USING A SAMPLE OF FEDERAL ESTATE TAX RETURNS TO EXAMINE THE EFFECTS OF AUDIT REVALUATION ON PRE-AUDIT ESTIMATES

Martha Britton Eller and Barry W. Johnson, Internal Revenue Service
Martha Britton Eller, P. O. Box 2608, Washington DC 20002

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Introduction

Federal estate tax returns are filed for America's wealthiest decedents, and these returns contain detailed information on decedents' assets, liabilities and personal characteristics. Data from Federal estate tax returns provide a unique opportunity to study the demographic and portfolio characteristics of America's wealthiest individuals. In addition, these data provide valuable insight into the transfer of wealth between and among generations. The Statistics of Income Division (SOI) of IRS collects and publishes data from annual samples of Federal estate tax returns. During the collection process, data are subjected to extensive math tests and are edited to remove obvious errors. Similar to other studies conducted at SOI, data for the annual Estate Tax Study are collected prior to any systematic audit of returns, since the audit process can take several years to complete. Published pre-audit data are, therefore, likely to contain an understandable bias resulting from taxpayers' desire to avoid tax (Harriss, 1994), as well as taxpayers' misunderstanding of estate tax law. Because estate tax data are an important research tool in both the public and private sectors, the merits and deficiencies of such data warrant careful analysis.

After IRS processes Federal estate tax returns for revenue purposes and after SOI extracts data for a sample of these returns, IRS service center tax examiners, those with expertise in estate tax law, review the returns to determine whether they should be examined by estate tax attorneys in IRS district offices. Finally, estate tax attorneys in the district offices survey the candidates for audit and select a subsample of returns for complete audit processing. Federal law in effect for returns filed in 1992, the year examined in this paper, allowed the IRS up to three years after a return is filed or after the date it was due, whichever date is later, to complete the audit process. However, this statute of limitations may be suspended in special cases.

The IRS grants estate tax attorneys, or auditors, wide discretion in examining records and in interviewing fiduciaries, survivors, heirs and others who may be acquainted with decedents' affairs. If an auditor changes values reported on the tax return, representatives of the estate can appeal to the IRS Appeals Office, the U.S. Tax Court, the United States Claims Court or U.S. District Court.

In order to understand the effects of audit revaluation on pre-audit estimates, SOI undertook a study of post-audit estate tax returns. The 1992 Estate Post-Audit Study, initiated in 1996, is a sample of 4,433 returns filed in 1992. Returns were previously selected for SOI's annual Estate Tax Study. Filing year 1992 was selected as the focus year for SOI's post-audit study in order to allow time for returns to complete the entire audit process. For filing year 1992, a decedent's estate was required to file a Federal estate tax return if the value of gross assets, at death, exceeded $600,000. Federal estate tax returns were filed for 59,178 wealthy estate tax decedents during that year.

This paper will discuss the sample design and development of final weights for the 1992 Estate Post-Audit Study. Estimates of audit changes in tax assessments and asset values will be presented.

Estate Tax Study Sample Design

The sample for SOI's Estate Tax Study, the sample frame for the 1992 Estate Post-Audit Study, is a stratified random sample, executed over a 3-year period, with three stratifying variables. In every year since 1982, the stratifying variables have been year of death (focus year, non-focus year), total gross estate and age at death. Gross estate is divided into 5 categories: $600,000 < $1 million, $1 million < $2.5 million, $2.5 million < $5 million, $5 million < $10 million, and $10 million or more. Age at death is divided into age < 40, 40 < 50, 50 < 65, 65 < 75, and 75 and older. Sample rates vary from 3 percent to 100 percent, with over half the strata selected with certainty. Returns are selected for the sample as they are processed for IRS revenue purposes.

Weights for the Estate Tax Study sample are calculated in several steps. First, population and sample counts are adjusted for returns that were selected into the sample but, upon close examination, do not satisfy the parameters of the study. This occurs, for example, when an incomplete return is filed because the estate was not able to compile all the necessary documentation by the filing deadline. In such cases, a second and final return is filed by the estate once the required information is obtained. Second, counts are adjusted for the small number of returns that were unavailable for SOI processing because they were under review by other areas of IRS. Third, adjustments are made for misclassified returns, which typically arise from taxpayer or IRS processing errors that cause returns to be assigned to an incorrect sampling strata. Finally, data are poststratified using auxiliary data from the IRS Master File. These auxiliary data have been examined and corrected in an attempt to adjust for large returns not originally available for sampling due to data transcription errors.

1992 Estate Post-Audit Study Sample Design

The sample frame for the 1992 Estate Post-Audit Study consisted of returns originally selected for SOI's study of Federal estate tax returns filed during calendar year 1992. The 1992 Estate Tax Study sample consisted of 7,559 returns out of a population of 59,178. The 1992 Estate Post-Audit Study sample was a stratified random sample of these 7,559 returns. The sample was stratified by a variable that predicted a return's likelihood of being audited, an "audit likelihood indicator." Because the process of determining whether or not a return will be audited is highly subjective, development of this post-audit project included meeting with IRS auditors in several regions of the country to discuss the criteria they use in selecting audit cases. Based on these interviews, SOI developed the sample selection critera listed in Figure 1 below. In addition to these criteria, returns for married decedents are usually not audited, since the unlimited marital deduction for bequests to a decedent's surviving spouse typically offsets any increase in the taxable estate that might result from audit revaluation. With this information, an audit likelihood indicator that served as the sample stratifier was developed. Returns with a high likelihood of audit, those which met one or more of the criteria in Figure 1 and were filed for non-married decedents, were selected into the sample with certainty. A random sample of the remaining returns was selected at a sampling rate of about 0.4. Overall, the final sample included 4,433 returns, 2,433 of which were selected because they conformed to the marital status (non-married) criteria and the criteria in Figure 1; the remaining 2,000 were selected randomly.

While filing year 1992 was chosen as the focus year for the Estate Post-Audit Study, a significant portion of the sample, 229 returns, was still unavailable to SOI at the study's close. After SOI economists tested and cleaned the data, as well as performed some limited imputation for item non-response, weights for non-missing returns were developed in two stages.

Figure 1: SOI Sample Selection Criteria

(1) fees (including executors' commissions, and attorneys' fees) > 5 percent of total gross estate
(2) adjusted taxable gifts > 5 percent of total gross estate
(3) other non-corporate business assets > 5 percent of total gross estate
(4) other stock > 30 percent of total gross estate
(5) credit for tax on prior transfers > 0
(6) art > 0
(7) decedent had a power of appointment over trust property
(8) closely-held stock > 5 percent of total gross estate
(9) real estate > 40 percent of total gross estate
(10) lifetime transfers > 30 percent of total gross estate
(11) total gross estate > $5,000,000

First, an initial base weight was calculated for non-missing returns, taking into account both the probability of selection in the underlying sample of estate tax returns and the probability of selection in the post-audit subsample. In the initial post-audit sample, there were a small number of cases for which only a limited amount of data on the magnitude of audit revaluations, but no underlying detail, existed. Since researchers are most interested in studying this detail, incomplete cases were eliminated from the final data set. Therefore, in the second stage of weight development, poststratification was used to adjust the weights of the remaining cases. Adjustment cells were constructed based on the size of the change in taxable estate. In each adjustment cell, a ratio adjustment was computed that utilized data available from both complete and incomplete cases. Using these ratios to adjust base weights of the cases for which complete data were available, final weights were then constructed. The final data file included complete records for 4,182 returns, of which 1,357 had been audited. A careful analysis of the 229 missing returns was conducted using the IRS Integrated Data Retrieval System (IDRS). It was possible to determine whether each of the missing returns had been audited and, if so, the outcome of audit. The distribution of missing returns on these key characteristics was almost identical to that of the non-missing returns, so no additional "non-response" adjustment was necessary.

Revaluation at a Glance

Raw audit data for the 1992 Estate Post-Audit Study were collected from Forms 1273 and 3228 prepared by IRS auditors during the formal audit process. These forms, in most instances, capture both pre- and post-audit estate tax return values. Revaluation data were extracted from the forms by IRS personnel in the Ogden Service Center. Therefore, the revaluation data described in this paper are estimates of the audited population based on actual IRS audit results.

IRS tax examiners audited an estimated 11,338 Federal estate tax returns filed in 1992, representing 19.2 percent of the 59,178 returns filed during the year. Figure 2 shows that, as the size of gross estate increases, the rate of audit increases. Returns filed with gross estates less than $1.0 million were audited at a rate of 11.1 percent. However, almost 50.0 percent of returns filed with gross estates over $5.0 million were audited, even though the audited returns in that category represented only 9.7 percent of the entire audited population.

Figure 2: Number and Percentage of Returns Audited, by Size of Total Gross Estate

Size of Total Gross Estate	Returns Filed	Returns Audited		Percent Audited
Under $1 million	31,376	(30.6)	3,475	11.1%
$1 million under $5 Million	25,542	(59.6)	6,760	26.5%
$5 million or more	2,260	(9.7)	1,098	48.6%
Total	**59,178**	**(100.0)**	**11,338**	**19.2%**

Combined total gross estate for 1992, the accumulated wealth of estate tax decedents whose returns were filed during 1992, exceeded $100.0 billion, and 34.9 percent of that value was subject to audit by tax examiners. Total gross estate increased $1.2 billion, from $34.9 billion to $36.1 billion. The post-audit value of 1992 combined gross estate was $101.2 billion (see Figure 3).

Total allowable deductions, available against gross estate, reduce a decedent's taxable estate and include deductions for marital transfers, charitable contributions, administrative expenses, indebtedness, taxes and casualty loss. The original, pre-audit value of total allowable deductions for 1992 exceeded $43.5 billion, and 27.3 percent of that value, or $11.9 billion, was subject to audit. An unexpected result, total allowable deductions increased from $11.9 billion to $12.0 billion, an aggregate net difference of $117.0 million. Therefore, the post-audit value of 1992 total allowable deductions reached $43.6 billion.

The original net estate tax liability for filing year 1992 was an estimated $10.2 billion. Almost two-thirds, 63.2 percent, of the original liability, or $6.4 billion, was subject to audit. Overall, net estate tax liability increased an estimated $559.8 million as a result of audit, a change that represented 5.5 percent of the original liability reported in 1992. Of audited cases, 60.0 percent were closed with additional net estate tax owed, 19.0 percent were closed with no change in tax assessment, and 21.0 percent were closed with a reduction in the original net estate tax liability. The value of additional estate tax owed was $676.6 million, while the reduction in estate tax liability totaled $116.8 million. Post-audit estate tax revenue for filing year 1992, the sum of pre-audit estate tax revenue and revenue derived from audit, reached $10.8 billion.

Figure 3: Change in Value of Total Gross Estate, Allowable Deductions and Net Tax Due to Audit

Numbers are in millions of dollars.

	Total gross estate	Allowable Deductions	Net estate tax
Pre-audit value	100,017	43,530	10,199
Value subject to audit	34,880	11,905	6,443
Percent subject to audit	34.9%	27.3%	63.2%
Audit revaluation amount	1,222	117	560
Percent change due to audit	1.2%	0.2%	5.5%
Post-audit value	101,239	43,647	10,759

Demographic Data for the Audited Population

Revaluation Data by Sex of Decedent

The filing population in 1992 included more male decedents than female decedents, with 32,843 males, or 55.5 percent of the total population, and 26,335 females, or 44.5 percent of the total population (see Figure 4). However, females were more prevalent than males in the audited population. Of the 11,338 decedents in the audited population, 52.9 percent, or

Figure 4: Audited Estate Tax Returns, Change in Assessment as a Percentage of the Number of Returns Audited, by Sex

[Money amounts are in thousands dollars]

	Males		Females		Total	
	Number	Percent	Number	Percent	Number	Percent
Filing population	32,843	55.5%	26,335	44.5%	59,178	100%
Audited population	5,340	47.1%	5,998	52.9%	11,338	100%
Additional tax assessed	2,951	55.3%	3,856	64.3%	6,807	60.1%
Tax reduction assessed	1,289	24.1%	1,095	18.3%	2,384	21.0%
No tax assessment change	1,100	20.6%	1,047	17.4%	2,147	18.9%

5,998 decedents, were female and 47.1 percent, or 5,340 decedents, were male. This last finding may be explained by the prevalence of widowed decedents, most often female, in the audited population. That is, 61.2 percent of the audited population were widowed decedents, and, more than two-thirds, 68.7 percent, of widowed decedents were female. Again, the overriding presence of widowed decedents, and therefore female decedents, in the audited population is a result of the audit selection process, which favors non-married decedents.

The estates of females in the audited population owed an additional $292.9 million in combined net estate tax, or 52.3 percent of the total change in estate tax liability for the audited population, while the estates of male decedents owed an additional $266.8 million in combined net estate tax, 47.7 percent of the total change in estate tax liability. This difference in the change in tax liability by sex reflects the original difference in pre-audit liability by sex. For, in the original 1992 estate tax filing population, female decedents owed 52.1 percent of the combined net estate tax liability, or $5.3 billion, while male decedents owed 47.9 percent of the combined liability, or $4.9 billion. Again, the prevalence of widowed decedents, mostly female, in the audited population may explain the larger share of additional estate tax liability assumed by female decedents' estates.

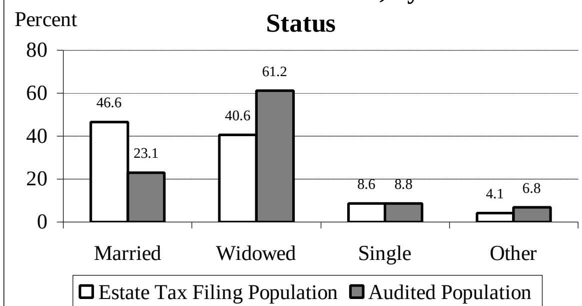
In terms of the type of change in tax assessment, Figure 4 shows that the estates of males and females exhibited similar tendencies. For both males and females, returns closed with additional estate tax owed were dominant, with 55.3 percent of estates for male decedents owing additional tax and 64.3 percent of estates for female decedents owing additional tax. Overpayment of the original tax was more prevalent than no change in tax assessment for both sexes. However, compared to the estates of female decedents, the estates of male decedents were more likely to have overpaid. While estates of males overpaid in 24.1 percent of cases and had no change in tax liability in 20.6 percent of cases, estates of females overpaid in only 18.3 percent of cases and had no change in tax liability in 17.4 percent of cases.

Revaluation Data by Marital Status of Decedent

Married decedents comprised the largest percentage of decedents in the 1992 estate tax filing population, with 46.6 percent of all decedents married at death (see Figure 5). The second largest marital status category was widowed decedents, with 40.6 percent of all decedents widowed at death. The remaining decedents were single at death, 8.6 percent of all decedents, or were legally separated, divorced or marital status unknown, 4.1 percent of all decedents. The audited population looked quite different, with a larger percentage of widowed decedents and a smaller percentage of married decedents than in the filing population. Widowed decedents comprised 61.2 percent of the audited population, while married decedents comprised only 23.1 percent of the audited population. The remaining decedents in the audited population were divided almost equally between the last marital status categories, single and legally separated, divorced or unknown (the "Other" category), 8.8 percent and 6.8 percent, respectively.

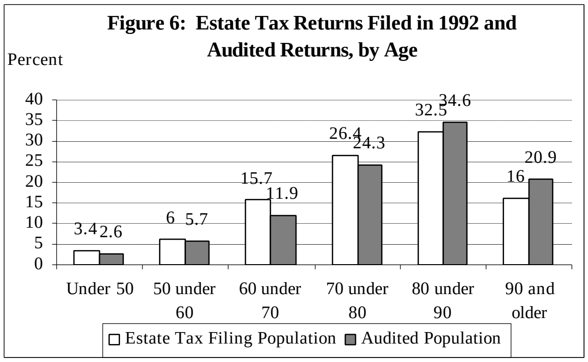
The estates of married decedents and the estates of widowed decedents saw similar increases in net estate tax as a result of audit. Widowed decedents' estates assumed 42.5 percent of the total increase in net estate tax, or $237.8 million, while married decedents' estates assumed 41.2 percent of the total increase, or $230.9 million. Estates of decedents in the "Other" category experienced a $59.3 million increase in estate tax liability, and the estates of single decedents experienced a $31.8 million increase in estate tax liability.

Figure 5: Estate Tax Returns Filed in 1992 and Audited Returns, by Marital Status



Revaluation Data by Age of Decedent

In terms of decedent age, estate tax examiners selected audit cases that fairly represented the 1992 estate tax filing population, since the distribution of age in the audited population was quite similar to the distribution of age in the 1992 filing population as a whole (see Figure 6). The largest group of decedents in the 1992 filing population were "80 under 90," 32.5 percent of the filing population, while the second and third largest groups were "70 under 80" and "90 and older," 26.4 percent and 16.0 percent of the filing population, respectively. In the audited population, those estates selected for audit, the largest group of decedents were "80 under 90," 34.6 percent of the audited population, while the second and third largest groups were, as above, "70 under 80" and "90 and older," 24.3 percent and 20.9 percent of the audited population, respectively.



Revaluation of Assets

In the course of the annual Estate Tax Study conducted by SOI, detailed asset data are extracted from each Federal estate tax return included in the study. Assets, the building blocks of total gross estate, are assigned to one of several asset categories, which allows SOI to produce estimates of total asset holdings, by asset type, for the filing population. The Estate Post-Audit Study utilized these same asset categories, permitting comparisons between the 1992 filing population, as reported on the original, 1992 estate tax return, and the audited population, as reported on Forms 1273 and 3228, audit forms completed by estate tax examiners. Asset data available from the 1992 Estate Post-Audit Study include original (pre-audit) and corrected (post-audit) values for individual assets that were revalued during audit.

Audited returns most frequently included cash assets, present on 99.0 percent of all audited returns, followed by other corporate stock, primarily publicly traded stock, present on 78.3 percent of audited returns (see Figure 7, Column 1). However, looking at the relative frequency of audit revaluation among audited returns with a particular asset, the findings are quite different (see Figure 7, Column 3). Real estate assets, excluding the personal residence, were most frequently revalued among those audited returns that included real estate holdings; 38.0 percent of audited returns with real estate included revalued real estate assets. The stock of closely held corporations was second in the relative frequency of changes. Of audited returns with closely held stock, 37.0 percent included revalued closely held stock. Cash assets followed closely held stock, with 34.0 percent of audited returns that included cash encountering revaluation of cash assets.

Again, if audit results for asset holdings are examined in conjunction with asset-holding data from SOI's annual Estate Tax Study for filing year 1992, it is possible to examine the degree to which revaluation affects pre-audit estimates of assets. Comparing the original value of revalued assets with the total, pre-audit value for assets in a particular category among all audited returns reveals that 41.3 percent of depletable and intangible assets, such as copyrights, were examined for revaluation purposes, making these assets most subject to audit (see Figure 7, Column 4). Ignoring unclassified mutual funds, an asset category that includes funds that could not be classified by their component assets, second among asset values subject to audit was the total value of real estate, with 34.3 percent of real estate in the audited population examined and revalued. Closely held stock holdings were third in this ranking, with a little less than 27.0 percent of the value of closely held stock examined and revalued. Farm assets as a percentage of the total value of audited returns with farm assets exceeded 100.0 percent. This finding suggests that the original value of revalued farm assets, as derived from the Estate Post-Audit Study, is larger than the total value of farm assets in the audited population, derived from the Estate Tax Study. The difference between studies points out the difficulty in identifying farm assets that are used to run a farm or agricultural business. Because of this difficulty, farm assets are excluded from the following analysis.

Asset revaluation that occurred during the audit process may be examined in a number of different ways. First, the net aggregate change in asset value may be examined (see Figure 7, Column 5). Closely held stock had the largest net aggregate change in asset value, a $319.7 million increase. The net aggregate revaluation of mortgages, notes and claims, the second largest revaluation, totaled $268.9 million. The third largest increase was in other real estate, a net increase of $140.1 million.

The average net change per revalued return is another variable to use in analyzing asset revaluation (see Figure 7, Column 6). The largest average net change per revalued return was almost $500,800, the average change for mortgages, notes and claims. The average change for closely held stock was the second largest change, with the value of that stock increasing, after audit, more than $387,000 per revalued return. Ignoring the change per revalued return for farm assets, third in this ranking was depletable and intangible assets, with an average change per revalued return of $193,600.

The revaluation of assets may also be examined in relation to the original value of revalued assets (see Figure 7, Column 7). The post-audit increase in the value of mortgages, notes and claims was the largest increase as a percentage of that revalued asset, 170.2 percent. Life insurance on the life of the decedent was second in this ranking. The net increase in the value of life insurance was 116.9 percent of the value as originally filed. Depletable and intangible assets sustained the third largest increase, an increase equivalent to 49.0 percent of revalued depletables/intangibles as originally filed. Nine of the 15 asset categories increased by 10 percent or more, while three categories increased between 5 and 10 percent and only 2 categories increased between 0 and 5 percent. Only one asset category, unclassified mutual funds, sustained a net decrease, -3.6 percent.

Finally, it is useful to examine asset revaluation in relation to the original value reported in a particular asset category across all audited returns (see Figure 7, Column 8). With some exceptions, the revaluation of assets represented between less than 1.0 percent and 4.0 percent of the original value on all audited returns. Once again ignoring farm assets, the largest increase in asset value, as a percent of total asset value, was in mortgages, notes and claims, 28.9 percent, followed by depletable and intangible assets, a 20.3 percent increase. Closely held stock was next in this ranking, although it saw a much smaller increase than depletables/intangibles; closely held stock increased 7.7 percent of its original value on audited returns.

Comparing Columns 7 and 8 reveals that, while revalued assets were often changed substantially during audit (Figure 7, Column 7), the changes were, in most cases, still a small portion of the original asset value for all audited returns (Figure 7,Column 8). For example, look at other non-corporate business assets. While the value of the revalued asset increased 44.5 percent, this change represented only 7.0 percent of the total value of other non-corporate business assets on all audited returns. The same is true for other assets, although in varying degrees: limited partnerships, for which there was a 33.0 percent increase in the revalued asset compared to a 3.8 percent increase in the total value; cash (26.9 percent compared to 2.1 percent); closely held stock (28.8 compared to 7.7 percent); and bond holdings (17.2 percent compared to 0.5 percent). Of course, there are a couple of exceptions. The increase in depletable and intangible assets, for example, was large, both in relation to the original value of the revalued asset, 49.0 percent, and in relation to the total value of depletables/intangibles, 20.3 percent. Mortgages, notes and claims are similar, 170.2 percent compared to 28.9 percent. Overall, however, the changes that estate tax attorneys made to revalued assets during audit did not introduce large, overall increases to total asset holdings, regardless of the magnitude of change in the revalued asset.

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Figure 7: Audit Revaluations For Audited Returns Filed in 1992, by Asset Type

Asset Type	All audited returns		Returns with change	Value audited	Change in asset value	Average change	Percent Change	Change, audited returns
	Number	Amount						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Personal Residence	6,251	1,717,199,287	15.9%	17.7%	13,720,129	13,789	4.5%	0.8%
Other Real Estate	7,611	4,335,051,498	38.0%	34.3%	140,142,057	48,509	9.4%	3.2%
Closely Held Stock	2,234	4,155,033,484	37.0%	26.7%	319,689,764	387,034	28.8%	7.7%
Other Stock	8,879	8,687,221,836	21.8%	24.2%	113,406,228	58,487	5.4%	1.3%
Bonds	8,295	6,301,791,305	11.6%	2.7%	28,991,250	30,168	17.2%	0.5%
Unclassified Mutual Funds	2,242	301,332,782	10.4%	39.7%	-4,362,642	-18,724	-3.6%	-1.4%
Cash	11,234	3,717,282,372	34.0%	7.8%	77,693,621	20,371	26.9%	2.1%
Insurance	5,569	568,572,557	8.5%	6.2%	41,170,651	86,675	116.9%	7.2%
Farm Assets	1,042	102,287,640	22.9%	113.4%	45,794,993	191,611	39.5%	44.8%
Limited Partnerships	1,498	520,072,214	14.0%	11.5%	19,733,013	94,416	33.0%	3.8%
Non-Corp. Bus. Assets	1,943	696,284,538	16.7%	15.7%	48,536,881	149,344	44.5%	7.0%
Mortgages & Notes	4,219	931,794,868	12.7%	17.0%	268,927,346	500,796	170.2%	28.9%
Annuities	3,421	773,034,691	6.0%	6.3%	3,241,130	15,810	6.6%	0.4%
Depletables/Intangibles	1,160	156,666,051	14.1%	41.3%	31,746,604	193,577	49.0%	20.3%
Art	425	663,691,995	23.3%	6.7%	1,464,218	14,790	3.3%	0.2%

SOURCE: *Turning Administrative Systems Into Information Systems,* Statistics of Income Division, Internal Revenue Service, as Presented at the 1999 Joint Statistical Meetings of the American Statistical Association, Baltimore, MD., August, 1999.