NATIONAL TAX ASSOCIATION
95th ANNUAL CONFERENCE ON TAXATION
Orlando, Florida
November 14-16, 2002

The Impact of the IRS on Voluntary Tax Compliance: Preliminary Empirical Results

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Session: Recent Tax Research at the Internal Revenue Service

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ABSTRACT

For many years, the Internal Revenue Service (IRS) has believed that its activities promote better income tax compliance in the general population—both through deterrence and taxpayer service—but we had never been able to quantify this impact, or even verify that it exists. Two recent research studies at the IRS, however, have produced estimates of at least some of these effects, providing an empirical basis for choosing the best combination of major IRS activities to improve the voluntary filing and reporting compliance of taxpayers.

The first study was an econometric analysis of data aggregated by state and by year, which included variables for seven IRS activities in addition to a wide variety of tax policy, opportunity, and economic/demographic determinants of voluntary compliance. Five of the IRS activities were found to have a statistically significant impact on compliance, including audits and criminal investigations. The second study was more qualitative, eliciting the consensus judgment of senior IRS operations executives as to the relative magnitudes of the indirect effects of a much broader range of IRS activities. Together, the results of these studies will help IRS to allocate its resources so as to promote greater voluntary compliance. More research is planned to provide an even stronger empirical foundation for optimal resource allocation.

† NHQ Office of Research, Internal Revenue Service. The opinions and conclusions presented in this paper are those of the author, and do not necessarily reflect the positions of the Internal Revenue Service.

The Impact of the IRS on Voluntary Tax Compliance: Preliminary Empirical Results

Background

IRS has long believed that its activities have a positive impact on the voluntary compliance of the general population, but little has been produced—either within IRS or on the outside—that provides credible estimates of this phenomenon. Although most of the interest has centered on the deterrent effect of audits, in principle, all IRS activities—both enforcement and non-enforcement—contribute to higher voluntary compliance with the tax laws.

The Internal Revenue Code places three primary obligations on taxpayers: (1) to file timely returns; (2) to make accurate reports on those returns; and (3) to pay the required tax voluntarily and timely. Our latest projection of the gross tax gap (the amount of tax imposed by law that is not paid voluntarily and timely) was on the order of $275 billion for all income and employment taxes in 1998. This was over 15 percent of the tax due. Of that amount, we estimate that only $50 billion will eventually be collected through enforcement and other late payments. Clearly, it is crucial for IRS to do whatever it can to improve *voluntary* compliance.

Unfortunately, it is very difficult to determine the impact that any IRS activity has on voluntary compliance. That is partly because we cannot observe taxpayers' true tax liabilities (they must be estimated), and partly because so many factors presumably influence the extent to which they pay that tax voluntarily and timely—including many factors outside of IRS control (e.g., economic, demographic, and cultural factors, as well as features of the Tax Code itself). The challenge is to estimate the impact of each IRS activity on what we do observe—returns filed, tax reported, and tax paid—controlling for all other influences. Only then will we know the best mix of activities that will foster the greatest degree of voluntary compliance.

IRS enforcement programs identify and collect some of the tax gap directly from the taxpayers they contact. That *direct effect* is observed and known. What we need to estimate is the extent to which those contacts (and even non-enforcement contacts) indirectly influence the voluntary compliance of the general population—both the subsequent compliance of those contacted, and the compliance of those who were not contacted. The mechanism of this *indirect effect* could be deterrence (e.g., changing the public's perceptions of the certainty, severity, and celerity of getting caught in noncompliance), but it could also involve education (clearing up misunderstandings) or shaping attitudes (e.g., changing the public's perceptions of the extent to which the law is applied and enforced fairly).

Very few empirical studies have attempted to estimate the magnitude of these indirect effects. Most of those that have attempted to do so have focused almost exclusively on the impact of audits. (See, for example: Dubin, Graetz, and Wilde (1990); Beron, Tauchen, and Witte (1992); and Erard (1992).)

This paper provides an overview of two IRS studies of the indirect effects of a broader range of IRS activities. The first was an econometric analysis of individual income tax filing and reporting behavior, and is referred to in this paper as the "Indirect Effects Study." The second was a qualitative attempt to achieve some consensus among IRS executives as to the relative magnitudes of the indirect effects of an even broader range of taxes and IRS programs. This is referred to as the "Consensus Judgments study." After discussing these two studies in detail, the paper outlines how the results will help IRS make resource allocation decisions, and concludes by identifying opportunities for future research in this area.

Indirect Effects Study

The Indirect Effects Study (see IRS (1996) for a complete description) was an extension of Dubin, Graetz, and Wilde (1990). It was a statistical analysis that estimated the independent effects of as many potential determinants of voluntary compliance as possible. However, it focused only on the income tax filing and reporting compliance of individuals. Drawing on state-level aggregate data over a ten-year time period (Tax Years 1982-1991), the study analyzed the determinants of the Filing Rate (the percentage of required returns actually filed) and three measures of reporting compliance: income reported, offsets to income and to tax claimed, and net income reported (the difference between income and offsets)—each divided by Personal Income, which is estimated by state each year for the National Income and Product Accounts by the Bureau of Economic Analysis. These four compliance measures were the dependent variables in four equations, which were estimated separately, rather than simultaneously.

Measures of Compliance

The Filing Rate is the ratio of the number of required returns actually filed to the total number required to be filed, expressed as a percentage. The number of required returns actually filed was aggregated by state from IRS's Statistics of Income (SOI) samples of individual returns for each year. All three basic compliance measures (the number of returns, and the amount of income and offsets reported on those returns) correspond to returns required to be filed. This includes all returns having a positive tax liability or net losses. This definition excludes returns filed "unnecessarily," as well as those having no tax liability, but are filed to claim a refund of any withholding, or solely to claim the refundable Earned Income Tax Credit (EITC). The analysis excluded returns filed solely to claim the EITC since EITC noncompliance tends to increase filing, whereas usual filing noncompliance decreases filing.

The denominator—the number of returns required to be filed—is defined in the same way, and was estimated by state for each year from the micro data files of the Current Population Survey (CPS) compiled by the Bureau of the Census. The data were structured to reflect potential tax returns, instead of individuals, by adding the information about spouses in combined records, approximating jointly-filed tax returns. IRS (1996) contains detailed information about how filing requirements were estimated, as well as a summary of the CPS variables used.

The study avoided tax as a measure of reporting compliance because several of the potential determinants of voluntary compliance (e.g., marginal tax rates, filing thresholds, marital status, and allowable child exemptions) also have a direct role in the calculation of tax from gross income, making it difficult to separate their impact on compliance. The three reporting equations also had the advantage of providing insight into the major forms of noncompliance (underreporting income vs. overstating offsets to income or to tax), and they allowed consistency comparisons across equations (since income minus offsets equals net income). Moreover, since the tax rules changed during this period concerning the amount of income that must be reported and the amount that may be claimed as offsets, the study defined income and offsets in three different ways, and estimated separate equations for each definition. The most restrictive definition excluded all components whose reporting rules changed during the period, except for ones that could be controlled for by creating constant-law data or by including appropriate explanatory variables; this definition included on the order of 97 percent of total income, 30 to 60 percent of adjustments, 94 percent of itemized deductions, and 30 to 60 percent of credits. A less restrictive definition included income and offset components whose rules were changed only by the Tax Reform Act of 1986. The final definition included all income and offset items

regardless of rule changes. Although the results were similar for these three definitions, this paper deals only with the most restrictive definition.

Each of the three reporting measures (income reported, offsets claimed, and net income reported) were divided by Personal Income as a surrogate for the amount of income or offsets that should have been reported on returns (which would have given the ratios the character of compliance rates, as in the case of the measure used for filing compliance). Although Personal Income is not entirely independent of the amounts actually reported on tax returns, it is nonetheless an effective control for the amounts that should have been reported or claimed.[1]

Explanatory Variables

The study accounted for five categories of compliance determinants: tax policy, burden/opportunity, IRS enforcement, IRS responsiveness, and demographics/economics. The explanatory variables were mostly ratios, and are defined in Table 1. The variables of particular interest in this paper are the ones that represent various IRS activities. Each of these is either included in this type of analysis for the first time in this study (e.g., nonfiler notices, criminal investigations, refund offsets, and return preparation services), or is defined in an improved way relative to earlier studies. For example, the audit rate is based on the audits started in a given year, rather than audits closed (the normal definition), since information about the likelihood of an audit is likely to be conveyed more when an audit starts. Also, the role of third-party information documents is reflected by the *number* of such (IRP) documents matched, rather than by the number of taxpayer contacts arising from mismatches with tax return information.

Table 1. Definitions of Explanatory Variables

Variable	*Numerator*	*Denominator*
Tax Policy		
FThresholdPct	Filing threshold on required returns (CPS)	Personal Income (BEA)
Amnesty5	Dummy indicating whether state has had an amnesty in the last 5 years	
MargTaxRate@$15K	Marginal tax rate at $15K taxable income (weighted for married-single mix by state and year)	
MargTaxRate@$57K	Marginal tax rate at $57K taxable income (weighted for married-single mix by state and year)	
ChildExemptsPct	Value of exemptions for children (CPS)	Personal Income (BEA)
StateTaxPct	State income, property & sales tax revenues	Personal Income (BEA)
Burden /Opportunity		
AvgBurden	Total tax form burden on required returns (CPS)	Number of potential returns (CPS)
SoleProps	Number of sole proprietors (CPS)	Number of potential returns (CPS)
SolePropTFS	SoleProps x percentage of non-farm employment in Trade, Finance & Service sectors	
PaidPrep	No. of returns prepared by paid practitioner (SOI)	Number of returns filed (SOI)
IRS Enforcement		
AuditRate	No. of district audits started in fiscal year (AIMS)	Returns filed in prior tax year (SOI)
IRP_DocRate	No. of IRP documents matched against returns	Number of potential returns (CPS)
TDI_TotRate	Total number of TDI notices issued	Number of potential returns (CPS)
RefOffRate	Number of refunds offset for outstanding debts	Number of refunds
CID_ConvRate	Criminal convictions	Population, in millions (Census)
IRS Responsiveness		
TPS_CallsPC	Number of telephone calls handled by TPS	Population, in thousands (Census)
TPS_RetPrepPC	Number of returns prepared by TPS	Population, in thousands (Census)
Demographics / Economics		
Singles	Number of singles among potential returns (CPS)	Number of potential returns (CPS)
Under30	Number of potential returns under age 30 (CPS)	Number of potential returns (CPS)
Over64	Number of potential returns over age 64 (CPS)	Number of potential returns (CPS)
PCBirths	Number of births (HHS)	Population, in thousands (Census)
AvgPI	Personal Income (BEA)	Number of potential returns (CPS)
AvgPIgrowth	Annual growth in AvgPI	
ExclIncomePct	Income on potential returns that is not taxable	Personal Income (BEA)
UnemplRate	Unemployment rate (among those 16 and older)	

Abbreviations:

AIMS	Audit Information Management System (IRS Examination function)
BEA	Bureau of Economic Analysis, national accounts (Commerce Department)
CID	Criminal Investigation Division (IRS)
CPS	Current Population Survey (Census Bureau)
HHS	U.S. Department of Health & Human Services
IRP	Information Returns Program, document matching (IRS)
SOI	Statistics of Income (IRS)
TDI	Taxpayer Delinquency Investigation, nonfiler program (IRS Collection function)
TPS	Taxpayer Service function (IRS)

As in some previous studies of this type, the analysis accounted for the fact that audit rates are influenced by compliance at the same time that compliance is influenced by audit rates.

However, the key variable (instrument) used to allow separate estimation of the impact of audits on compliance seems to be superior to those used in earlier studies. The variable (the percentage of auditors' time that is directly devoted to examining returns) has the required characteristic that it affects the audit rate without being affected by compliance, and the results demonstrate all of the anticipated characteristics. (This phenomenon would also have affected a variable based on the number of contacts arising from the matching of third-party information documents, but in the absence of a corresponding instrumental variable that affects the number of those contacts without being affected by compliance, this study used the number of information documents matched instead.)

Because of the panel structure of the data (observations by state and by year), the analysis accounted for the possibility that there were state-specific or year-specific influences on the compliance measures that were not otherwise accounted for in the data. The standard assumption that these effects are fixed seemed to be the most appropriate in this context, so "dummy" variables were included for all but one of the states and for all but one of the years. (Since these effects are not generally of interest, these variables are not included in the results reported here.)

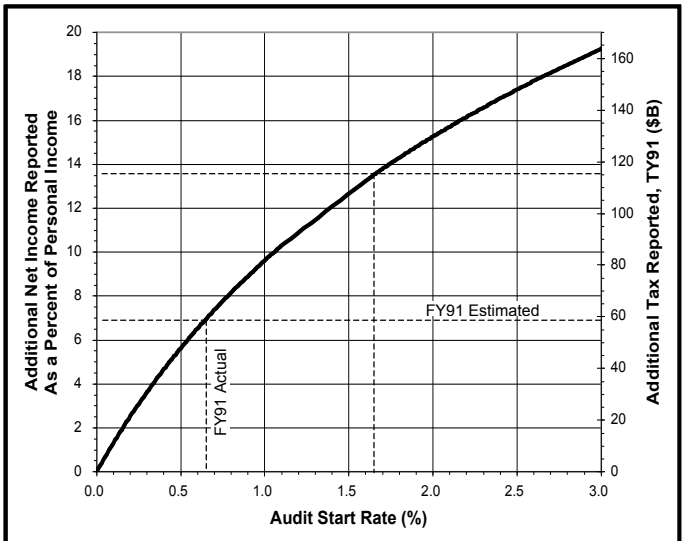
Findings

The results for all four equations are presented in Table 2. The table also indicates which variables are included in which equation, as well as the manner in which some explanatory variables were transformed (e.g., to logarithmic form to account for nonlinear relationships). Although all of the results are tabulated here (for the most restrictive definition of income and

offsets discussed earlier), the focus of this paper is on the IRS variables, which are highlighted in bold in Table 2.

Of the seven IRS activities included, five appear to have a positive impact on compliance that is statistically significant; only refund offsets and Taxpayer Service phone calls appear to have no measurable impact. However, third-party information documents appear to have an impact only on filing compliance.[2]

One of the most important findings of this analysis is that audits have a strong, positive impact on reporting compliance. That impact seems to be to increase the reporting of income and, to a lesser extent, offsets. The estimated impact of *AuditRate* on *NetIncomePct* is illustrated in Figure 1, which also expresses the magnitude of this indirect effect in terms of the additional dollars of tax induced as a function of *AuditRate* (using Tax Year 1991 as an example). As the details at the bottom of Figure 1 indicate, the average indirect effect of the audits started in 1991 was about 11.7 times as large as the average adjustment directly proposed by audits closed that year. Moreover, if the *AuditRate* had been one percentage point higher in 1991, the general population would have reported an additional $56 billion of additional tax



Tax Year 1991 Summary

Audit Start Rate:	0.65%
Average Direct Yield Per Examination:	$7,986
Estimated Average Indirect Revenue Per Examination:	$93,217
Ratio of Indirect Effect to Direct Effect:	11.7
Estimated Additional Tax Revenue at 0.65% Audit Start Rate:	$59.0 B
Estimated Additional Tax Revenue at 1.65% Audit Start Rate:	$115.2 B
Difference:	$56.2 B

Figure 1. The Indirect Effect of Audits

Table 2. Determinants of Voluntary Filing and Reporting Compliance*

Explanatory Variables	*FilingRate Equation*	*IncomePct Equation*	*OffsetsPct Equation*	*NetIncomePct Equation*
FilingRate		0.345586 *(7.64)*	0.137683 *(8.72)*	0.207853 *(5.57)*
FThresholdPct	-3.569438 *(-8.31)*	1.182627 *(4.04)*	0.857427 *(8.33)*	0.339758 *(1.40)*
Amnesty5	0.207335 *(0.67)*			
MargTaxRate@$15K		1.221297 *(1.17)*	-0.663976 *(-1.80)*	1.921272 *(2.22)*
MargTaxRate@$57K		-1.978458 *(-1.00)*	0.530545 *(0.76)*	-2.442911 *(-1.50)*
ChildExemptsPct		1.475395 *(1.86)*	0.457696 *(1.63)*	1.000080 *(1.52)*
StateTaxPct			0.145114 *(1.99)*	-0.101522 *(-0.59)*
Ln(AvgBurden)	-11.929189 *(-1.78)*	3.383676 *(0.55)*	-3.550471 *(-1.77)*	4.888900 *(0.96)*
SoleProps	1.953925 *(2.44)*	1.428688 *(1.84)*	0.274123 *(0.98)*	1.169128 *(1.77)*
SolePropTFS	-3.414896 *(-2.30)*	-2.925128 *(-2.02)*	-0.527449 *(-1.01)*	-2.399908 *(-1.95)*
PaidPrep		-0.166282 *(-4.81)*	-0.014858 *(-1.23)*	-0.153009 *(-5.36)*
Ln(pAuditRate+1)		16.158539 *(3.37)*	3.313904 *(2.00)*	13.892113 *(3.46)*
IRP_DocRate	1.565057 *(2.71)*			
Ln(IRP+1)		-1.121633 *(-0.23)*		0.675205 *(0.16)*
Ln(TDI+1)	3.850765 *(1.81)*			
Ln(RefOffRate+1)	-0.873704 *(-1.13)*			
Ln(CID+1)		0.932191 *(3.08)*	0.314909 *(2.96)*	0.593380 *(2.37)*
TPS_CallsPC		-0.003994 *(-1.34)*	-0.000742 *(-0.71)*	-0.003378 *(-1.36)*
TPS_RetPrepPC	0.146118 *(2.18)*	0.130914 *(2.07)*	-0.007756 *(-0.35)*	0.136453 *(2.61)*
Singles	-0.551763 *(-5.77)*	0.266954 *(1.46)*	0.072872 *(1.14)*	0.190927 *(1.26)*
Under30	0.186049 *(1.95)*	-0.098600 *(-1.10)*	-0.008269 *(-0.26)*	-0.091372 *(-1.23)*
Over64	0.242260 *(2.40)*	-0.075873 *(-0.76)*	-0.042744 *(-1.23)*	-0.022223 *(-0.27)*
PCBirths		0.991262 *(4.55)*	0.253864 *(3.58)*	0.734990 *(4.02)*
AvgPI	-0.920930 *(-4.32)*			
AvgPIgrowth	0.192294 *(3.68)*			
ExclIncomePct		-0.642278 *(-1.60)*		-0.917979 *(-2.77)*
UnemplRate	-0.200099 *(-1.50)*	-0.370384 *(-2.97)*	0.078118 *(1.84)*	-0.428625 *(-4.14)*
Adj. R-Squared	0.627007	0.757573	0.919223	0.801260

* 2SLSDV estimates (just LSDV for the FilingRate equation) from state-level panel data for 1982-1991; t-statistics in parentheses; variables in **bold** are the primary tax administration parameters of interest.

voluntarily. Similarly, these results suggest that if the *AuditRate* had remained constant at its 1982 level of 1.62 percent, the cumulative impact through 1991 would have been that an additional $257 billion of tax would have been reported voluntarily (see IRS (1996) for the detailed calculations). This is strong evidence that audits are a potent tool to foster voluntary compliance. In fact, since the effect is significantly larger than the direct revenue effect of the audits, these results suggest that the allocation of audit resources (which is currently based almost solely on their direct revenue potential) ought to be modified to reflect this indirect effect on voluntary compliance.[3]

Table 3 illustrates the magnitude of the indirect effect for each of the five IRS activities found to have a significant impact on voluntary compliance. Panel A tabulates estimates of their marginal indirect revenue-to-cost ratio at the actual level of activity in 1991. Although all are very cost-effective, the most automated (and therefore cheapest) activities obviously have the highest ratios. Panel B indicates how much each activity would have to be increased in order to induce an additional $10 billion of tax each. Because of its high marginal revenue-to-cost ratio, the TDI nonfiler program would be the cheapest way to induce $10 billion, but it would have to be expanded to over five times its 1991 size, which is clearly not feasible (most nonfiler leads are already pursued). To compare the activities according to a common standard of feasibility, Panel C shows what would result if each activity were expanded nationally to the highest level of effort actually recorded in this 10-year period within any state. The greatest revenue is induced from audits, since the audit rate is constrained only by resources. In contrast, although TDI notices are the most cost-effective at the margin, they would induce the least amount of additional revenue since opportunities to identify additional nonfilers are extremely limited.

Table 3. Indirect Revenue-to-Cost Comparisons for Five IRS Activities, 1991 [a]

A. Actual Level of Activity				
IRS Activity	*Rate*	*Number of Units*	*Cost [b] Per Unit ($)*	*Marginal Indirect Revenue/Cost Ratio*
Audit start rate (%)	0.647	632,819	1,298	54.6
TPS- Returns prepared/thousand	3.33	840,126	13.74	395.9
IRP documents/potential return	7.56	978,512,924	0.031	668.0
TDI notices/potential return (%)	3.43	4,436,942	0.305	3,766.1
CID convictions/million	10.51	2,650	103,064	16.3
B. Rate Required to Induce an Additional $10 Billion of Tax				
IRS Activity	*Rate*	*Increase in Units*	*% Increase*	*Cost ($M)*
Audit start rate (%)	0.797	147,469	23.3%	191.4
TPS- Returns prepared/thousand	7.29	998,414	118.8%	13.7
IRP documents/potential return	11.30	483,860,602	49.4%	15.0
TDI notices/potential return (%)	19.25	20,469,781	461.3%	6.2
CID convictions/million	88.41	19,640	741.1%	2,024.2
C. Nationwide Rate Increased to Highest Rate Observed Within Any State				
IRS Activity	*Rate*	*Increase in Units*	*Additional Indirect Tax Revenue ($M)*	*Marginal Indirect Revenue/Cost Ratio*
Audit start rate (%)	3.510	2,802,462	115,072	19.9
TPS- Returns prepared/thousand	23.02	4,963,934	27,001	395.9
IRP documents/potential return	10.51	381,705,783	7,889	668.0
TDI notices/potential return (%)	9.29	7,582,359	5,545	1,621.4
CID convictions/million	51.52	10,340	7,405	3.6

[a] Revenues exclude amounts collected directly from the taxpayers contacted; the appropriate marginal revenue-to-cost comparison includes both the direct and the indirect effects. Audits, returns prepared by TPS, and CID convictions typically result in direct revenue at no additional cost, while IRP matching and TDI notices typically require additional contact with the taxpayers (at additional cost) to generate direct enforcement revenue (in fact, some level of such direct enforcement contacts are probably necessary to ensure that the matching and notices are credible deterrents).

[b] Source: IRS Compliance Planning & Finance: Budget & Resource Allocation Group; includes all appropriate overhead, support, and follow-on costs.

These results emphasize that using estimates of indirect effects to guide IRS resource allocations must take into account the practical constraints imposed on the expansion of most IRS activities. However, they also illustrate that the potential benefits for resource allocation and for revenue generation are immense.

Consensus Judgments Study

The challenge, of course, is to estimate the indirect effects of more IRS activities for more types of tax. Only then would we be able to allocate resources to most potential activities on the same basis—taking into account both the direct effect and the indirect effect.

Pending the identification of suitable data and methodologies for estimating the indirect effect of other activities (and even for components of some of the activities included above, such as the audit rate among different segments of the population), we gathered some qualitative data by developing a consensus among the senior IRS operations executives as to the relative (rather than absolute) magnitudes of the indirect revenue-to-cost ratios of a wide range of enforcement and non-enforcement programs. Through separate interviews followed by two facilitated workshops with the executives, we were able to help them achieve a reasonable consensus judgment, which is summarized in Table 4.

The Consensus Judgments results, though derived completely independently from the Indirect Effects study, are consistent with the latter in several important ways: (a) automated activities have the greatest indirect yield-to-cost; (b) audits are among the activities with the largest indirect effect relative to their cost; and (c) at least some IRS activities that do not produce direct enforcement revenue—both enforcement activities (e.g., Criminal Investigation) and non-enforcement activities (e.g. walk-ins)—seem to have significant indirect effects on voluntary compliance. Moreover, Examinations and Criminal Investigations among individuals have roughly the same relationship to each other in the two studies. That is, Examinations have 2-3 times the impact of Criminal Investigation.

Applications

As we pursue improved estimates, we plan to incorporate the results of both of these studies into a model now being developed as a guide for resource allocation decision-making Servicewide and within the separate operating divisions. We plan to calibrate the relative results of the Consensus Judgments study using the specific results of the Indirect Effects study, and then combine these estimates of the indirect effects with separate estimates of the direct effects

Table 4. Consensus Judgments of Indirect Effects:
Relative Magnitudes† of Indirect Revenue-to-Cost Ratios, Sorted by Relative Magnitude (Weight)

Activity	Operating Division*	Magnitude Relative to Other Activities in Same OD (A)	OD Weight (B)	Magnitude Relative to All Other Activities (A x B)
Telephone-based collection contacts (ACS)	W&I	100	100	100.0
IRP-Underreporter (document matching)	W&I	96	100	96.0
Collection Field Function	SB/SE	100	88	88.0
Correspondence Audits	W&I	84	100	84.0
Collection Field Function	W&I	83	100	83.0
Telephone-based collection contacts (ACS)	SB/SE	94	88	82.7
Examinations	LMSB	100	78	78.0
Examinations	W&I	76	100	76.0
Examinations	SB/SE	86	88	75.7
Adjustments/ Math Error	W&I	71	100	71.0
Criminal Investigation	SB/SE	73	88	64.2
Toll-Free telephone assistance	W&I	54	100	54.0
Nonfiler	SB/SE	60	88	52.8
Employee Plans / Exempt Organizations	TE/GE	100	47	47.0
Collection Field Function	LMSB	57	78	44.5
Taxpayer Education	SB/SE	48	88	42.2
Criminal Investigation	W&I	38	100	38.0
Examinations	TE/GE	75	47	35.3
Toll-Free telephone assistance	SB/SE	38	88	33.4
Taxpayer Education	TE/GE	69	47	32.4
Nonfiler	W&I	32	100	32.0
Criminal Investigation	LMSB	41	78	32.0
Walk-In taxpayer assistance	SB/SE	31	88	27.3
Taxpayer Education	W&I	24	100	24.0
Criminal Investigation	TE/GE	41	47	19.3
Walk-In taxpayer assistance	W&I	19	100	19.0
IRP-Underreporter (document matching)	SB/SE	21	88	18.5
Employee Plans / Exempt Organizations	LMSB	23	78	17.9
Collection Field Function	TE/GE	30	47	14.1
Service Center Collection	W&I	14	100	14.0
Correspondence Audits	SB/SE	14	88	12.3
Toll-Free telephone assistance	TE/GE	22	47	10.3
Telephone-based collection contacts (ACS)	LMSB	10	78	7.8
Service Center Collection	SB/SE	8	88	7.0
Nonfiler	TE/GE	14	47	6.6
Adjustments/ Math Error	SB/SE	7	88	6.2
Employee Plans / Exempt Organizations	SB/SE	7	88	6.2
Employee Plans / Exempt Organizations	W&I	5	100	5.0
Telephone-based collection contacts (ACS)	TE/GE	7	47	3.3

† The executives developed a consensus about the relative magnitudes (weights, on a scale from 0 to 100) within each of the four operating divisions separately, and then developed a consensus about the impact of each division relative to the others (also on a scale from 0 to 100). The net effect is the product of these two weights, and represents the magnitude of the indirect revenue-to-cost ratio for a given activity relative to all other activities Servicewide.

* W&I: Wage and Investment taxpayers; SB/SE: Small Business and Self-Employed taxpayers;
LMSB: Large- and Mid-Sized Businesses; TE/GE: Tax-Exempt and Government Entities

(if any) in the model. The combined estimates will be a much better guide for cross-functional resource allocation than the historical practice of using the direct effects almost exclusively. They will also be helpful for evaluating alternative budget proposals.

Future Research

Research into the magnitude of the indirect effect of IRS actions on—and the other determinants of—the voluntary compliance of taxpayers is still in its infancy. The IRS is looking into the feasibility of updating the Indirect Effects study to more recent years and expanding it to other types of tax and additional IRS activities. Given the very different nature of the major taxpayer segments and of IRS interactions with them, estimating the indirect effects will likely require several different approaches. As IRS develops new types of enforcement and assistance contacts with taxpayers, we will need to estimate how they influence compliance, as well. It is possible that the magnitude of that influence will be pivotal in deciding whether it makes sense to deploy a new approach at all.

Notes

[1] This is because Personal Income is probably the most comprehensive individual income variable available annually at the state level, and because it is derived substantially independent of tax return data. (Only non-farm proprietor income and royalty income are derived in part from individual income tax returns.) However, to test for the possibility that Personal Income is too closely tied to the total amount of income reported on tax returns, I conducted a parallel analysis in which the amounts reported were divided by the number of returns required to be filed (the same denominator in the filing compliance measure), making the resulting ratios the the average amounts reported per required return. This parallel analysis yielded virtually identical results, mitigating any potential concern about the adequacy of using Personal Income.

[2] There are two probable reasons for this counter-intuitive finding. First, by the time of the ten-year period studied in this analysis (1982-1991), most of the improvements in voluntary reporting compliance generated by the Information Returns Program (IRP) had already been realized. Although it was not until the mid-1980's that IRS actually expanded its matching

program to encompass virtually all third-party documents received, most taxpayers apparently assumed that the matching was always in place, judging by earlier compliance statistics. Therefore, there was little more compliance improvement to be realized by 1982. The second reason for this finding may be that one of the effects of the document matching program is to make it clearer to taxpayers how much IRS knows about them. The more people are aware of what information is given to IRS and what is not, the more they may be tempted to hide some of what is not reported. In other words, they might take the attitude, "What the IRS doesn't know won't hurt them!" The fact that the estimated coefficients are very insignificant suggests that this kind of response cannot be very strong or widespread, which may be because of the strong deterrent effect of audits.

[3] Understanding the counter-intuitive result that the audit rate also has a positive effect on the offsets claimed requires making two observations. First, the estimated impact of *Ln(pAuditRate+1)* on *OffsetsPct* is much less than its impact on *IncomePct*. Second, the estimated impact of *Ln(pAuditRate+1)* on *NetIncomePct* (a coefficient of about 13.89) is very significant, and is the logical combination of the separately-estimated coefficients in the *IncomePct* and *OffsetsPct* equations (16.16 and 3.31, respectively—their difference being 12.85). All the results are significant and internally consistent, but why the unanticipated sign on the *AuditRate* parameter in the *OffsetsPct* equation? The logical explanation seems to lie in the fact that the claiming of offsets is not a simple matter. For example, some offsets, such as medical expenses and miscellaneous deductions, are specifically limited by the amount of Adjusted Gross Income reported on the return; as more income is reported, we should expect more to be claimed for these types of offsets. Likewise, most credits are not refundable; they are limited by the amount of tax due. If more income (and, therefore, more tax) is reported, we should expect more to be claimed as credits. It may also be true that if taxpayers feel compelled to report more income (e.g., in response to an increased *AuditRate*), they may seek to find additional offsets to reduce the bite somewhat. This may be especially true if (as one might expect) taxpayers perceive that they may become audit targets if the offsets they claim seem out of line to the IRS with respect to their income; so, if they do not report all of their income, they may consciously avoid claiming all of their potential offsets.

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