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TAX POLICY

Refund Offset Program Benefits Appear to Exceed Costs

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The Honorable Dan Rostenkowski
Chairman, Joint Committee on
Taxation

The Honorable Lloyd Bentsen
Vice Chairman, Joint Committee on
Taxation
Congress of the United States

In response to Section 9402 of the Omnibus Budget Reconciliation Act of 1987, we provided you a report in April 1989 that discussed IRS' study methodology used to evaluate the effects of the Refund Offset Program on voluntary compliance with the income tax laws. In doing this work, we also identified an alternative study approach to evaluating the program's effects. This approach focused on guaranteed student loan defaulters. The Joint Committee on Taxation requested that we pursue our alternative approach and report on our study results.

Accordingly, this report (1) evaluates the effects of the Refund Offset Program on the filing behavior of guaranteed student loan defaulters and (2) compares the program's estimated benefits resulting from increased debt collections with the program's estimated costs resulting from increased noncompliance.

We are sending copies of this report to the Internal Revenue Service, the Office of Management and Budget, and other interested parties.

Major contributors to this report are listed in appendix IV. Please contact me on (202) 272-7904 if you or your staff have any questions concerning the report.

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Executive Summary

Purpose

The Internal Revenue Service (IRS) offsets federal tax refunds due taxpayers who have certain nontax delinquent debts. IRS offset about $4 billion in taxpayer refunds during calendar years 1982 through 1990 for the nonpayment of child and spousal support payments and since 1986 for the nonpayment of federal nontax debts such as education loans.

Some policymakers are concerned about the cost effectiveness of the Refund Offset Program because it may reduce voluntary compliance with the tax laws and, in turn, tax revenues. Past GAO studies identified limitations to IRS' methodology for studying this issue. In doing this work, GAO identified a different approach for analyzing how the program affects taxpayer compliance. The approach focused on guaranteed student loan defaulters. The Joint Committee on Taxation asked GAO to report on the study results.

Background

In 1981, Congress authorized IRS to offset federal tax refunds due taxpayers delinquent in making child and spousal support payments in cases in which the custodial parent received payments from the Aid to Families with Dependent Children Program. In 1984, Congress expanded the program to include child support outside of the Aid to Families with Dependent Children Program.

In 1984, Congress added delinquent federal nontax debts to the Refund Offset Program. This part of the program expires in 1994. Because of concerns that offsets might reduce taxpayer compliance, Congress required the Department of the Treasury to examine the program's effect on compliance and how it aids in collecting federal debts. Congress will need to know the program's effects when it considers the 1994 expiring provision.

IRS has issued four refund offset reports. Each report shows a pattern of more nonfiling and more tax returns filed with taxes due in years after an offset. GAO has issued two reports on IRS' study methodology. GAO's main concern was whether IRS' study groups were comparable. IRS matched taxpayers by their taxable income and filing status but did not consider other potentially relevant nontax differences such as a debtor's predisposition toward nonpayment of debt. IRS has improved its study methodology and plans future studies.

To address study group comparability, GAO developed a study approach that used a sample of guaranteed student loan defaulters. Since each guaranty agency did not refer all student loan defaulters for offset in

the first 2 years of the program, GAO separated the defaulters into two groups: defaulters who were offset and those who were not. Thus, GAO's study groups were more equivalent on a key nontax characteristic that might relate to noncompliance with tax laws—all were defaulters. GAO used an analytic technique that isolated the effects of different tax and nontax characteristics on filing behavior.

Although limited to student loan defaulters, GAO's results may apply to the entire program if defaulters from other agencies have similar tax and nontax characteristics.

Results in Brief

GAO's study showed that the Refund Offset Program had less of an adverse effect on tax compliance overall than suggested by IRS studies. While both studies showed that offsetting federal tax refunds for nontax debts increased nonfiling the next year, GAO's study showed that the offset had virtually no effect 2 years later. GAO also found no evidence that an offset taxpayer was more likely not to pay taxes due when filing a tax return the year after an offset. IRS' studies showed an increase in these balance-due returns.

GAO also estimated the potential tax revenues lost due to nonfiling by student loan defaulters in the year after an offset. The debt recovered from the offset was at least four times greater than the potential revenue loss. IRS' studies have not estimated the overall costs and benefits of the program.

When Congress considers extending the federal debt portion of the Refund Offset Program in 1994, one important issue will be whether the revenue from increased debt collections will outweigh any decline in revenue from taxpayer noncompliance. GAO's results suggest that it will. IRS plans to study further the long-term effects of the program on compliance, including the program's overall benefits and the costs of increased noncompliance and IRS enforcement efforts.

GAO's Analysis

Increased Nonfiling Is Not Long Lasting

Offsetting refunds for the nonpayment of student loan debts increased the likelihood of taxpayers not filing a tax return in the year after the offset. GAO controlled for the effect of tax and nontax characteristics

(e.g., income, filing history, demographics) on filing behavior. The results were that student loan defaulters whose entire 1985 tax refund was offset had 2.1 times greater odds of not filing a 1986 tax return than student loan defaulters who were not offset and who received a refund. IRS' March 1989 study gave similar results. (See p. 18.)

Unlike IRS' study approach, GAO's analysis separated the offset effect from other tax and nontax characteristics. For example, the filing behavior of those who were offset and still received a partial refund was basically the same as for those who were not offset and did receive a refund. For defaulters offset for tax year 1985 and referred for offset for tax year 1986, GAO found that the prior offset and subsequent referral increased the odds of nonfiling to almost twice that of defaulters not offset for tax year 1985 or referred for 1986. (See pp. 18-19.)

GAO also examined whether the program increased the likelihood of a taxpayer filing a balance-due return the year after the offset. Unlike IRS studies, which showed such an increase, GAO found no statistically significant effect of the offset, referral, or the combination of the two on filing balance-due returns. GAO found that other variables, such as income and filing history, did affect balance-due return rates. (See pp. 19-20.)

Lastly, GAO examined whether offsetting a taxpayer's 1985 tax refund resulted in long-term nonfiling behavior. Defaulters who were offset for tax year 1985 and filed a 1986 tax return but were not offset or referred for offset for tax year 1987 were more likely not to file a 1987 tax return than defaulters who were never offset or referred. However, the size of the tax year 1985 offset effect in the second year (1.1 odds ratio for tax year 1987) was substantially smaller than in the first year (1.6 odds ratio for tax year 1986). For defaulters who were offset and did not file for 1986, GAO found no evidence of increased nonfiling for tax year 1987 when compared with defaulters who were not offset. (See p. 19.)

Program Benefits Appear to Exceed Revenue Loss

Although the program has increased the collection of delinquent federal nontax debts, an important policy consideration is whether the program's benefits outweigh the effects of greater noncompliance. IRS studies have concluded that the program may reduce tax revenues, but IRS has not measured the program's net gain or loss. IRS plans to address this issue in future studies.

GAO estimated the program's benefits and costs for its sample student loan defaulters. The total amount offset in 1986 was $4.6 million. This estimate does not include an indirect benefit of the program—when notified about a potential offset, some defaulters made voluntary payments on their defaulted loans. GAO could not determine the extent of this benefit for its sample of student loan defaulters.

GAO estimated that $1.1 million in tax revenues was lost from defaulters who were offset for tax year 1985 and who did not file a 1986 tax return. This amount is probably overstated because some nonfilers may have had taxes withheld, some may have been due a refund, and some may not have had a filing requirement. It also does not reflect subsequent collections through voluntary payments or IRS enforcement efforts. When GAO compared the estimated costs and benefits for the sample defaulters, GAO found the amount collected was over four times the loss in revenue. (See pp. 19-22.)

Recommendation to the Commissioner of Internal Revenue

Congress will need information on the overall costs and benefits of the Refund Offset Program when it considers the 1994 expiring provision. Thus, GAO recommends that IRS carry out its plans for future studies and specifically ensure that those studies (1) control for as many meaningful tax and nontax characteristics as possible, (2) include an estimate of the potential revenue loss due to any noncompliant filing behavior, and (3) include a comparison of this loss with the program's benefits.

Agency Comments

IRS agreed with GAO's recommendation that future studies be carried out and said that analyses are underway that will include an examination of the costs and benefits of the Refund Offset Program. IRS plans to issue an interim report in mid-1992, with a final report to be released in late 1994. IRS' comments primarily concerned methodological issues, which GAO's analytic technique addressed. IRS also provided specific comments on the draft, and GAO made changes to the report where appropriate. Appendix III contains IRS' detailed comments and GAO's evaluation of those comments. (See pp. 41-44.)

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Abbreviations

AFDC	Aid to Families With Dependent Children
CY	Calendar year
GSL	Guaranteed student loan
IRS	Internal Revenue Service
OMB	Office of Management and Budget
TPI	Total positive income
TY	Tax year

Introduction

The increasing amount of delinquent debts owed to the federal government has resulted in several legislative actions giving agencies the ability to improve debt collection efforts. Offsetting income tax refunds of taxpayers with delinquent federal nontax debts is one program aimed at reducing the amount of money owed to the federal government. While federal agencies generally agree that the Refund Offset Program has been successful in collecting delinquent debts, some policymakers are concerned that the program may increase taxpayer noncompliance with the tax laws. For example, if a defaulter is offset and referred for offset the following tax year (TY), to avoid being offset again, the defaulter might not file a tax return. IRS' authority to offset refunds for nonpayment of federal nontax debts is temporary. IRS is concerned about the potential risk of decreased tax revenues due to increased noncompliance and believes there is a need to carefully weigh these costs against the benefits of increased debt collections before making the program permanent.

In the Omnibus Budget Reconciliation Act of 1981, Congress authorized the Internal Revenue Service (IRS) in 1981 to offset federal tax refunds that are due to a taxpayer delinquent in making certain child and spousal support payments. The act applied only to cases in which the custodial parent received payments from the Aid to Families with Dependent Children (AFDC) program. The Child Support Enforcement Amendments of 1984 temporarily expanded (until 1991) the offsets to include non-AFDC child support cases. The authority to offset refunds for non-AFDC child support cases was made permanent on November 5, 1990, with the passage of the Omnibus Budget Reconciliation Act of 1990. The authority was also expanded to allow the collection of spousal support when spousal support and child support are included in the same support order.

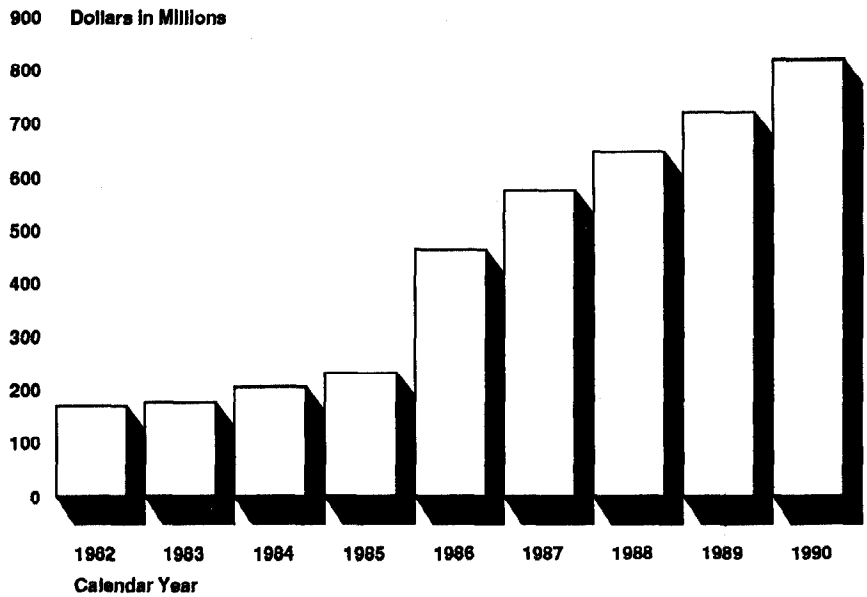
Congress also expanded the offset program in 1984 to reduce delinquent nontax federal debts, such as education loans. The Deficit Reduction Act of 1984 authorized a 2-year test period to permit the Department of the Treasury to examine the extent to which tax refund offsets facilitate the collection of nontax federal debts and the effect the Refund Offset Program has on taxpayer compliance. Congress later passed the Family Support Act of 1988, which extended IRS' authority to offset refunds for nonpayment of nontax federal debts to January 10, 1994.

Participation in the Refund Offset Program has grown from 5 agencies in calendar year (CY) 1986 to 14 agencies in CY 1990.[1] Each federal agency must enter into a standard agreement with IRS specifying the conditions that must be met for a referral and offset to occur. For example, an agency must notify delinquent debtors that it is proposing to refer the past-due debts to IRS for offset against an overpayment of tax. The delinquent debtor must be given 60 days to pay the debt or to present evidence that the debt is either not past due or not legally enforceable. The agencies then must (1) certify to IRS that all the conditions for a referral and offset have been met and (2) submit a magnetic tape listing the delinquent debtors' taxpayer identification number and debt information to IRS. IRS consolidates all delinquent debtor information onto a debtor master file. Offset is programmed to occur when a referred taxpayer is due a refund and the taxpayer identification number from the return matches the debtor master file.

The Office of Management and Budget (OMB), the Department of the Treasury, and the participating agencies view the program favorably as a debt collection tool. IRS offset about $4 billion in taxpayer refunds during CYs 1982 through 1990. Approximately $2.8 billion of this amount was collected for the nonpayment of child and spousal support payments. The remaining $1.2 billion was collected during CYs 1986 through 1990 for nonpayment of federal nontax debts, such as education loans. In addition to collecting the $1.2 billion, participating federal agencies reported collecting an estimated $410 million in voluntary payments from delinquent debtors during CYs 1986 through 1990 after notifying the debtors that they were to be referred to IRS for offset. Figure 1.1 shows the amount of offsets from 1982 through 1990.

[1]The five agencies participating in the Refund Offset Program during CY 1986 were the Departments of Agriculture, Education, Housing and Urban Development, and Veterans Affairs and the Small Business Administration. In 1987, the Departments of Defense, Treasury, Justice, and Health and Human Services joined the program, and offsets were made in that same year. The Refund Offset Program expanded in 1989 with the addition of the Departments of Energy and Interior and the Railroad Retirement Board. The Departments of Transportation and State are the newest participants, and IRS began offsetting their debtors' refunds in 1990.

Figure 1.1: Refund Amount Offset for Nonpayment of Nontax Debts



Source: Credit Administration Division of the Department of the Treasury (federal nontax debts) and the Office of Child Support Enforcement of the Department of Health and Human Services (AFDC and Non-AFDC debts).

IRS Studies Have Concluded That the Refund Offset Program Reduced Taxpayer Compliance

IRS has issued four reports that analyze the effect of offsetting refunds for nontax debts on taxpayer compliance.[2] A major focus of IRS' studies was to compare the filing behavior of debtor taxpayers who filed for a refund and were offset (offset group) with the filing behavior of taxpayers from the general population who filed for a refund but were not offset (comparison group). After analyzing the differences in taxpayer compliance between the groups, IRS concluded that offsetting refunds caused adverse tax consequences in the TY following the offset year.

[2]The first study, Report on the Effect of Refund Offsets for Delinquent Child Support Payments, was issued in October 1983 and analyzed the effect of tax year 1981 offsets on taxpayer compliance for tax year 1982. The second study, Study of the Effect of Refund Offsets for Delinquent Child Support Payments on Compliance, was issued in November 1986 and extended the analysis of tax year 1981 offsets to tax year 1983 and also analyzed the effect on taxpayer compliance for tax year 1983 of offsets made for tax year 1982. IRS issued a third report in March 1989 entitled Effects of Nontax Refund Offsets on Taxpayer Compliance. This report analyzed the tax year 1986 filing and tax withholding behavior of taxpayers who were referred to IRS for offset because they had delinquent child and spousal support payments or delinquent federal nontax debts and who were offset in tax year 1985. IRS' fourth study, Effects of Nontax Refund Offsets on Taxpayer Compliance: Tax Year 1986 Refund Offsets, analyzed the tax year 1987 filing behavior of taxpayers who were referred and offset for the first time in tax year 1986.

The IRS studies reported a consistent pattern of increased nonfiling and an increase in the number of taxpayers who filed a return but did not pay the tax liability in full (balance-due return). For example, IRS concluded in its fourth study that the nonfiling and balance-due return rates in the year after the offset were generally twice as high for defaulters who were referred to IRS and offset than for the general comparison group of taxpayers not referred and offset. IRS also concluded there was generally little difference in taxpayer filing behavior between defaulters whose refunds were offset for nonpayment of debts to participating federal agencies versus defaulters whose refunds were offset for nonpayment of child and spousal support. IRS continues to study the effects of the refund offset program to determine whether the noncompliant filing behavior is a short-term or long-term problem.

GAO Studies Identified Methodological Limitations to IRS' Studies

We have issued two reports that focus on the methodology used by IRS in its first two studies and question the basis for IRS' findings concerning taxpayers' filing practices following a refund offset.[3] The two major limitations of the methodology IRS used in its first two studies as discussed in the reports are summarized as follows:

- IRS compared taxpayer filing behavior between the offset and comparison groups. It did not consider whether the observed difference in taxpayer filing behavior (e.g., increased nonfiling) existed before the offset. If the difference already existed, IRS could not validly conclude that the offset alone explained the reduced compliance.
- IRS matched its offset and comparison groups on some tax characteristics (e.g., taxable income and filing status) to make the groups comparable. There is a risk of bias in IRS' findings, however, because IRS' approach did not account for other potentially relevant preexisting tax and nontax characteristics (e.g., prior defaults, prior penalties paid, age, geographic region, etc.). Greater comparability would provide better support for IRS' conclusion.

IRS has taken steps to improve its study methodology by addressing the major limitations of its earlier studies. For example, IRS revised its methodology for its two most recent studies by considering taxpayers' filing behavior before the offset. IRS also changed the composition of its general comparison group (by accounting for prior tax-related offsets, for example) and included additional comparison groups. Notwithstanding

[3]Tax Policy: Evaluation of IRS' Refund Offset Study (GAO/GGD-88-117, Sept. 1, 1987) and Tax Policy: Status of IRS' Studies of the Refund Offset Program (GAO/GGD-89-60, Apr. 25, 1989).

these improvements, IRS' fourth study recognized that group comparability was still an important study limitation.

IRS continues to study the effect of offsetting refunds on taxpayer compliance. In future studies, IRS plans to improve group comparability by controlling for additional nontax characteristics such as age and geographic location. IRS also plans to determine the long-term effects of the program and assess the program's impact on revenue due to increased nonfiling.

We agree with IRS that a more appropriate methodology to measure the effect of the Refund Offset Program on compliance would have been to assign randomly the referred debtors having refunds into two groups—one group with refunds offset and the other with refunds purposely not offset. With this methodology, the study groups would be more comparable since both groups would come from the same population and assignment to groups would be random. But, IRS officials said that this methodological approach was not an option because the refund offset statute (31 U.S.C. Section 3720A(c)) does not authorize them to refrain from offsetting referred debtors. IRS said that it had selected a methodology that it believed was appropriate given the constraints.

Objectives, Scope, and Methodology

The Omnibus Budget Reconciliation Act of 1987 (Section 9402) required that we study the effect of offsetting taxpayers' refunds for nonpayment of federal nontax debts. In April 1989, we issued a report to the Chairman, Senate Committee on Finance, and the Chairman, House Committee on Ways and Means, that assessed IRS' methodological approach to measuring the effect of the Refund Offset Program on taxpayer compliance. During that review, we also explored various methodological approaches to improving IRS' study design and identified one study approach that appeared promising. Because of the legislatively mandated reporting deadline, however, we were unable to include in our April 1989 report an analysis using our alternative approach. We subsequently agreed with the Joint Committee on Taxation that we would develop our approach to determine whether offsetting refunds for nonpayment of federal nontax debts affects taxpayer voluntary compliance with the tax laws.

Our approach used debtors who defaulted on education loans made under the Guaranteed Student Loan (GSL) Program—now referred to as the Stafford Student Loan Program. This program is the largest federal

program that provides federal assistance to students seeking a post-secondary education. Under this program, various lenders, such as commercial banks and savings and loan associations, make low-interest loans to students under the protection of guarantees issued by state and/or private nonprofit guaranty agencies.

Our study design addressed the major limitation of IRS studies—the comparability of study groups. We separated the GSL debtors into two groups. The offset group was comprised of GSL defaulters whose 1985 tax returns were offset. The nonoffset group was comprised of GSL defaulters who were not offset in the first year.[4] We recognized that even though the debtors in our study were selected from a relatively homogeneous group (GSL defaulters), it was possible that any subsequent noncompliant filing behavior after the offset could have been attributed partly to other nontax and tax characteristics. Thus, we included various characteristics, such as a taxpayer's level of income, age, geographic region, and prior IRS experiences before the offset (nonfiling and nonpayment of taxes, tax penalties, and offsets for tax debts, for example), in our analysis.

We obtained GSL debtor information from the Department of Education. This information, in combination with the IRS offset tape, was used to separate GSL defaulters into our offset and nonoffset groups. We then obtained individual tax records from IRS. The records contained the filing history for TYs 1983 through 1987. For the TY 1986 filing analysis, the offset group contained about 8,400 defaulters and the nonoffset group about 29,000 defaulters. To determine the effect of the Refund Offset Program on taxpayer compliance, we analyzed taxpayers' filing behavior for each group for the 2 years after the offset (TYs 1986 and 1987). Appendix I contains the technical details of our research design and sampling plan, and appendix II contains the details of our analytical approach.

Our examination was limited to GSL defaulters, and the results cannot be generalized to the entire offset program. IRS found in its studies that the differences in noncompliant filing behavior among defaulters of the various federal programs were generally similar. If defaulters who are

[4]Guaranty agencies did not refer all defaulters to the Department of Education for offset in the first year of the program. Also, the Florida, Alabama, Idaho, Louisiana, Puerto Rico, and Virginia agencies did not participate in the Refund Offset Program during the first 2 years.

referred by the other participating agencies have tax and nontax characteristics similar to the GSL defaulters in our analysis, we believe our results may apply.

We did our work at IRS' National Office in Washington, D.C., between May 1989 and June 1990 and in accordance with generally accepted government auditing standards. The Commissioner of Internal Revenue provided written comments on a draft of this report. The written comments and our analysis are summarized on page 23 and included in Appendix III.

Refund Offset Program Increases Taxpayer Noncompliance, but Effect Is Temporary

Our analysis of the Refund Offset Program's effect on taxpayer compliance expanded on IRS' study. Initially, we compared the differences in filing behavior between offset and nonoffset defaulters using a straightforward comparison of the differences in filing behavior between the two groups for TYs before and after the offset. The results of our preliminary analysis of GSL defaulters' filing behavior were similar to IRS' study results for Department of Education loan defaulters. Taxpayers who were offset appeared to be more likely not to file a tax return the next year or not to pay their tax liability in full at the time the return was filed (balance-due return) than taxpayers not offset. Neither IRS' analysis nor our preliminary analysis, however, provided a measurement of how specific tax and nontax variables affect taxpayer compliance.

Using logit regression, a more sophisticated analytic technique, we found that the program's effect on nonfiling for the next year was about the same as that which IRS' studies showed. We found that GSL defaulters whose entire refund was offset for TY 1985 had 2.1 times greater odds of not filing a return the year after the offset than defaulters not offset for TY 1985 and who had a refund. IRS' study showed offset defaulters to have 2.0 times greater odds of not filing a return than the general comparison group filers who had refunds. However, we found no evidence that the offset program increased taxpayer nonfiling behavior in the long term. The offset appeared to have little effect on filing behavior 2 years after the offset. Also, unlike IRS' study, our study found no evidence that the program increased balance-due returns. Finally, we found that nonfilers were concentrated in the lower income categories and that the potential revenue loss due to increased nonfiling after the offset was substantially less than the amount IRS collected from offsetting refunds.

General Filing Characteristics of GAO and IRS Study Groups

To obtain a general overall profile of student loan defaulters' filing patterns and the magnitude of noncompliant filing behavior, we initially compared GSL defaulters' filing behavior with the filing behavior of Department of Education defaulters in IRS' March 1989 study. We looked at the filing rates and the proportion of returns filed with unpaid taxes and found that our GSL defaulters that were offset and IRS' Department of Education defaulters that were offset generally had similar filing patterns.

Our examination of GSL defaulter filing rates for the TY before the offset (TY 1984) and the TY after the offset (TY 1986) showed a greater increase in nonfiling for GSL defaulters that were offset than for nonoffset GSL

defaulters. The GSL offset group nonfiling rate increased 7.9 percentage points, whereas the GSL nonoffset group nonfiling rate decreased 0.6 percentage points. IRS' March 1989 study showed similar nonfiling rates. The nonfiling rate for IRS' group of education defaulters offset for TY 1985 increased 7.6 percentage points versus a decrease of 1.3 percentage points for IRS' general population comparison group (nonoffset group). Table 2.1 shows the nonfiling rates for our GSL groups and IRS' groups and the net change.

Table 2.1: Nonfiling Rates for Our Analysis of GSL Defaulters and IRS' Study for Department of Education Defaulters

	Rates for GAO analysis[a]		Rates for IRS study[b]	
TY	Offset group	Nonoffset group	Offset group	Nonoffset group
1986	22.9%	12.1%	19.8%	9.7%
1984	15.0	12.7	12.2	11.0
Net change	7.9	−0.6	7.6	−1.3
Net difference in change	**8.5%**		**8.9%**	

[a]We defined a nonfiler as anyone who did not file a return by the end of September of the filing year. Nonfilers are defined similarly in IRS' studies. This definition includes taxpayers that had an extension to file. The size of the nonfiling rates may be overstated because some study nonfilers may not have had a filing requirement. Also, some taxpayers may have filed after the end of September. The GAO statistics are not weighted by region and may not be reflective of all GSL defaulters.

[b]Information was taken from IRS' report entitled Effects of Nontax Refund Offsets on Taxpayer Compliance, March 1989. IRS' offset group included GSL, Federally Insured Student Loan, and National Direct Student Loan debtors.

Another general indicator of noncompliant filing behavior is the number of filers that do not satisfy their tax debt at the time they file their return. We looked at the number of balance-due cases in the TY before and the TY after the TY 1985 offset and found that the percentage of balance-due returns filed by the GSL offset group increased after the offset. The balance-due rate for the GSL offset group increased 3.1 percentage points, whereas the GSL nonoffset group balance-due rate increased 1.2 percentage points. IRS' March 1989 study showed similar balance-due rates. The balance-due rate for IRS' offset group increased 2.1 percentage points versus a decrease of 0.1 percentage points for IRS' general population comparison group. Table 2.2 shows the balance-due return rates for our GSL sample groups and IRS' groups and the net change.

Table 2.2: Balance-Due Rates for Our Study Groups and IRS' Study Groups

	Rates for GAO study[a]		Rates for IRS study[b]	
TY	Offset group	Nonoffset group	Offset group	Nonoffset group
1986	5.3%	7.9%	4.1%	1.9%
1984	2.2	6.7	2.0	2.0
Net change	3.1	1.2	2.1	−0.1
Net difference in change	**1.9%**		**2.2%**	

[a]Our statistics are not weighted by region and may not be reflective of all GSL defaulters.

[b]Information was taken from IRS' report entitled Effects of Nontax Refund Offsets on Taxpayer Compliance, March 1989. IRS' offset group included GSL, Federally Insured Student Loan, and National Direct Student Loan debtors.

As shown in tables 2.1 and 2.2, the GSL defaulters' filing behavior after the offset was similar to the filing behavior IRS found in its study. These results suggest that the Refund Offset Program increases nonfiling and the number of balance-due returns. But, although the results were similar, there were differences in the composition of our study groups and IRS' study groups. While IRS' analysis used statistical weighting techniques, our results are not weighted and merely provide descriptive statistics. Neither analysis, however, provides a measurement of how specific tax and nontax variables (independently or in combination) affect taxpayer compliance.

Refund Offset Program Reduced Taxpayer Filing After Offset

We used logit regression to estimate the odds that a defaulter did or did not file a tax return. This analytic technique allowed us to isolate and measure the effect of the offset on nonfiling while controlling for other potentially important determinants of nonfiling behavior. We examined how offsets, referrals for offset, income levels, filing history, filing status, refund size, penalties, geographic region, and age each affected filing behavior. We also examined whether certain of these variables interacted with one another in a meaningful way to affect filing behavior. For example, we looked at how an offset in one year followed by a referral to IRS for offset in the next year affected compliance. Finally, we examined whether the offset affected filing behavior 2 years after the offset.

Offset and Referral Variables Affected Nonfiling Significantly

GSL defaulters were first subject to having their tax refund offset for nonpayment of their student loan during CY 1986.[1] To determine the effect of the offset on a taxpayer's subsequent filing behavior, we estimated the odds of nonfiling for GSL defaulters that were offset in 1986 versus GSL defaulters not offset. Controlling for other important tax and nontax characteristics, we still found that an offset increased the likelihood (odds) that a taxpayer would not file a 1986 tax return.

GSL defaulters whose entire refund was offset had 2.1 times greater odds of not filing a 1986 tax return than the GSL nonoffset defaulters who had a refund. This result is about the same as IRS' study results that showed that student loan defaulters who were offset were about 2 times more likely not to file than the general population comparison group filers who had refunds.[2]

We also compared the filing behavior of taxpayers who were offset and still received a tax refund to nonoffset defaulters who received a refund. An offset and a refund in the same TY could occur if the refund was larger than the offset amount—indicating that the debt was fully paid. We found no difference in subsequent filing behavior for defaulters who were offset and still had a refund for TY 1985. However, only 12 percent of the GSL offset defaulters in our sample still received a refund after offset.

Our analysis also showed that a referral for offset was associated with changes in taxpayer filing behavior. We defined a referral as any GSL defaulter who was referred to IRS for offset for TY 1986. The GSL defaulters who were not offset for TY 1985 and who were referred for offset for TY 1986 had 1.7 times greater odds of not filing a 1986 tax return than defaulters who were not referred. IRS' analysis did not measure the effect of a referral on subsequent filing behavior.

An offset in combination with other factors was also associated with changes in defaulters' filing behavior. We examined how having the entire refund offset for TY 1985 and a referral for offset for TY 1986 affected compliance. We found that the GSL offset group with a combination of both factors had 2 times greater odds of not filing than the

[1]Virtually all the returns that were offset during CY 1986 were for TY 1985; however, some prior year returns (TYs 1983 and 1984) were offset during CY 1986. For clarity, we refer to the CY 1986 offset as an offset to the 1985 tax return. Similarly, we refer to the CY 1987 offset as an offset to the 1986 tax return.

[2]IRS did not compute the increase in odds for nonfiling in its March 1989 study. We computed the odds using the nonfiling rates shown in table 2.1.

nonoffset group debtors that were neither offset nor referred and had no refund.

Our analysis showed that other variables, such as prior filing history and income, have significant effects on a taxpayer's filing behavior independent of the offset. Appendix II contains the results for all variables contained in our analysis.

Refund Offset Programs' Effect on Filing Was Not Long Term

We analyzed the effect of offsetting debtors' TY 1985 refunds on TY 1987 filing behavior to determine if the noncompliant filing behavior for TY 1986 continued in a later year. We found that the TY 1985 offset had little effect on a taxpayer's filing behavior 2 years after the offset.

First, we analyzed the defaulters who filed a TY 1986 return. We found that these defaulters whose TY 1985 returns were offset and who were not offset for TY 1986 nor referred for TY 1987 had only 1.1 times greater odds of not filing a 1987 tax return than defaulters who were never offset or referred for offset. While the offset was still associated with nonfiling, the size of the effect was substantially smaller in the second year after the offset (1.1 odds ratio for TY 1987) than in the first year after the offset (1.6 odds ratio for TY 1986).[3] Secondly, we analyzed the defaulters who did not file a TY 1986 return. We found that the effect of the offset and referral or any combination of the refund offset variables on filing a TY 1987 return was statistically insignificant.

Balance-Due Returns Did Not Increase After Refunds Were Offset

We examined the association between offsetting a 1985 tax return and the filing of balance-due returns for TY 1986. Balance-due returns are cases in which taxpayers file a return but do not pay the tax liability in full. Our analysis showed no statistically significant effect of the offset, referral, or the combination of the two on the likelihood that a taxpayer would file a balance-due return. Our analysis showed, however, that other variables unrelated to the Refund Offset Program appeared to be the primary determinant of increased balance-due rates. For example, defaulters with total positive incomes greater than or equal to $20,000 had 1.4 times greater odds of filing a balance-due return than defaulters

[3]We also found that defaulters who were offset in tax year 1986 had 1.3 times greater odds of not filing a 1987 tax return than defaulters not offset. This first-year effect is less than the 1.6 odds ratio for comparing defaulters offset in tax year 1985 with defaulters not offset.

with total positive incomes less than $20,000.[4] Other factors that affected the filing of balance-due returns were age and prior balance-due returns. See appendix II for the complete results of our analysis.

Potential Revenue Loss as a Result of Offsetting Refunds

A critical policy issue that needs to be addressed when evaluating the Refund Offset Program is the loss of revenue due to increased taxpayer noncompliance. Any added burden to IRS' operations and revenue loss should be compared with the overall benefits of the program. Although IRS studies reported that Treasury may be losing tax revenue as a result of the Refund Offset Program, IRS has not associated specific revenue losses with the findings of increased tax noncompliance.

The major benefit from the offset program is the collection of federal nontax debts that appear to be uncollectible. For our GSL sample, IRS collected $4.6 million in debts by offsetting 8,408 taxpayers' 1985 refunds. Because the offset may have satisfied some debts, or some defaulters may change the amount of taxes withheld so less is available for offset, it is likely new defaulters would have to be referred in subsequent years to sustain this level of benefit. An indirect benefit from the offset program is that some defaulters have voluntarily paid their debt after receiving a notice that they were to be referred to IRS for offset. Although we could not determine the total amount paid voluntarily for our sample GSL defaulters, Treasury reported that Department of Education defaulters made $37 million in voluntary payments. This is in addition to the $131 million offset in CY 1986 for Education defaulters.[5]

The major cost associated with the offset program is lost revenue due to increased nonfiling. To measure this amount precisely it is necessary to determine the tax liability of defaulters who as a result of the offset did not file. However, since these defaulters did not file a 1986 tax return, we could not determine their 1986 tax liability. Instead, we estimated revenue loss using the amount of taxes paid for TY 1985 by offset defaulters who did not file a 1986 tax return. For example, table 2.3 shows how 284 defaulters with total positive income of $15,000 or more and who were offset for TY 1985 and did not file a 1986 tax return had a 1985 tax liability of $678,000. We believe this approach to estimating

[4]Total positive income is defined as the income that excludes losses such as sole proprietorship business losses.

[5]The voluntary payment amount includes payments made by Federally Insured Student Loan and National Direct Student Loan defaulters. The offset amount includes defaulters from these programs as well as GSL defaulters.

revenue loss is reasonable, given that the average taxpayer's tax liability will not change substantially from one year to the next, especially after accounting for income growth.

Using our approach, we estimated the revenue loss due to the TY 1985 offset for TY 1986 to be about $1 million. This estimate probably overstates the potential revenue loss because (1) some nonfilers may have had tax withholdings and some may have been due a refund, (2) some nonfilers may not have had a filing requirement, and (3) some of the nonfiling may not be attributed to the offset. The estimate also does not reflect subsequent collections through either voluntary payments or IRS enforcement efforts. Our estimate could understate the loss if the income of these nonfilers grew faster than average or if the nonfilers reduced the amount of taxes withheld as a result of the offset.

Table 2.3 shows the total offset amount ($4.6 million) for our sample GSL defaulters for TY 1985 compared with the estimated tax liability ($1.1 million) for offset defaulters who did not file a 1986 tax return by the end of February 1989—the date we obtained IRS tax records for the GSL defaulters. Comparing the two, the offset amount was over four times the estimated revenue loss.

Table 2.3: Comparison of TY 1985 Offset Amount to Estimated Revenue Loss Due to Increased Nonfiling

	TY 1985 offset defaulters			
	TY 1985 filers		TY 1986 nonfilers[a]	
Total positive income	Number	Offset amount	Number	1985 tax liability[b]
Less than $3,000	860	$179,000	333	$0
$3,000 < $8,000	2,138	1,030,000	622	88,000
$8,000 < $15,000	2,574	1,247,000	433	313,000
$15,000 and over	2,836	2,179,000	284	678,000
Total	**8,408**	**$4,635,000**	**1,672**	**$1,079,000**

[a]This group includes only those TY 1985 filers who did not file in TY 1986.

[b]For the purpose of this analysis, we used 1985 tax liability as a proxy of the present value of the 1986 tax liability. This means that we assumed the growth rate in income and the discount factor were the same so the effects cancel each other.

As shown in table 2.3, nonfilers are concentrated in the lower income categories in which less taxes are paid. Over half of the nonfilers for TY 1986 had total positive income less than $8,000. The results from our sample suggest that the potential revenue loss from nonfiling is less than the overall benefit of offsetting refunds for nontax debts. If similar income and filing characteristics existed for other offset debtor groups,

we would expect the magnitude of lost revenue due to increased nonfiling to be small relative to the offset amount. To date, IRS studies have not shown the nonfiling behavior for the offset groups by income level. IRS' March 1989 study indicated that it plans to assess the program's effect on revenue in future studies.

Conclusions

IRS' authority for offsetting refunds for federal nontax debts will expire in 1994. Whether to continue requiring IRS to offset tax refunds for nonpayment of nontax debts is a policy issue that Congress will have to address in the near future.

Our analysis supports IRS' contention that offsetting refunds for nontax debts increases nonfiling, however, our analysis also shows that this effect is not long term. Whereas IRS' results do not distinguish between a referral and offset effect, our analysis allowed us to explicitly estimate the effect of the referral, the offset, and other tax and nontax characteristics on taxpayer compliance. We found that the size of the effect on nonfiling was about the same as what the IRS study showed; however, we found little evidence that the likelihood of continued nonfiling carries into the next year. Also, we found that the potential revenue loss resulting from the offset does not appear to be substantial considering the amount of debts collected from taxpayer's tax refunds. IRS continues to study the effect of the program on taxpayer compliance and plans to address the program's impact on revenue in future studies.

Our study results for guaranteed student loan defaulters cannot be generalized to the entire Refund Offset Program. We believe, however, that if defaulters from the other participating federal agencies have tax and nontax characteristics similar to those of the GSL defaulters in our analysis, the results may apply.

Recommendation

Congress will need sufficient information on the overall costs and benefits of the Refund Offset Program when it considers the 1994 expiring provision. Thus, GAO recommends that the Commissioner of Internal Revenue direct that IRS carry out its plans for future studies and specifically ensure that those studies (1) control for as many meaningful tax and nontax characteristics as possible, (2) include an estimate of the potential revenue loss due to any noncompliant filing behavior, and (3) include a comparison of this loss with the program's benefits.

Agency Comments and Our Evaluation

IRS agreed with our recommendation that future studies be carried out and said that analyses are underway that will include an examination of the costs and benefits of the Refund Offset Program. IRS plans to issue an interim report in mid-1992, with a final report to be released in late 1994. IRS' comments primarily concerned methodological issues, which our analytic technique addressed. IRS also provided specific comments on the draft, and we made changes to the report where appropriate. Appendix III contains IRS' detailed comments and our evaluation of those comments.

Research Design and Sampling Plan

The objective of our study was to determine if offsetting refunds for federal nontax debts affects taxpayer compliance with the tax laws. We accomplished this objective by analyzing a sample of Department of Education guaranteed student loan (GSL) defaulters. Using GSL defaulters provided us with a group that was homogeneous on a key characteristic that might relate to a taxpayer's noncompliant filing behavior—defaulting on student loans. Thus, our comparison of the filing behavior of GSL delinquent debtors that were offset and GSL delinquent debtors not offset should control for a taxpayers' predisposition toward not complying with loan obligations. This appendix describes our research design and sampling plan.

Research Design

To determine the effect of the Refund Offset Program on taxpayers' voluntary compliance with the tax laws, we examined the compliance behavior of two groups of GSL defaulters. The first group, referred to as the GSL offset group, included GSL defaulters that were referred to the Internal Revenue Service (IRS) for offset and had tax refunds offset in calendar year (CY) 1986. The second group, referred to as the GSL nonoffset group, was further broken down into two subgroups. The first subgroup included GSL defaulters from guaranty agencies that did not participate in the Refund Offset Program during the first 2 years (those in Florida, Alabama, Idaho, Louisiana, Puerto Rico, and Virginia).[1] The second subgroup included GSL defaulters from guaranty agencies that did participate in the Refund Offset Program in the first year, but who apparently were not referred to IRS for offset.[2] We included the two subgroups to determine whether filing behavior for the debtors from states that referred debtors for offset was different from the filing behavior of debtors from states that did not refer debtors for offset. The second subgroup also provided a wider geographic distribution of taxpayers for the comparisons.

Development of the Universes for the Two Comparison Groups

We obtained a tape that contained information on 16 million Department of Education GSL borrowers. We then used this tape to create a separate file that contained 2 million GSL debtors who were in default. We further refined our file of 2 million defaulters to include only those whose tax

[1]Department of Education records indicated that New Mexico also did not participate in the Refund Offset Program during the first 2 years. We could not include defaulters from New Mexico in our study, however, because the records did not show any debts in default status.

[2]Guaranty agencies administer the student loan program at the state level. They did not refer all GSL defaulters to IRS for offset in the first year of the program.

refunds were offset in CY 1986 or who met the criteria that would make them eligible for offset in CY 1986.

Sampling Plan

We stratified the file of GSL defaulters by region of the country because taxpayer compliance is thought to vary by region. We used the census regions as the basis for our stratification. We also considered stratifying by age. However, we did not do so because we found that (1) the age breakdown in each of the groups was similar and (2) the regional stratification would yield a large enough sample to allow a discussion of a specific age category.

Our sample was selected to achieve 95-percent confidence with a sampling error of plus or minus 2-1/2 percent. We sampled 7,000 GSL defaulters who were offset by IRS. For the comparison group (nonoffset state and offset state subgroups), we increased the sample by a factor of five for each region, except for the West region and "other" categories in the nonoffset state subgroup.[3] We did so for various reasons, such as to ensure the sample was sufficient to draw reliable results for all subgroups and in case a defaulter's social security number did not match IRS' tax records. A previous IRS study indicated that about 20 percent of Department of Education referrals did not match IRS tax records. We included all of the GSL nonoffset defaulters who were from the West and "other" categories of the nonoffset state subgroup in our sample. Table I.1 shows how our sample of 53,141 GSL debtors was stratified by geographic region for each group.

Table I.1: Sample Size Stratified by Region

		GSL comparison group	
Geographical region	**GSL offset group**	**Nonoffset state subgroup**	**Offset state subgroup**
Northeast	2,000		7,500
South	1,500	7,500	7,500
Midwest	1,500		7,500
West	1,000	1,062	7,500
"Other"	1,000	379	7,200
Total	**7,000**	**8,941**	**37,200**

[3]The "other" category primarily includes defaulters whose loans are administered by the United Student Aid Funds, Inc., which is a nationwide guaranty agency. These defaulters were from states located in the various regions of the United States. Defaulters from other areas, including Guam and the Virgin Islands, are included in the "other" category.

We submitted a file containing the social security numbers for the 53,141 GSL defaulters to IRS to obtain individual tax records. IRS matched the file against the Individual Master File at the end of February 1989. Then we matched the GSL defaulter database against the tax records from IRS. Specifically, we matched the social security number from the GSL defaulter file to the primary and spousal social security number in the tax file.

Although we were able to match 48,993 of the 53,141 GSL defaulters (approximately 90 percent) to a tax record, a significant number of the comparison group defaulters (approximately 3,500) did not file a return for the period in question—tax years (TY) 1983 to 1987. Approximately 90 percent of the comparison group defaulters had filed one or more returns during the period, and roughly three-fourths of the comparison group defaulters filed a return for TY 1985. Table I.2 shows the resulting number of GSL defaulters that matched IRS' tax records.

Table I.2: Number of GSL Defaulters Matching IRS' Filers

Study groups	Defaulters matching IRS' files		Defaulters filing a 1985 tax return
	Number	Percent	
GSL offset group	6,990	99.9	6,988
Comparison groups			
Nonoffset state	8,083	90.4	6,192
Offset state	33,920	91.2	25,135
Total	**48,993**	**92.2**	**38,315**

In comparing the tax data with the data for the three groups, we found that less than 5 percent of our cases had been misclassified in that either a defaulter in our offset group had not been offset or a defaulter in our nonoffset group had in fact been offset. We refined our design by using the information in the tax files to identify to which group the defaulters were assigned. Specifically, we assigned defaulters to the offset group if IRS' tax data showed that the defaulters were offset in calendar year 1986. If the data showed no offset, we assigned the defaulter to our nonoffset group. This reassignment of defaulters resulted in approximately 8,400 offset defaulters and 29,000 nonoffset defaulters for our 1986 TY filing analysis.

To ensure that the alteration in design did not affect our results, we reran our analyses for nonfiling and balance-due returns to assess the effect of the sample defaulters who had been improperly classified. We

included the mismatched observations in our analysis and added a variable that identified the mismatched observations. This added variable was never statistically significant.

Analysis of Taxpayer Compliance

We used a logit model to evaluate the effect of offsetting a tax refund on tax compliance in the years following the offset. This analytic technique allows us to estimate the odds that a tax return will or will not be filed. It assesses the relative importance of various independent variables on filing behavior and, in particular, isolates the effect of the offset on compliance while controlling for other important determinants of that behavior.

Our analysis attempts to measure the effect, if any, of IRS' offset program on taxpayer compliance in the area of filing of returns and payment of taxes. The first offset for GSL defaulters occurred during CY 1986 when the TY 1985 return was filed.[1] Our evaluation focuses on the effect that this TY 1985 offset had on the filing of 1986 and 1987 tax returns. We also examined the effect of an offset for TY 1986 on filing behavior for TY 1987. We did not analyze whether a defaulter's TY 1985 filing behavior changed as a result of being referred to IRS for offset for TY 1985.

We found that the refund offset program appears to have reduced the likelihood that defaulters offset for TY 1985 would file a 1986 tax return. We also found an effect from an offset for TY 1985 on filing a 1987 tax return, but it is smaller than that for TY 1986. In addition, we found no statistically significant effect of the Refund Offset Program on the likelihood that a taxpayer would file a tax return and not pay the tax liability in full.

The GAO Models for Compliance/ Noncompliance

To determine if the offset GSL defaulters were less compliant than nonoffset defaulters, we examined whether being offset for TY 1985 reduced the odds that a defaulter would file a 1986 tax return. We also examined whether the effects of an offset were long term. We looked at defaulters' 1987 filing behavior to determine if offsets for TY 1985 and TY 1986 decreased the odds of filing a 1987 tax return. We considered a return to be filed if it was received by the end of September in the year when the return was due. So, for the TY 1986 filing analysis, we defined a return as filed if the defaulter filed by the end of September 1987.[2]

[1]Virtually all the offset returns during CY 1986 were for TY 1985; however, some prior year returns (TYs 1983 and 1984) were offset. For this report, we refer to the CY 1986 offset as an offset to the 1985 tax return. Similarly, we refer to the CY 1987 offset as an offset to the 1986 tax return.

[2]The definition we used in our analysis for a filer is similar to IRS'. We tried other definitions of filing (e.g., changing the cut-off date from September to April and December of the filing year) to see if the definition mattered, but it did not.

Similarly, for the TY 1987 analysis, we considered a return filed if the defaulter filed by the end of September 1988.

We also attempted to determine if being offset increased the odds that a defaulter would file a return and not pay the tax liability in full. To make this determination, we examined the collection status code when the 1986 tax return was filed. The collection status code can indicate whether a return is filed with taxes fully paid or not fully paid.

To measure the effect of the offset program, our analysis focused on two variables: (1) whether the defaulter was offset in the prior year and (2) whether the defaulter was referred for offset in the current TY. Accordingly, for the TY 1986 analysis we examined whether (1) the defaulter was offset for TY 1985 and (2) the defaulter was referred for offset for TY 1986. For the TY 1987 analysis, we examined whether (1) the defaulter was offset for TY 1985 or TY 1986 and (2) the defaulter was referred for offset for TY 1986 or TY 1987. This last combination allowed us to examine if defaulters who were offset and referred again for offset were less compliant than those who were only offset once or not offset at all.

Factors other than the offset or referral may also affect filing and non-payment of taxes. For example, low income defaulters may not have to file a return. Because the offset and nonoffset groups were not matched on tax characteristics, we included tax variables from the tax return to control for their effect. Table II.1 lists the variables we controlled for in the logit models.

Table II.1: Variables Used in the Compliance Analysis for TY 1986 and TY 1987

Variable	Definition
CY 1986 or CY 1987 offset	Refund offset occurring during CY 1986 or CY 1987. A CY 1986 offset is most likely for a TY 1985 return. The offset variable was set equal to 1 if a defaulter was offset and 0 if not offset.
TY 1986 or TY 1987 referral	TY 1986 referral could affect the TY 1986 return; TY 1987 referral could affect the TY 1987 return. The referral variable was set equal to 1 if a defaulter was referred to IRS for offset and 0 if not referred.
Filing history	For TY 1986, we examined whether 1983 or 1984 tax returns were filed. For TY 1987, we examined whether 1983, 1984, or 1985 returns were filed. To count as being filed for a particular tax year, a return had to be received by the end of September in the year the return was due. This variable was set equal to 1 if a return was filed and 0 if not filed.
Total positive income (TPI)	TPI is a measure of income that excludes losses. Since we used tax data from those who filed for TY 1985 or TY 1986, our TPI is for these years. The six categories of income examined were (1) less than $3,000, (2) $3,000 to less than $8,000, (3) $8,000 to less than $15,000, (4) $15,000 to less than $20,000, (5) $20,000 to less than $30,000, and (6) $30,000 and more. Six variables were created to represent the TPI categories. The first variable was set equal to 1 if TPI was less than $3,000, and 0 otherwise. The second variable was set equal to 1 if TPI was $3,000 and less than $8,000, and 0 otherwise. The remaining four variables were scored similarly.
Taxable income	Taxable income is also for TY 1985 or TY 1986. The six categories of income examined were (1) less than $3,000, (2) $3,000 to less than $8,000, (3) $8,000 to less than $15,000, (4) $15,000 to less than $20,000, (5) $20,000 to less than $30,000, and (6) $30,000 and more. The variables for taxable income were scored similarly to the TPI variables.
Refund	For the 1986 analysis, we examined whether or not a taxpayer received a refund from the TY 1985 return. For the 1987 analysis, we looked for a TY 1986 refund. This variable was set equal to 1 if a defaulter had a tax refund and 0 if no refund.
Balance-due return	A return is filed, but the taxpayer does not pay the tax liability in full.
Filing status	There were five possible filing statuses on a tax return. We collapsed the filing statuses into two categories: joint and all others. This variable was set equal to 1 if the defaulter filed jointly and 0 otherwise.
Tax offset	For the TY 1986 analysis, this variable was set equal to 1 if a defaulter had a tax offset between TY 1983 and TY 1985. Otherwise, it was set equal to 0. For the TY 1987 analysis, this variable was set equal to 1 if a defaulter had a tax offset between 1983 and 1986. Otherwise, it was set equal to 0.

(continued)

Variable	Definition
Regions	Bureau of the Census regions were used to stratify the states where the debtors defaulted. We looked at five regions: Northeast, Midwest, South, West, and "other." We then collapsed the regions into two groups that were statistically different: one for the West and Northeast; and one for all other regions. This variable was set equal to 1 if a debtor defaulted in the West or Northeast regions and 0 otherwise.
Age	Age of the defaulter. We used the following age categories: (1) 24 years or less, (2) 25 to 29 years; (3) 30 to 34 years; and (4) 35 years and older. We collapsed the age categories into two groups that were statistically different: 29 years or less and 30 and over. The variables were scored similarly to the TPI variables. The age was calculated as of January 1, 1986.

Why These Variables Were Included

The first two items in table II.1 control for different combinations of offset and referral. The offset variable measures the importance of having been offset for the subsequent year's filing behavior. The referral variable measures the importance of being threatened with an offset for the current year's filing behavior.

The third variable is filing history. People might not file tax returns because they have low incomes and no filing requirement. Others might not file because they have chosen not to comply with the tax system. In either case, an individual's filing history could be a good predictor of current filing behavior. If the defaulter filed neither a 1983 nor 1984 tax return but did file a 1985 tax return, we expect the defaulter would be less likely to file a 1986 tax return than someone who filed in all 3 years.

We included two variables to measure income: TPI and taxable income. The two measures give different perspectives on a person's income. TPI excludes any losses a person may have incurred; for example, losses from a tax shelter would be excluded. In contrast, taxable income will be less than or equal to TPI as a result of deductions, exemptions, and losses. We anticipate that low income defaulters using either measure may be less likely to have a filing requirement than higher income defaulters. In addition, low income defaulters may be more likely to file a return without fully paying the tax due, because they may not have the money.

We also examined whether a defaulter received a refund with his or her last tax return. An offset defaulter initially had to have a refund in

order to be offset, while a nonoffset defaulter may not have had a refund for TY 1985. To control for this possibility, we included the refund variable to account for the differences in the groups. We also controlled for whether the 1985 tax return was a joint return or not. We anticipated that two-income families were less likely to have a major disruption in income and consequently were more likely to file. We also included a variable for different geographical regions to control for possible regional variation. We included a variable indicating whether the defaulter was previously offset for taxes. This variable attempted to measure any differential effect that might have existed from having been offset in the past for tax-related reasons.

We also included other variables, such as an additional tax assessments variable (penalties), which are not listed in the table. None of these were statistically significant at the 5-percent level.

The Statistical Results for Analysis of TY 1986 Filing

We analyzed the TY 1986 filings to determine if the Refund Offset Program increased the odds that a defaulter whose refund was offset would not file in the next year and to measure the magnitude of the effect. Our results indicate that the effect of an offset for TY 1985 increased the odds that a GSL defaulter would not file for TY 1986.

Table II.2 shows the statistical results of the logit analysis for filing for TY 1986. All of the variables listed in the table are statistically significant at the 1-percent level. This means that the chances of getting coefficients of such a magnitude when the variable, in fact, has no effect are less than 1 percent.

The table displays the logit coefficients (log odds ratios) and the odds ratios estimating the effects of each of the variables. The dependent variable is defined as equal to one if a return was not filed, and equal to zero otherwise. Thus, a positive log odds ratio indicates a decrease in the probability of filing, and a negative value indicates an increase in the probability of filing. The odds indicate the size of the effect. The intercept is the estimated log odds (or odds) on not filing for the group scored zero on all independent variables (i.e., defaulters who did not file for TY 1983 or 1984 were not offset, etc.). The analysis includes all defaulters who filed a TY 1985 return before the end of September 1986.[3]

[3]We varied this definition of filing and found no discernable differences in the results.

Table II.2: Logit Analysis for TY 1986 Nonfiling

Variable	Log odds	Odds
Intercept	−0.73	0.48
Refund offset variables	**Log odds ratios**	**Odds ratios**
CY 1986 offset	0.49	1.63
TY 1986 referral	0.52	1.68
TY 1985 refund	−0.24	0.79
CY 1986 offset & TY 1985 refund	−0.53	0.59
CY 1986 offset & TY 1986 referral	−0.37	0.69
Other tax and nontax variables		
Filed TY 1983	−0.41	0.66
Filed TY 1984	−1.32	0.27
Northeast & West regions	0.20	1.22
Joint TY 1985	−0.56	0.57
Tax offset	0.17	1.19
Filed TY 1984 &		
TPI < $3,000	1.37	3.94
TPI $3,000 to < $8,000	0.96	2.61
TPI $8,000 to < $15,000	0.55	1.73
TPI $15,000 to < $30,000	0.31	1.36
Taxable income < $3,000	0.30	1.35

Note: Categories of taxable income and total positive income were collapsed when statistical testing showed insignificant differences between categories.

The estimated logit coefficient—the log odds ratio for the CY 1986 refund offset variable—is .49 (the odds ratio is 1.63). Therefore, a taxpayer who is offset for TY 1985 has 1.63 times greater odds of not filing a 1986 tax return than a nonoffset taxpayer. The 1.63 odds ratio isolates the effect of the offset on the filing of the next year's return and also assumes, for example, that the offset and nonoffset groups neither had a refund nor were referred again. The odds ratio for the offset group without a refund is 2.1 (1.63 odds ratio / .79 odds ratio) when compared with the nonoffset group with a refund. We also examined the combined effect of an offset and a refund for TY 1985 on filing behavior. Offset defaulters who still had a refund in spite of the offset had .96 times (1.63 odds ratio × .59 odds ratio) greater odds of not filing than defaulters who were not offset but had a refund. Since most of the GSL offset defaulters (approximately 90 percent) did not receive a refund for TY 1985, we believe the 2.1 odds ratio is the more relevant comparison with IRS' study results and that it more accurately portrays the offset effect.

The effect of a referral to IRS for a TY 1986 offset also increases the chance of nonfiling. The referral variable is statistically significant and has roughly the same effect as the offset. A defaulter who was referred for offset for TY 1986 had 1.68 times greater odds of not filing than a defaulter who was not referred.

The combined effect of an offset in CY 1986 (TY 1985) and referral for TY 1986 increases the odds of nonfiling. Defaulters who were offset (and received no refund) and referred again the next year had 1.89 times greater odds of not filing a 1986 tax return than a nonoffset, nonreferred defaulter who had no refund for TY 1985. This combined effect is calculated by multiplying the odds of an offset, referral, and the interaction effect of the offset and referral (1.63 odds ratio × 1.68 odds ratio × .69 odds ratio).

The remaining variables deal with tax and nontax control variables. These variables control for factors unrelated to the Refund Offset Program, such as income and filing history. Some of these variables had a greater effect on the filing of the 1986 return than did the offset program. Our analysis showed the following:

- A defaulter who had a history of filing was likely to continue filing. Defaulters that filed for TY 1984 had 3.70 times (1/.27 odds ratio) greater odds of filing a 1986 tax return than defaulters who did not file for TY 1984. Similarly, defaulters who filed a 1983 tax return, regardless of whether a 1984 tax return was filed, had 1.52 times (1/.66 odds ratio) greater odds of filing than defaulters who did not file a 1983 tax return. Finally, defaulters who filed both a 1983 and 1984 tax return had over 5 times (1/(.66 odds ratio × .27 odds ratio)) greater odds of filing a 1986 tax return than defaulters who did not file in both of those years.
- As the TY 1985 TPI of defaulters who filed a 1984 tax return increased, the likelihood of filing a 1986 tax return increased. Defaulters who had 1985 taxable income of less than $3,000 had 1.35 times greater odds of not filing a 1986 tax return than defaulters with taxable income of $3,000 or more.
- A defaulter that had a refund from his or her 1985 tax return had 1.27 times (1/.79 odds ratio) greater odds of filing a 1986 tax return than a defaulter that had no refund.
- The odds of filing for TY 1986 were also dependent on whether the defaulter filed a joint return. If the TY 1985 return was jointly filed, the defaulter had 1.75 times (1/.57 odds ratio) greater odds of continuing to file for TY 1986 than defaulters who did not file a joint return.

- Defaulters in the West and Northeast regions had 1.22 times greater odds of not filing than those in other regions.

The Statistical Results for Analysis of TY 1987 Filing

We examined TY 1987 filings to see whether and to what extent the Refund Offset Program affected filing behavior 1 year or 2 years after the offset took place. The largest effect for 1987 filings resulted from offsets occurring for the prior TY (TY 1986) and referrals for offset for TY 1987. The offset effect for the initial year (TY 1985) on filing behavior 2 years later was small. However, even the 1-year effects were lower for those who filed for TY 1987 than for those who filed for TY 1986.[4]

The analysis for TY 1987 filing was done in two parts. To examine filing behavior for TY 1987 of those who filed a 1986 tax return, we used a model similar to the one used to analyze TY 1986 filing behavior. For those who did not file a 1986 tax return, we had to use a separate and less complete model.

Table II.3 presents the results of our logit model for TY 1987 filing based on those who filed for TY 1986. The model is similar to the model for TY 1986 except that the years are changed.

[4]In general, the log odds ratio for the TY 1987 nonfiling analysis show a smaller effect than the comparable log odds ratios from the TY 1986 nonfiling analysis. This effect could be due to selection bias. For example, the defaulters under analysis for TY 1987 may be, in general, more likely to file and less affected by the included variables.

Table II.3: Logit Analysis of TY 1987 *Nonfiling for* TY 1986 Filers

Variable	Log odds	Odds
Intercept	−0.86	0.42
Refund offset variables	**Log odds rations**	**Odds ratios**
TY 1987 referred	0.37	1.45
TY 1986 offset	0.25	1.28
TY 1985 offset	0.11	1.12
TY 1986 refund	−0.31	0.73
TY 1986 offset & TY 1987 referral	−0.22	0.80
Other tax and nontax variables		
Tax offset	0.29	1.34
Northeast & West regions	0.16	1.17
Joint TY 1986	−0.40	0.67
Filed TY 1983	−0.32	0.73
Filed TY 1984	−0.35	0.70
Filed TY 1985	−0.86	0.42
Taxable income		
< $3,000	0.51	1.67
$3,000 to < $20,000	0.17	1.19
Filed TY 1985 &		
TPI < $3,000	0.81	2.25
TPI $3,000 to < $8,000	0.48	1.62
TPI $8,000 to < $15,000	0.17	1.19

Note: Categories of taxable and total positive income were collapsed when statistical testing showed insignificant differences between categories.

The effect of a refund offset for TY 1986 was to increase nonfiling for TY 1987. Specifically, an offset defaulter had 1.28 times greater odds of not filing than a nonoffset defaulter. This effect is smaller than the 1-year effect estimated for being offset for TY 1985 on the odds of filing for TY 1986, which was 1.63.

The referral for offset was also associated with adverse effects on filing behavior. A defaulter who was referred for offset for TY 1987 had 1.45 times greater odds of not filing than a defaulter who was not referred. This effect of referral on filing is smaller than that found for TY 1986, since in that year the effect raised the odds of not filing to 1.68.

The combined effect for a TY 1986 offset and a TY 1987 referral was to raise the odds of not filing to 1.48 times what they would have been if the defaulter had not been offset or referred for offset. This effect was

calculated by multiplying the odds ratios of an offset, referral, and the interaction effect of the offset and referral (1.28 odds ratios × 1.45 odds ratio × .80 odds ratio). The size of the combined effect is lower for TY 1987 than for TY 1986, when it was 1.89. Also, we found virtually no difference in filing behavior when we compared defaulters who were offset for TY 1986 and referred for TY 1987 with defaulters who were not offset but were referred for TY 1987.

We also examined the effect stemming from the first offset—the 2-year effect—by looking at the effect on 1987 filing of having been offset for TY 1985. Although the variable is statistically significant, the effect is minor. The effect of an offset for TY 1985 was to raise the likelihood of nonfiling for TY 1987 by a factor of 1.12. So, defaulters who were offset in the first year had only 1.12 times greater odds of not filing than defaulters who were not referred or offset for TY 1986.

A whole set of tax and nontax variables that affected TY 1986 filing behavior also affected TY 1987 filing behavior. A defaulter's filing history played an important role in whether the defaulter was more likely to file. For instance, a defaulter who filed for TY 1983 through 1985 had 4.7 times (1/(.73 odds ratio × .70 odds ratio × .42 odds ratio)) greater odds of filing a 1987 tax return than a defaulter who only filed a 1986 tax return. TPI of the defaulters also affected the likelihood of filing. Defaulters with low TPI were less likely to file than defaulters with higher incomes, given that the defaulters had a history of filing. Also, defaulters who filed a joint return for TY 1986 had 1.49 times (1/.67 odds ratio) greater odds of filing for TY 1987 than defaulters who did not file a joint return.

The prior analysis of TY 1987 filing only covers those defaulters who filed a TY 1986 return and excludes those defaulters who did not file a TY 1986 return. The next logit model analyzes TY 1987 filing for the defaulters who did not file a return for TY 1986.

We analyzed TY 1987 filing by TY 1986 nonfilers using a model similar to the model presented for TY 1986. However, the effect of the offset program (offsets and referrals) was statistically insignificant. We analyzed all combinations of offsets and referrals relative to filing for TY 1987 and found none of the refund offset variables to be statistically significant. In particular, an offset for TY 1985 and referrals for TY 1986 and TY 1987 either singly or in combination were not associated with reduced filing.

Table II.4: Logit Analysis of TY 1987 Nonfiling for TY 1986 Nonfilers

Variable	Log odds	Odds
Intercept	0.65	1.92
Tax characteristics	**Log odds ratios**	**Odds ratios**
Filed TY 1983	−0.22	0.80
Taxable income < $3,000	0.28	1.32

As table II.4 shows, only low taxable income for TY 1985 and a previous filing history were statistically related to TY 1987 nonfiling. Defaulters with low taxable income—less than $3,000—in TY 1985 had 1.32 times greater odds of not filing for TY 1987 than defaulters with higher taxable income. In contrast, those defaulters who filed a return for TY 1983 had higher odds of filing a TY 1987 return than if they did not file a TY 1983 return. So, defaulters with no return for TY 1983 and low taxable income in TY 1985 were the least likely to file for TY 1987.

To the extent that we can measure a long-term effect of the Refund Offset Program on voluntary compliance with the tax laws after only 2 years, we found that the estimated effect is quite small for those who filed a tax return for TY 1986 and statistically insignificant for those who filed for TY 1985 but not for TY 1986.

Statistical Results for Balance-Due Returns Filed for TY 1986

We analyzed the TY 1986 returns to determine if IRS' Refund Offset Program led to increased taxpayer filing of balance-due returns. Balance-due returns are cases in which taxpayers file a return but do not pay their tax liability in full at the time of filing. Our results indicate that the Refund Offset Program had no statistically significant effect upon the nonpayment of taxes.

In this analysis, the dependent variable is defined as equal to one if the defaulter filed but did not fully pay the tax liability. Accordingly, positive log odds ratios indicate an increase in the odds of a return being filed with unpaid taxes, and negative values indicate a decrease in the odds. Our analysis includes only those defaulters who filed a TY 1985 return before October 1986.

Table II.5: Logit Analysis for Balance-Due Returns Filed for TY 1986

Variable	Log odds	Probability	Odds ratios
Intercept	−2.49	0.0001	0.08
Refund offset variable	**Log odds ratios**	**Probability**	**Odds ratios**
CY 1986 offset	0.14	0.085	1.15
TY 1986 referral	0.02	0.821	1.02
CY 1986 offset & TY 1986 referral	−0.03	0.865	0.97
Other tax and nontax variables			
TPI < $20,000	−0.30	0.0001	0.74
Balance-due TY 1983	0.86	0.0001	2.36
Balance-due TY 1984	1.04	0.0001	2.83
Balance-due TY 1985	2.36	0.0001	10.59
Balance-due TY 1983 & TY 1984	−0.46	0.0309	0.63
Balance-due TY 1983 & TY 1985	−0.79	0.0006	0.45
Balance-due TY 1984 & TY 1985	−0.45	0.0117	0.64
Balance-due TY 1983, TY 1984, & TY 1985	0.74	0.0294	2.10
Age < or = 29 years	−0.21	0.0001	0.81
Tax offset	0.28	0.0001	1.32

Because some of the variables that were important in previous analyses are either statistically insignificant or of borderline significance, we have included the probability that such an effect would occur if the independent variable in question actually had no influence on the probability of filing a tax return with a balance due. The offset variable is not statistically significant at the 5-percent level. However, it would be significant at the 10-percent level. The size of the log odds ratios for the offset and referral variables are very small (near 0), indicating virtually no effect. Even if either coefficient were statistically significant, the effect in terms of increased returns filed owing taxes would be negligible.

The factors that appear to affect the filing of balance-due returns are income, prior filing of returns with unpaid taxes, prior tax offset, and age of the defaulters. Defaulters with higher income (TPI greater than or equal to $20,000) had 1.35 times (1/.74 odds ratio) greater odds of filing a balance-due return than defaulters with TPI of less than $20,000. In general, defaulters who previously filed returns owing taxes had higher odds of filing a return owing taxes. By far the most significant effect stemmed from unpaid taxes for the previous TY—TY 1985. If a return

was filed for TY 1985 owing taxes, the defaulter had 10.6 times greater odds of filing such a return for TY 1986 than if he filed fully paid.

We did not analyze TY 1987 returns for unpaid taxes because we did not find any referral or offset effect for TY 1986.

Comments From the Internal Revenue Service

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

COMMISSIONER

DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
WASHINGTON, D.C. 20224

APR 12 1991

Mr. Richard L. Fogel
Assistant Comptroller General
United States General Accounting Office
Washington, DC 20548

Dear Mr. Fogel:

We have reviewed your recent draft report entitled, "Tax Policy: Refund Offset Program Benefits Appear to Exceed Costs".

We agree that further studies are needed to provide more comprehensive information on the overall costs and benefits of the Refund Offset Program. Specifically, we agree to include in our future studies as many nontax characteristics, such as age and geographic location, as possible to ensure comparability between the offset and comparison groups. In addition, our future studies will include an estimate of the potential revenue loss due to any noncompliant filing behavior and a comparison of this loss with the program's benefits. Analyses in all three of these areas are already underway. IRS plans to release an interim report of the study findings in mid-1992, with a final report to be released in late 1994.

As noted in the report, our Research Division has issued several reports which describe the decrease in compliance by taxpayers experiencing refund offset. Based on our own experience in carrying out these refund offset analyses, we have identified several concerns with GAO's research methodology which are discussed in the enclosure. We will continue to work closely with GAO as we continue to study the long-term effects of the refund offset program on taxpayer compliance.

Best regards.

Sincerely,

for/ Fred T. Goldberg, Jr.

Enclosure

IRS COMMENTS ON GAO DRAFT REPORT ENTITLED
"TAX POLICY: REFUND OFFSET PROGRAM
BENEFITS APPEAR TO EXCEED COST"

Now pp. 20-22.

Potential Revenue Loss as a Result of Offsetting Refund (pp.31-33)

Voluntary Repayments--Although GAO did not include in their cost-benefit analysis voluntary repayments made to debtor agencies after notification letters were issued, the report does cite these voluntary repayments as indirect benefits of the offset program. We believe that a formal cost/benefit analysis of the refund offset program should only include benefits derived from those revenues collected through actual offsets. Treating voluntary repayments as benefits would also require estimating the potential revenue loss resulting from taxpayer reaction to the notification letter. Since estimating this reaction is extremely difficult, we do not believe that such an approach would provide an accurate representation of the true costs and benefits of this program.

Enforcement Costs--Consistent with their study findings, GAO does not include costs associated with balance due filers (i.e., filers who do not remit the entire tax liability with their returns) in their cost-benefit analysis. However, since IRS' study findings suggest that there is an increase in balance due filing following the offset, costs associated with these cases will be reflected in our revenue impact analyses. In addition, we will include information on the level (and cost) of the enforcement effort required to collect these delinquent taxes.

Now pp. 12-14.

Objective, Scope, and Methodology (pp. 18-21)

See comment 1.

Control Group--In GAO's study involving debtors delinquent in making payments of educational loans under the Guaranteed Student Loan (GSL) Program, it is uncertain whether the individuals in the study were representative of the GSL debtor population (e.g., in terms of debt characteristics such as size and age of the debt; nontax characteristics such as occupation and level of education; and in terms of tax characteristics such as income).
In addition, the reasons why various state guarantee agencies did not refer individuals to the Department of Education need to be taken into account. Because of these concerns, it appears that GAO has not resolved the issues surrounding the construction of an ideal control group.

Now pp. 15-17.

General Filing Characteristics of GAO and IRS Study Groups
(PP- 22-26)

See comment 2.

Based upon the nonfiling and balance due rates presented in Tables 2.1 and 2.2 of the report, it is difficult to determine how comparable the results are between GAO's preliminary (descriptive) analysis and the IRS analysis. The results of the IRS study are derived using a statistical weighting scheme which ensures that the non-offset group simulates a group with the same tax characteristics as the offset group. In the IRS study, the nonfiling and balance due rates for the offset and non-offset groups are similar prior to the offset, while showing a significant increase for the offset group in the year after the offset. Because GAO presents only raw data and did not perform any type of weighted analysis, it is entirely possible that the tax related behavior of GAO's offset and non-offset groups are dissimilar prior to the offset. If this is indeed the case, then any differences (or lack of differences) in tax compliance behavior following the offset cannot be attributed solely to the offset.

Now pp. 19 and 35-38.

Refund Offset Programs' Effect on Filing was not Long Term
(pp. 29-30, 53-62)

See comment 3.

We do not agree that GAO's analysis of the long-term effect of the refund offset program is conclusive. GAO split their sample of GSL debtors into two groups: defaulters who filed a TY 1986 return and defaulters who did not file a TY 1986 return. GAO found that TY 1986 filers who were offset in TY 1985 (and not offset in TY 1986 or referred in TY 1987) were still 1.1 times more likely not to file for TY 1987 than those who were never offset or referred.

Now p. 33.

However, their model for TY 1986 nonfiling (p. 53) shows that those taxpayers who filed prior to initial offset had a strong propensity to file in TY 1986. This seems to suggest that while the likelihood of nonfiling in TY 1987 has diminished, it is still significantly higher than the pre-offset behavior.

Furthermore, based on their analysis of FY 1987 nonfiling for 1986 nonfilers, GAO concludes that the only statistically significant factors influencing TY 1987 nonfiling were TY 1983 nonfiling and TY 1985 taxable income under $3,000 (p.62). Although this finding appears questionable and indicates a possible error in the model, GAO uses the model to infer that the refund offset program does not affect the filing patterns of TY 1987 nonfilers who were also TY 1986 nonfilers. IRS suggests that GAO combine their analyses of TY 1987 nonfiling into one model. GAO could possibly incorporate income data for multiple years and estimate these data--perhaps using extrapolation and/or interpolation--for the year(s) that debtors did not file. This approach might lead to a better estimate of the effect of the refund offset program on long term filing patterns. While the results may not be as strong in the statistical sense, the model and its interpretation may yield richer results.

Now p. 38.

Now pp. 25-27.

Sampling Plan (pp. 39-40)

See comment 4.

We are not certain whether GAO's study groups are representative of the GSL program, and whether they have adequately tested the significance of their "geographic data." In Table I.1, GAO presents their sampling scheme, stratified by geographic region. Fourteen percent of the sample for the GSL offset group come from the "Other" category. This seems disproportionately large since IRS study data suggest that the "Other category represents less than 1 percent of the referral population. Typically, the "Other" category consists of individuals living in U.S. territories and Americans living abroad. It should be noted, however, that the "Other" category for the non-offset state subgroup consists solely of taxpayers from Puerto Rico.

The following are GAO's comments on the Internal Revenue Service's letter dated April 12, 1991.

GAO Comments

1. We do not state or imply that we constructed an ideal control group. We constructed our control group to resemble the offset group on an important nontax characteristic: all were guaranteed student loan defaulters. We further controlled for other characteristics in the logit models that we believed could affect filing behavior. For example, we included filing history, income, age, region, and filing status. It is always possible to extend the analysis to include other characteristics, such as those cited by IRS. IRS should consider these factors in its future studies.

2. IRS was concerned about our preliminary examination of the data and our comparison of this data to IRS' results. We never intended to use our preliminary results as a measure of the effect of the Refund Offset Program on compliance. Instead, we used the logit technique to study the program's effect. We revised the wording on pages 16 and 18 to clarify why IRS' results and our preliminary results were presented. The overall filing characteristics of the GAO and IRS study groups were included in our report to show the general profile of student loan defaulters' filing patterns and to show the magnitude of noncompliant behavior.

3. IRS was concerned that our analysis of the long-term effect of the Refund Offset Program is inconclusive. It questioned our decision to split our tax year 1987 analysis into two models. IRS said that while the results of our split model showed that the likelihood of nonfiling for tax year 1987 diminished when compared to 1986 nonfiling behavior, the 1.1 odds ratio of not filing for tax year 1987 was still significantly higher than for the preoffset nonfiling behavior.

Our analysis of defaulters' 1987 filing behavior addresses IRS' methodological concerns, and we believe our results are valid. We split our tax year 1987 analysis into two models after our initial examination of filing behavior for all sample defaulters showed that the offset had a minor effect on filing a 1987 tax return. This initial analysis showed that the filing of a 1986 tax return accounted for most of the variation in the data. By separating the tax year 1987 filing analysis into two models, we were able to measure how factors other than 1986 filing behavior affected filing behavior for 1987. While it is true that defaulters who were offset for tax year 1985 and filed for tax year 1986 had 1.1 times greater odds of not filing in 1987, we believe this effect is small.

IRS was also concerned about our conclusion that the only statistically significant factors affecting tax year 1987 nonfiling were tax year 1983 nonfiling and having tax year 1985 taxable income under $3,000. It said our results appeared questionable and indicated a possible error in our model. Although our 1987 analysis found the preceding variables to be the only statistically significant factors, these results do not suggest that an error exists. Our 1987 analysis included variables similar to those found in the other models. We did not report the results of variables that were not statistically significant. Therefore, we believe the analysis showed little effect of the tax year 1985 offset on tax year 1987 filing.

4. The size of the "other" category had no effect on the logit model results. We analyzed our data for regional differences and we found that the Northeast and West regions had higher nonfiling rates than the South, Midwest, and "other" categories.

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