	0	1	0	1	1	1	0	1	1	0	7	1	2
16	337	0	1	0	0	0	0	1	0	1	0	1	0	4	0	0
17	282	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
18	390	0	1	1	1	1	0	1	0	1	0	0	0	6	0	0
19	1009	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
20	969	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
21	337	0	0	0	1	0	0	1	0	0	1	1	0	4	0	0
22	351	0	1	0	0	0	0	1	0	0	0	0	0	2	0	0
23	382	0	0	1	1	0	0	1	0	0	0	0	0	3	0	0
24	920	1	1	1	1	1	1	1	0	1	1	1	0	9	1	2
25	326	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	394	0	1	1	1	0	0	0	1	0	0	1	0	5	0	0
27	1014	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
28	401	0	0	0	1	0	0	0	0	0	0	1	0	2	0	0
29	409	0	1	0	1	1	0	1	0	0	0	0	0	4	0	0
30	935	1	1	1	1	1	0	1	1	0	1	1	1	9	1	2
31	388	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
32	986	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
33	337	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
34	1064	1	1	1	1	1	1	1	1	0	1	1	1	10	1	2
35	337	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	337	0	1	0	0	0	0	0	0	0	0	1	0	2	0	0
37	949	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
38	969	1	1	1	1	0	1	1	1	1	1	1	1	10	1	2
39	387	0	0	0	1	0	0	0	0	1	0	0	0	2	0	0
40	920	1	1	1	1	1	0	1	0	1	1	1	0	8	1	2
41	326	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	1026	1	1	1	1	0	0	1	1	0	1	1	1	8	1	2
43	368	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
44	1064	1	1	1	1	0	1	1	1	0	1	1	1	9	1	2
45	373	0	0	0	0	0	0	1	0	0	0	1	0	2	0	0
46	931	1	1	1	1	0	0	1	1	1	1	1	1	9	1	2
47	405	0	1	0	0	0	0	1	0	0	0	0	0	2	0	0
48	984	1	1	1	1	1	1	1	1	0	1	1	1	10	1	2
49	1026	1	1	1	1	0	1	1	1	1	1	1	1	10	1	2
50	938	1	1	1	1	1	1	1	1	0	1	1	1	10	1	2
(YES UI) & (Top 2%)			25	23	24	13	18	25	23	14	25	25	17	21.09		
YES UI Total			40	26	34	16	18	37	26	20	26	33	19	26.82		
(NO UI) & (Bottom 50%)			10	22	15	22	25	13	22	19	24	17	23	19.27		
NO UI Total			10	24	16	34	32	13	24	30	24	17	31	23.18		

Activity Code 537

Classification By Optimal Audit Sums

Audit Sum …

UI-DIF SCORES	GE 7	LE 6	TOTAL
Top 2%	24	1	25
Bottom 50%	0	25	25
TOTAL	24	26	50

1. H_o: Seven or more Classifiers responding "YES" (to examine a return for unreported income) were independent of High or Low UI Scores.

2. H_a: Seven or more Classifiers responding "YES" (to examine a return for unreported income) were associated with High or Low UI Scores.

3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.

4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	24	12	12	144	12.000
"YES" UI & Bottom 5(	0	12	-12	144	12.000
"NO" UI & Top 2%	1	13	-12	144	11.077
"NO" UI & Bottom 50'	25	13	12	144	11.077
				Chi-Square:	**46.154**

Hi & Low UI Scores Per Audit Sum

AUDIT SUM	Top 2%	Bottom 50%	AUDIT SUM GE …	CUM Top 2%	CUM Bot. 50%	Chi-Square	
11	5	0	11	5	0	5.556	
10	7	0	10	12	0	15.789	
9	7	0	9	19	0	30.645	
8	3	0	8	22	0	39.286	
7	2	0	7	24	0	46.154	<= MAX
6	1	3	6	25	3	39.286	
5	0	1	5	25	4	36.207	
4	0	3	4	25	7	28.125	
3	0	4	3	25	11	19.444	
2	0	6	2	25	17	9.524	
1	0	4	1	25	21	4.348	
0	0	4	0	25	25	N/A	

Unrerported Income Study (Phase 1)

Activity Code: 538

Seq #	UI Score	(A) TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM	(B) Audit Sum 1 = GE 5 0 = LE 4	(A) + (B) 2 = "GE 5" was Top 2% 0 = "LE 4" was Bot. 50% 1 = Misclassified
1	758	1	1	1	0	1	1	1	1	1	1	1	1	10	1	2
2	706	1	1	1	0	1	1	1	1	1	1	1	0	9	1	2
3	341	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
4	691	1	1	1	0	0	1	1	1	0	1	1	0	7	1	2
5	769	1	0	1	0	0	0	1	0	0	1	1	0	4	0	1
6	310	0	0	1	0	1	0	1	1	1	0	0	0	5	1	1
7	773	1	1	1	0	1	1	1	1	1	1	1	0	9	1	2
8	846	1	1	1	0	1	1	1	1	1	1	1	0	9	1	2
9	377	0	0	1	0	1	0	0	1	1	0	0	0	4	0	0
10	402	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0
11	691	1	0	1	0	1	0	1	1	0	1	0	0	5	1	2
12	763	1	1	1	1	1	1	1	1	1	1	0	0	9	1	2
13	790	1	1	1	0	1	0	1	0	0	1	1	0	6	1	2
14	687	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
15	437	0	0	0	0	1	0	1	0	0	0	0	0	2	0	0
16	724	1	0	1	0	0	0	1	0	1	1	0	0	4	0	1
17	710	1	1	1	0	0	1	1	1	1	1	1	0	8	1	2
18	437	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	758	1	1	1	0	1	1	1	1	0	1	1	0	8	1	2
20	364	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
21	408	0	0	0	0	1	0	1	0	1	0	0	0	3	0	0
22	322	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	349	0	1	1	0	1	1	1	1	1	1	0	0	8	1	1
24	761	1	1	1	0	1	1	1	0	1	1	1	0	8	1	2
25	405	0	1	1	0	0	0	1	1	0	1	1	1	7	1	1
26	715	1	1	1	0	1	1	1	1	1	1	1	1	10	1	2
27	347	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	379	0	0	0	0	1	0	0	1	0	0	1	0	3	0	0
29	394	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	408	0	0	0	0	0	0	0	0	1	1	1	0	3	0	0
31	291	0	0	1	0	0	0	1	1	1	0	0	0	4	0	0
32	669	1	0	1	0	1	0	1	0	0	1	1	0	5	1	2
33	366	0	0	1	0	0	1	1	1	1	1	0	1	7	1	1
34	431	0	1	1	0	0	1	0	1	1	1	1	0	7	1	1
35	374	0	1	1	0	1	1	1	1	1	1	1	0	9	1	1
36	371	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
37	688	1	1	1	0	1	0	1	1	1	1	0	1	8	1	2
38	310	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0
39	429	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	702	1	1	1	0	0	1	1	1	1	1	1	0	8	1	2
41	396	0	1	1	0	1	1	1	1	1	1	1	0	9	1	1
42	379	0	0	0	0	1	0	0	1	1	0	1	0	4	0	0
43	676	1	1	1	0	0	0	1	0	1	1	1	0	6	1	2
44	747	1	1	1	0	0	1	1	1	0	1	1	1	8	1	2
45	341	0	0	0	0	0	0	1	0	1	0	1	0	3	0	0
46	746	1	1	1	1	1	1	1	1	1	1	1	1	11	1	2
47	666	1	1	1	0	0	1	1	1	1	1	1	0	8	1	2
48	674	1	1	1	0	0	0	0	0	1	1	1	0	5	1	2
49	674	1	1	1	0	0	0	1	1	0	1	1	1	7	1	2
50	669	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
(YES UI) & (Top 2%)			20	24	3	14	15	23	17	16	24	20	7	16.64		
YES UI Total			26	35	3	23	20	33	29	30	31	29	9	24.36		
(NO UI) & (Bottom 50%)			19	14	25	16	20	15	13	11	18	16	23	17.27		
NO UI Total			24	15	47	27	30	17	21	20	19	21	41	25.64		

Activity Code 538

Classification By Optimal Audit Sums

Audit Sum ...

UI-DIF SCORES	GE 5	LE 4	TOTAL
Top 2%	22	3	25
Bottom 50%	7	18	25
TOTAL	29	21	50

1. H_o: Five or more Classifiers responding "YES" (to examine a return for unreported income) were independent of High or Low UI Scores.
2. H_a: Five or more Classifiers responding "YES" (to examine a return for unreported income) were associated with High or Low UI Scores.
3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.
4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	22	14.5	7.5	56.25	3.879
"YES" UI & Bottom 5(	7	14.5	-7.5	56.25	3.879
"NO" UI & Top 2%	3	10.5	-7.5	56.25	5.357
"NO" UI & Bottom 50'	18	10.5	7.5	56.25	5.357
				Chi-Square:	**18.473**

Hi & Low UI Scores Per Audit Sum

AUDIT SUM	Top 2%	Bottom 50%
11	2	0
10	2	0
9	4	2
8	7	1
7	2	3
6	2	0
5	3	1
4	2	3
3	0	4
2	0	3
1	0	3
0	1	5

AUDIT SUM GE ...	CUM Top 2%	CUM Bot. 50%	Chi-Square	
11	2	0	2.083	
10	4	0	4.348	
9	8	2	4.500	
8	15	3	12.500	
7	17	6	9.742	
6	19	6	13.520	
5	22	7	18.473	<= MAX
4	24	10	18.015	
3	24	14	10.965	
2	24	17	6.640	
1	24	20	3.030	
0	25	25	N/A	

Unrerported Income Study (Phase 1)

Activity Code: 539

Seq #	UI Score	(A) TOP 2%	Should The Return Be Examined For Unreported Income? (1=YES) (0=NO) CLASSIFIER ... 1	2	3	4	5	6	7	8	9	10	11	AUDIT SUM	(B) Audit Sum 1 = GE 4 0 = LE 3	(A) + (B) 2 = "GE 4" was Top 2% 0 = "LE 3" was Bot. 50% 1 = Misclassified
1	1009	1	1	0	0	0	0	0	0	0	1	1	0	3	0	1
2	1045	1	1	0	0	0	1	1	1	0	1	1	0	6	1	2
3	1064	1	1	0	0	0	1	1	1	1	1	0	0	6	1	2
4	575	0	0	1	0	0	0	1	1	0	0	0	0	3	0	0
5	573	0	0	0	0	1	0	1	1	0	0	0	0	3	0	0
6	571	0	0	0	0	0	0	1	1	1	0	1	0	4	1	1
7	535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	619	0	0	1	0	1	1	1	1	1	1	0	0	7	1	1
9	1044	1	1	0	0	0	0	1	0	0	1	1	0	4	1	2
10	481	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
11	611	0	1	1	1	1	1	1	1	1	1	1	1	11	1	1
12	510	0	1	0	0	1	0	1	1	0	1	1	0	6	1	1
13	1003	1	1	1	0	0	1	1	1	0	1	1	0	7	1	2
14	582	0	0	0	0	1	1	1	1	1	1	0	0	6	1	1
15	1024	1	1	1	0	0	1	1	1	1	1	1	0	8	1	2
16	504	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
17	594	0	0	1	0	0	0	0	1	0	0	1	0	3	0	0
18	503	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
19	607	0	0	0	0	0	1	1	0	0	0	1	0	3	0	0
20	1057	1	0	1	0	0	1	1	1	1	1	1	0	7	1	2
21	593	0	1	1	0	0	0	1	1	0	0	1	0	5	1	1
22	594	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
23	1049	1	0	1	0	0	1	1	1	1	0	1	0	6	1	2
24	477	0	0	0	0	1	0	0	0	1	0	0	0	2	0	0
25	556	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	1009	1	1	0	0	0	1	0	1	0	0	1	0	4	1	2
28	528	0	0	0	0	1	0	1	1	0	0	1	0	4	1	1
29	548	0	1	0	0	0	0	1	1	1	1	1	0	6	1	1
30	520	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	994	1	0	0	0	0	0	1	0	1	1	1	0	4	1	2
32	603	0	0	0	0	1	0	0	1	0	0	0	0	2	0	0
33	618	0	1	1	0	0	0	0	0	1	0	1	0	4	1	1
34	1094	1	1	1	0	0	1	1	0	0	0	1	0	5	1	2
35	999	1	1	1	0	0	1	1	1	0	0	1	0	6	1	2
36	1058	1	1	1	0	0	1	1	1	0	0	1	1	7	1	2
37	1016	1	1	1	0	0	1	1	1	1	1	1	1	9	1	2
38	1044	1	1	0	0	0	0	1	1	1	1	1	0	6	1	2
39	1020	1	1	1	0	1	1	1	1	0	1	1	0	8	1	2
40	1023	1	1	1	0	0	1	1	1	1	1	1	0	8	1	2
41	1023	1	1	1	0	1	1	1	1	1	1	1	0	9	1	2
42	1002	1	1	0	0	0	1	1	1	1	1	1	0	7	1	2
43	485	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
44	1012	1	1	1	0	0	0	1	0	0	0	1	0	4	1	2
45	551	0	0	0	0	0	0	1	0	1	0	0	0	2	0	0
46	1013	1	1	0	0	0	0	1	1	1	1	1	0	6	1	2
47	996	1	1	1	0	0	0	1	1	1	0	1	0	6	1	2
48	1051	1	1	1	1	0	1	1	1	1	1	1	0	9	1	2
49	1045	1	1	1	0	0	1	1	1	1	1	1	0	8	1	2
50	1128	1	1	0	0	1	1	1	1	0	1	1	0	7	1	2
(YES UI) & (Top 2%)			22	15	1	3	18	23	20	14	18	24	2	14.55		
YES UI Total			27	21	2	11	22	40	32	22	23	33	3	21.45		
(NO UI) & (Bottom 50%)			20	19	24	17	21	8	13	17	20	16	24	18.09		
NO UI Total			23	29	48	39	28	10	18	28	27	17	47	28.55		

Activity Code 539

Classification By Optimal Audit Sums

Audit Sum ...

UI-DIF SCORES	GE 4	LE 3	TOTAL
Top 2%	24	1	25
Bottom 50%	9	16	25
TOTAL	33	17	50

1. H_o: Four or more Classifiers responding "YES" (to examine a return for unreported income) were independent of High or Low UI Scores.

2. H_a: Four or more Classifiers responding "YES" (to examine a return for unreported income) were associated with High or Low UI Scores.

3. Random chance, no greater than 5%, requires a chi-square value of 3.841 or less.

4. Criterion: Reject **Ho** (Accept **Ha**) at 5% if chi-square > 3.841.

Computation of Chi-Square

	Observed (O)	Expected (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
"YES" UI & Top 2%	24	16.5	7.5	56.25	3.409
"YES" UI & Bottom 5(	9	16.5	-7.5	56.25	3.409
"NO" UI & Top 2%	1	8.5	-7.5	56.25	6.618
"NO" UI & Bottom 50'	16	8.5	7.5	56.25	6.618
				Chi-Square:	**20.053**

Hi & Low UI Scores Per Audit Sum

AUDIT SUM	Top 2%	Bottom 50%	AUDIT SUM GE ...	CUM Top 2%	CUM Bot. 50%	Chi-Square	
11	0	1	11	0	1	N/A	
10	0	0	10	0	1	N/A	
9	3	0	9	3	1	1.087	
8	4	0	8	7	1	5.357	
7	5	1	7	12	2	9.921	
6	7	3	6	19	5	15.705	
5	1	1	5	20	6	15.705	
4	4	3	4	24	9	20.053	<= MAX
3	1	4	3	25	13	15.789	
2	0	3	2	25	16	10.976	
1	0	5	1	25	21	4.348	
0	0	4	0	25	25	N/A	

Appendix E:

Research Proposal For The UI Study

1 Oct 01

Testing The Efficacy Of UI-DIF Formulas

By Lance Asner

Background

Unreported Income (UI) DIF Formulas were developed by the Office of Research. They were developed by the DIF Team, Studies And Modeling B (N:ADC:R:R:SDIB), for the Denver DORA, now under SB/SE. UI-DIF Formulas were developed from the most recent TCMP Survey of Individuals[1], and were developed for Activity Codes 532 to 539. Activity Codes 530 and 531 were not included because they displayed too few returns with non-IRP unreported income.

UI Formulas were developed using the DIF methodology, a proven technique for workload selection. Workload was defined as returns with non-IRP unreported income. Returns with high UI Scores are expected to yield more unreported income than returns with lower UI Scores. High UI Scores can be used by market specialists to identify returns, many of which are expected to yield substantial unreported income.

High UI Scores may justify tests for unreported income that might otherwise be prohibited. Legislation enacted in RRA 98 stated, "The Secretary shall not use financial status or economic reality examination techniques to determine the existence of unreported income of any taxpayer unless the Secretary has a reasonable indication that there is a likelihood of such unreported income."[2] High UI Scores may satisfy this requirement to provide 'a reasonable indication that there is a likelihood of such unreported income'.

The customer for UI-DIF Formulas is Centralized Workload Selection and Delivery, Compliance Policy, SB/SE.

Study Plan

SB/SE would like to test of the efficacy of UI Scores in several months, avoiding new exams. New exams require many years to complete and evaluate.

Experts in unreported income will classify returns with very high and low UI Scores. All information about the UI Scores will be shielded from the classifiers. Classifiers will screen returns and designate each return as either "Should Be Examined For Unreported Income" or "Should Not Be Examined For Unreported Income." Results will be tabulated and associated with the UI Scores. Two conditions are necessary to validate the efficacy of UI Scores: (1) A strong association between high UI Scores and "Should Be Examined For Unreported Income", and (2) a strong association between low UI Scores and "Should Not Be Examined For Unreported Income". Weak associations invalidate the UI Scores.

---

[1] The III-10 TCMP Survey involved Tax Year 1987 Individual returns filed in Processing Year 1988.

[2] The IRS Restructuring and Reform Act of 1998, Code Sec. 7602, "Examination Of Books And Witnesses", (e), "Limitation On Examination On Unreported Income."

The study will test all eight UI Formulas. For each activity code, 50 returns will be classified, 25 returns with high UI Scores and 25 returns with low UI Scores. The 25 returns with high UI Scores will be randomly selected from among the two percent of returns with highest UI Scores. The 25 returns with low UI Scores will be randomly selected from among the fifty percent of returns with lowest UI Scores. Experts will classify the returns (with origin unknown) as either "Should Be Examined For Unreported Income" or "Should Not Be Examined For Unreported Income".

Eleven experts in unreported income will classify 400 returns (50 returns per activity code, for eight activity codes). Returns will be displayed as MACS facsimiles and will include MACS facsimiles for two prior years. Expert classification will require one week. This is Phase 1. Phase 1 tests the efficacy of the UI-DIF Formulas.

Phase 2 tests classification with MACS facsimiles and with original returns. Original returns may include line items not displayed on MACS facsimiles, because they were not transcribed during return processing. The two phases will be as similar as possible.

Classifier recommendations to examine or not to examine returns will be cross tabulated with high or low UI Scores in two-by-two tables. Statistical tests of the independence of classification will be completed for each set of 50 returns.

Procedures

The UI Study will be conducted and coordinated by two experienced researchers; (1) a representative of SB/SE Research in Denver (Rep-Denver), and (2) a representative of SB/SE Compliance Policy in DC (Rep-DC). The Rep-Denver and the Rep-DC will insure the integrity of the UI Study. The following procedures will be observed:

1. Returns will be selected for classification at the MACS Development Center. "Return Selection For Classification" appears in the Appendix.

2. The Rep-Denver and the Rep-DC are the **only** persons who will communicate with the Classifiers during the study.

3. Classifiers will be instructed **NOT** to discuss the returns, the classification process, nor the study in general, with anyone other than the Rep-Denver or the Rep-DC. Communications about the study should be public and observed by all Classifiers.

4. Eleven (11) classifiers will be selected for their experience with unreported income in Activity Codes 532 to 539.

5. One set of Study returns will be prepared for each Classifier. Study returns will be arranged in the same order for each activity code. Study returns will be classified in the same order by all Classifiers.

6. Classifiers will be instructed to safeguard their scorecards. Whenever scorecards are not in use, they will be collected and secured by Rep-Denver or Rep-DC.

Security

The UI Formulas are available on a 'need-to-know' basis. The formulas and related materials must be safeguarded at all times; they will be stored and locked in IRS containers when not in use. UI Formulas will be provided to MACS, and all materials associated with the UI Formulas will be destroyed at the conclusion of this study.

Scorecard

A scorecard summarizes one expert classifying 50 returns (one activity code). The UI Study involves 88 scorecards (11 scorecards per activity code for eight activity codes). Experts record whether returns should or should not be examined for unreported income. The Rep-Denver and Rep-DC will insure that scorecards are completed independently. They will secure the scorecards when classification is not in progress. Scorecards will be sent to the DIF Team for tabulation and analysis. A sample scorecard template follows:

Unrerported Income Study (Phase 1)

Activity Code: **Should The Return Be Examined**

Classifier: **For Unreported Income?**

Seq#		TIN		YES		NO
1		xxxxxxxxx				
2		xxxxxxxxx				
3		xxxxxxxxx				
4		xxxxxxxxx				
5		xxxxxxxxx				
6		xxxxxxxxx				
7		xxxxxxxxx				
8		xxxxxxxxx				
9		xxxxxxxxx				
10		xxxxxxxxx				
11		xxxxxxxxx				
12		xxxxxxxxx				
13		xxxxxxxxx				
14		xxxxxxxxx				
15		xxxxxxxxx				
16		xxxxxxxxx				
17		xxxxxxxxx				
18		xxxxxxxxx				
19		xxxxxxxxx				
20		xxxxxxxxx				
21		xxxxxxxxx				
22		xxxxxxxxx				
23		xxxxxxxxx				

24		**xxxxxxxxx**				
25		**xxxxxxxxx**				
26		**xxxxxxxxx**				
27		**xxxxxxxxx**				
28		**xxxxxxxxx**				
29		**xxxxxxxxx**				
30		**xxxxxxxxx**				
31		**xxxxxxxxx**				
32		**xxxxxxxxx**				
33		**xxxxxxxxx**				
34		**xxxxxxxxx**				
35		**xxxxxxxxx**				
36		**xxxxxxxxx**				
37		**xxxxxxxxx**				
38		**xxxxxxxxx**				
39		**xxxxxxxxx**				
40		**xxxxxxxxx**				
41		**xxxxxxxxx**				
42		**xxxxxxxxx**				
43		**xxxxxxxxx**				
44		**xxxxxxxxx**				
45		**xxxxxxxxx**				
46		**xxxxxxxxx**				
47		**xxxxxxxxx**				
48		**xxxxxxxxx**				
49		**xxxxxxxxx**				
50		**xxxxxxxxx**				

Scorecard Tabulation

Completed scorecards will be analized by the DIF Team of the Office Of Research. Software macros will be developed to quickly complete the following:

1. Tabulation - Each scorecard will be tabulated as a two-by-two table.

CLASSIFICATION

UI Score	"YES" UI	NO" UI	TOTAL
Top 2%	XX	XX	25
~~Bottom 50%~~	~~XX~~	~~XX~~	~~25~~
TOTAL	XX	XX	50

2. A two-by-two Average Table will be developed for each activity code. For each activity code, the four intersections will be averaged across the 11 two-by-two tables.

3. A two-by-two Consensus Table will be developed for each activity code. Each return will be categorized by the **majority** of expert votes as either 'YES' UI or 'NO' UI.

4. A statistical test of independence of classification[3] will be completed for each of the two-by-two table, as follows:

(1) H_o: Hypothesis - Responses of "YES" and "NO" to examine returns for unreported income were independent of High and Low UI Scores.

(2) H_a: Alternative Hypothesis - Responses of "YES" and "NO" to examine returns for unreported income were associated with High and Low UI Scores at levels that were statistically significant.

(3) A five percent probability if H_o occurring randomly requires a chi-square of 3.841. (one degree of freedom).

(4) Criterion: Reject H_o (Accept H_a) if chi-square > 3.841.

Usefulness Of Each UI Formula

Analyses will be prepared by the DIF Team, Office Of Research, to assist SB/SE evaluate the usefulness of each UI Formula.

[3] Charles T. Clark and Lawrence L. Schkade, Statistical Analysis For Administrative Decisions (Cincinnati: South-West Publishing Co., 1974), pp. 376-378.

Appendix

Return Selection For Classification

Returns will be selected for the study at the MACS Development Center, as follows:

1. Program the UI-DIF Formulas onto MACS.
2. For all TY 1999 Individual returns filed in PY 2000, extract the following fields for Activity Codes 532 to 539; (1) UI Score, (2) DIF Score, and (3) TIN. (create extract files AC-532 to AC-539)
3. Sort returns by 'UI Score', highest to lowest, for each activity code.
4. Create a new variable, 'Random1', from a random number generator, for each activity code.
5. Select the top two percent (2%) of returns with highest UI Scores in each activity code and sort by 'Random1', highest to lowest.
6. Select the 25 returns with the greatest values for 'Random1' in each activity code. Call the set of 25 returns for each activity code, the '25 high'. (create extract files H25-532 to H25-539)
7. Select the bottom fifty percent (50%) of returns with the lowest UI Scores in each activity code and sort by 'Random1', lowest to highest.
8. Select the 25 returns with the lowest values for 'Random1' in each activity code. Call the set of 25 returns for each activity code, the '25 low'. (create extract files L25-532 to L25-539)
9. Combine the '25 high' and '25 low' returns for each activity code. Call the set of 50 returns for each activity code, the 'combined 50'. (create extract files C50-532 to C50-539)
10. Create a new variable, 'Random2', from a random number generator, for the 'combined 50' in each activity code.
11. Sort the 'combined 50' by 'Random2', lowest to highest. Call these returns the 'random 50'. The 'random 50' identify the returns in each activity code and their arrangement for classification. Create a new variable, 'Sequence', numbering each return from one to 50. 'Sequence' will appear prominently on each facsimile return and corresponds to 'Seq #' on the scorecard. (create files R50-532 to R50-539)
12. Create an Excel workbook with eight spreadsheets, one for each activity code. Display the following items from the 'random 50' for each activity code; (1) 'Seq #', (2) 'Random 2', (3) 'UI Score', (4) 'Random 1', (5) TIN, and (6) DIF Score. Workbook will be sent to the DIF Team.
13. Order original returns of the 'random 50' in each activity code for Phase 2.

Generate MACS facsimile returns by Sequence Number for PY1999, prior year PY1998, and prior year PY1997, for the 'random 50' in each activity code for Phase 1.