

GAO

Report to the Committee on Finance,
U.S. Senate

November 2009

TAX POLICY

The Research Tax Credit's Design and Administration Can Be Improved



GAO

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Highlights of [GAO-10-136](#), a report to Committee on Finance, U.S. Senate

TAX POLICY

The Research Tax Credit's Design and Administration Can be Improved

Why GAO Did This Study

The tax credit for qualified research expenses provides significant subsidies to encourage business investment in research intended to foster innovation and promote long-term economic growth. Generally the credit provides a subsidy for research spending in excess of a base amount but concerns have been raised about its design and administrability.

GAO was asked to describe the credit's use, determine whether it could be redesigned to improve the incentive to do new research, and assess whether recordkeeping and other compliance costs could be reduced. GAO analyzed alternative credit designs using a panel of corporate tax returns and assessed administrability by interviewing IRS and taxpayer representatives.

What GAO Recommends

Congress should consider eliminating the regular credit option and adding a minimum base to the alternative simplified credit. GAO recommends that the Secretary of the Treasury clarify the definition of qualified research expenses and organize a working group to develop standards for documentation. Treasury agreed with our recommendation and plans to provide additional guidance in the next few months.

[View GAO-10-136](#) or [key components](#). For more information, contact James White at (202) 512-9110 or whitej@gao.gov.

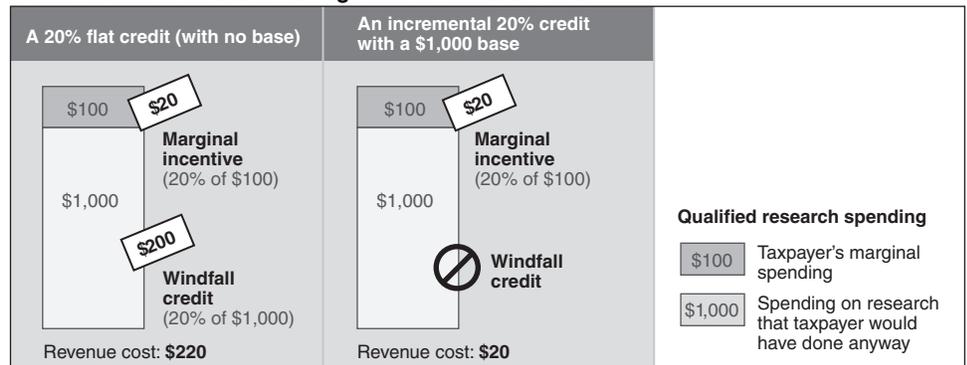
What GAO Found

Large corporations have dominated the use of the research credit, with 549 corporations with receipts of \$1 billion or more claiming over half of the \$6 billion of net credit in 2005 (the latest year available). In 2005, the credit reduced the after-tax price of additional qualified research by an estimated 6.4 to 7.3 percent. This percentage measures the incentive intended to stimulate additional research.

The incentive to do new research (the marginal incentive) provided by the credit could be improved. Based on analysis of historical data and simulations using the corporate panel, GAO identified significant disparities in the incentives provided to different taxpayers with some taxpayers receiving no credit and others eligible for credits up to 13 percent of their incremental spending. Further, a substantial portion of credit dollars is a windfall for taxpayers, earned for spending they would have done anyway, instead of being used to support potentially beneficial new research. An important cause of this problem is that the base for the regular version of the credit is determined by research spending dating back to the 1980s. Taxpayers now have an "alternative simplified credit" option, but it provides larger windfalls to some taxpayers and lower incentives for new research. Problems with the credit's design could be reduced by eliminating the regular credit and modifying the base of the alternative simplified credit to reduce windfalls.

Credit claims have been contentious, with disputes between IRS and taxpayers over what qualifies as research expenses and how to document expenses. Insufficient guidance has led to disputes over the definitions of internal use software, depreciable property, indirect supervision, and the start of commercial production. Also disputed is the documentation needed to support a claim, especially in cases affected by changes in the law years after expenses were recorded. Such disputes leave taxpayers uncertain about the amount of credit to be received, reducing the incentive.

An Illustration of How Base Design Affects Windfall Credits



Source: GAO.

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Abbreviations

AER	Average Effective Rate
AIRC	Alternative Incremental Research Credit
ASC	Alternative Simplified Credit
ATG	Audit Technique Guides
EIN	Employer Identification Number
FBP	Fixed Base Percentage
IDR	Information Document Request
IRC	Internal Revenue Code
IRS	Internal Revenue Service
IUS	Internal-Use Software
LMSB	Large and Mid-Size Business
MER	Marginal Effective Rate
PFA	Prefiling Agreement
QRE	Qualified Research Expense
RCRA	Research Credit Recordkeeping Agreements
SME	Subject Matter Experts
SOI	Statistics of Income

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United States Government Accountability Office
Washington, DC 20548

November 6, 2009

The Honorable Max Baucus
Chairman
The Honorable Charles E. Grassley
Ranking Minority Member
Committee on Finance
United States Senate

Since 1981, the tax credit for qualified research expenses has provided significant subsidies (an estimated \$5.6 billion for fiscal year 2009) to encourage business investment in research and development. This type of investment can have a profound effect on long-term growth if it fosters innovation. Economists widely agree that some government subsidy for research is justified because the social returns from research exceed the private returns that investors receive. In the absence of a subsidy, the amount invested in research would be less than optimal from society's standpoint.

Despite the widespread support for the concept of a credit for increasing research activities, concerns have been raised about the cost-effectiveness of the design of the current credit and its administrative and compliance costs. Very generally, the research credit provides a subsidy for spending in excess of a base amount. One design issue is how the base is determined and how well it achieves its objective of targeting benefits only to research spending that would not have been done without the credit.

To help inform congressional deliberations on the credit, you asked us to (1) describe how taxpayers are currently using the credit; (2) identify what, if any, changes to the credit's design may be able to increase the incentive to do additional research with social benefits; and (3) identify specific and significant problems, if any, that exist in the administration of the credit and options to address them.

To provide information on the use of the research credit we analyzed Internal Revenue Service (IRS) taxpayer data from the Statistics of Income (SOI) Division's annual samples of corporate tax returns for the most recent years available (2003 through 2006) supplemented by data collected by IRS examiners. We determined that the data were sufficiently reliable for our purpose of describing the general characteristics of R&E Credit claimants; the amount and type of R&E Credit claimed by taxpayers; the average rate of credit for claimants; and the types of research spending for

which taxpayers are claiming the credit (i.e., basic vs. applied research, as defined by tax rules). However, we do discuss certain limitations of the data and how those may affect selected statistics.

To identify what, if any, problems exist with the design of the credit, we examined its performance, relative to alternative designs, in terms of three criteria. Our first criterion was the amount of revenue the government must forgo under each of the alternative credit designs in order to provide a given level of incentive.¹ Our second criterion was the extent to which each design minimizes unintended variations in the rates of incentives across taxpayers. Our final criterion was the extent to which each design of the credit helps to minimize the administrative and compliance burdens on IRS and taxpayers. We compared alternative designs of the credit by using a panel of SOI taxpayer data to simulate the sizes of the incentives and revenue costs of different credit designs under different scenarios, as well as by interviewing research credit experts. We performed a sensitivity analysis that allowed certain data and parameters of our simulation model to vary. For example, one aspect of our sensitivity analysis involved running the simulations using data collected at different stages of the tax filing process, including data from the original returns as well as from amended or audited returns, where applicable.² Our panel database included most of the largest credit claimants in 2003 and 2004, which accounted for about half of the total credits claimed and 54 percent to 55 percent of total qualified research expenses in each of those years. These corporations are not representative of all research credit claimants; however, the data available to us do not suggest that the remainder of the credit claimant population is so different from our panel population in key respects that we would have reached different conclusions and recommendations had we been able to run our simulations for the full population.³

¹Comparing alternative designs on the basis of this criterion is equivalent to comparing the designs on the basis of the level of incentive that each would provide at a given revenue cost to the government.

²Appendix I details how we estimate the incentive provided by various designs of the credit and the revenue cost associated with each design. The appendix also describes our sensitivity analyses and discusses limitations of our methodology.

³Appendix II provides selected comparative data for the panel and full populations; it also summarizes the results of sensitivity analyses in which we allow the spending histories of our panel population to vary significantly from those used for our baseline results.

To identify what, if any, specific problems exist with the IRS's administration of the credit or with taxpayers' ability to comply with credit rules, we interviewed IRS and Department of the Treasury officials, tax practitioners, and industry representatives about their principal concerns and how these concerns might best be addressed. In addition, we reviewed public comments made to Treasury about research credit regulations, as well as Treasury's responses to the comments. Finally, we analyzed data collected by IRS examiners relating to amended credit claims and audit adjustments to credit claims to identify which key line items in the credit computation are most subject to change after an initial claim has been filed.

We conducted this performance audit from January 2007 through August 2009 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

History and Overview of Credits for Different Types of Research

Congress created the research tax credit in 1981 to encourage businesses to do more research.⁴ The credit has never been a permanent part of the Internal Revenue Code (IRC). Since its enactment on a temporary basis in 1981, the credit had been extended 13 times, often retroactively. There was only a 1-year period (between June 30, 1995, and July 1, 1996) during which the credit was allowed to lapse with no retroactive provision upon reinstatement. Most recently, the credit was extended through December 31, 2009.

The basic design of the credit has been modified or supplemented several times since its inception. For tax years ending after December 31, 2006, through December 31, 2008, IRC Section 41 allowed for five different credits. Three of the credits, the regular research credit, the alternative incremental research credit (AIRC), and the alternative simplified credit (ASC), rewarded the same types of qualified research and are simply

⁴Economic Recovery Tax Act of 1981, Pub. L. No. 97-34 (1981).

alternative computational options available to taxpayers. Each taxpayer could claim no more than one of these credits. (For purposes of this report we use the term research credit when referring collectively to these options.) The AIRC option was repealed beginning January 1, 2009, while the ASC and regular research credit are available through the end of 2009. The other two separate credits, the university basic research credit and the energy research credit are targeted to more specific types of research and taxpayers that qualified could claim them in addition to the research credit. This report does not address those separate credits.

How the Research Credit Is Targeted

Both the definition of research expenses that qualify for the credit and the incremental nature of the credit's design are important in targeting the subsidy to increase the social benefit per dollar of revenue cost. In order to earn the research credit a taxpayer has to have qualified research expenses (QREs) in a given year and those expenses have to exceed a threshold or base amount of spending.

Qualified Research Expenses

The IRC defines credit eligibility in terms of both qualifying research activities and types of expenses. It specifies the following four criteria that a research activity must meet in order to qualify for purposes of the credit:

- The activity has to qualify as research under IRC section 174 (which provides a separate expensing allowance for research), which requires that an activity be research in the “experimental or laboratory sense and aimed at the development of a new product.”
- The research has to be undertaken for the purpose of discovering information that is technological in nature.
- The objective of discovering the information has to be for use in the development of a new or improved business component of the taxpayer.
- Substantially all of the research activities have to constitute elements of a process of experimentation for a qualified purpose.

The IRC also specifies that only the following types of expenses for in-house research or contract research would qualify:

- wages paid or incurred to employees for qualified services;
- amounts paid or incurred for supplies used in the conduct of qualified research;
- amounts paid or incurred to another person for the right to use computers in the conduct of qualified research; and

-
- in the case of contract research, 65 percent of amounts paid or incurred by the taxpayer to any person, other than an employee, for qualified research.

Spending for structures, equipment, and overhead do not qualify. In addition, the IRC identifies certain types of activities for which the credit cannot be claimed, including research that is

- conducted outside of the United States, Puerto Rico, or any other U.S. possession;
- conducted after the beginning of commercial production of a business component;
- related to the adaptation of an existing business component to a particular customer's requirements;
- related to the duplication of an existing business component;
- related to certain efficiency surveys, management functions, or market research;
- in the social sciences, arts, or humanities; or
- funded by another entity.

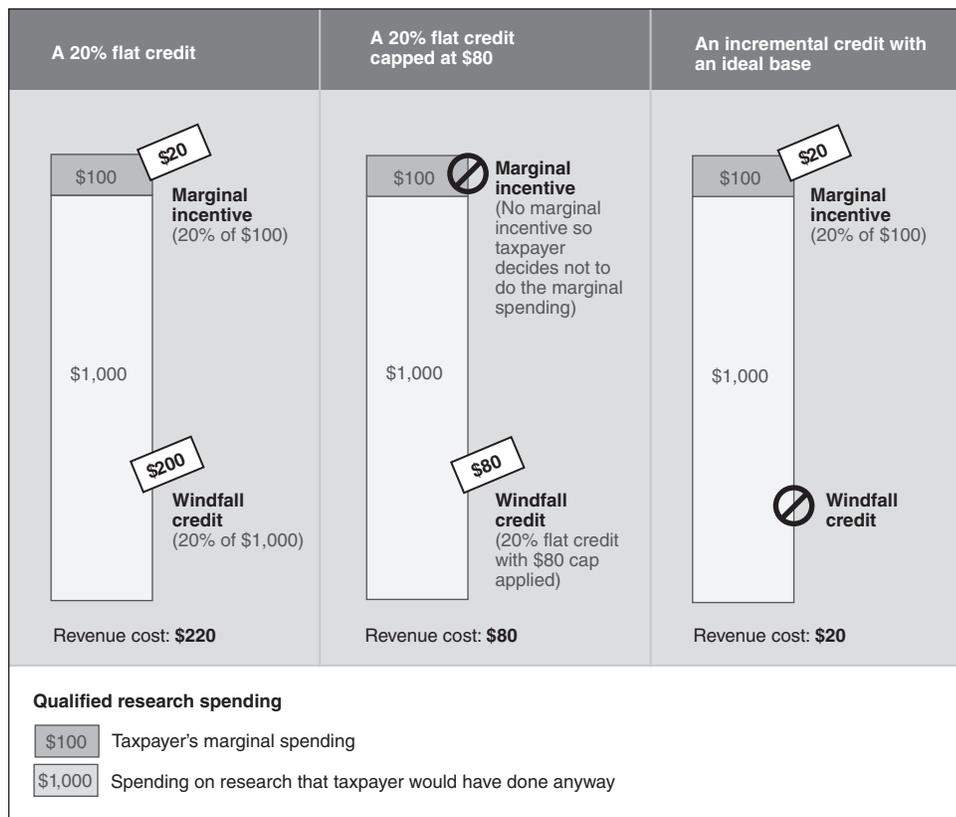
As will be discussed in a section below, the practical application of the various criteria and restrictions specified in the IRC has been the source of considerable controversy between IRS and taxpayers.

The Rationale behind an Incremental Design for the Credit

The research credit has always been an incremental subsidy, meaning that taxpayers earn the credit only for qualified spending that exceeds a defined base amount of spending. The purpose of this design is to reduce the cost of providing a given amount of incentive. Figure 1 illustrates the difference between an incremental credit and two common alternative designs for a subsidy—a flat credit and a capped flat credit. In the case of the flat credit a taxpayer would earn a fixed rate of credit, 20 percent in this example, for every dollar of qualified spending. The taxpayer's total qualified spending consists of the amount that it would have spent even if there were no subsidy, plus the additional or "marginal" amount that it spends only because the credit subsidy is available. The subsidy encourages additional spending by reducing the after-tax cost of a qualified research project and, thereby, increasing the project's expected profitability sufficiently to change the taxpayer's investment decision from no to yes. The subsidy provided for the marginal spending is the only portion of the credit that affects the taxpayer's research spending behavior. The remainder of the credit is a windfall to the taxpayer for doing something that it was going to do anyway. In the case of a capped credit, the taxpayer earns a fixed rate of credit on each dollar of qualified spending up to a specified limit. If, as in the example shown in figure 1,

the credit's limit is less than the amount that the taxpayer would have spent anyway, all of the credit paid is a windfall and no additional spending is stimulated because no incentive is provided at the margin. In contrast, the objective of an incremental credit is to focus as much of the credit on marginal spending while keeping the amount provided as a windfall to a minimum. The last example in figure 1 shows the case of an ideal incremental credit—one for which the base of the credit (the amount of spending that a taxpayer must exceed before it can begin earning any credit) perfectly measures the amount of spending that the taxpayer would have done anyway. This credit maintains an incentive for marginal spending but eliminates windfall credits, substantially reducing the credit's revenue cost. Alternatively, the savings from the elimination of windfalls could be used to increase the rate of credit on marginal spending.

Figure 1: A Comparison of an Incremental Credit to Flat and Capped Credits



Source: GAO.

Computation of the Research Credit

The primary differences across the research credit computation options are in (1) how the base spending is defined and (2) the rate of credit that is then applied to the difference between current-year QREs and the base amounts. The box below shows the detailed computation rules for each option. Alternative Computation Options for the Research Tax Credit (Before Restrictions)

Regular Credit Option

$$\text{Credit} = 20\% \times [\text{current-year QREs} - \text{base QREs}],$$

where base QREs equal the greater of

[the sum of QREs for 1984 to 1988 / the sum of gross receipts for 1984 to 1988] \times average gross receipts for the 4 tax years immediately preceding the current one, or
50% \times current-year QREs. [This is known as the minimum base amount.]

The ratio of QREs to gross receipts during the historical base period is known as the fixed base percentage (FBP). A maximum value for the FBP is set at 16 percent. Also, special “start-up” rules exist for taxpayers whose first tax year with both gross receipts and QREs occurred after 1983, or that had fewer than 3 tax years from 1984 to 1988 with both gross receipts and QREs. The FBP for a start-up firm is set at 3% for a firm’s first 5 tax years after 1993 in which it has both gross receipts and QREs. This percentage is gradually adjusted so that by the 11th tax year it reflects the firm’s actual experience during its 5th through 10th tax years.

ASC Option

$$\text{Credit} = 14\% \times [\text{current-year QREs} - 50\% \times \text{average QREs in the 3 preceding tax years}]$$

If a taxpayer has no QREs in any of its 3 preceding tax years, then the credit is equal to 6% of its QREs in the current tax year.

AIRC Option

(discontinued as of January 1, 2009)

Credit = 3% of QREs that are above 1% but not greater than 1.5% of average annual gross receipts in the 4 preceding tax years

+ 4% of QREs that are above 1.5% but not greater than 2% of average annual gross receipts in the 4 preceding tax years

+ 5% of QREs that are above 2% of average annual gross receipts in the 4 preceding tax years

Restrictions on the Credit's Use

The IRC requires that taxpayers reduce the amount of their deductions for research expenses under section 174 by the amount of research credit that they claim. Alternatively, the taxpayer can elect to claim a reduced credit, equal to 65 percent of the credit that it otherwise would have been able to claim.

The research credit is a component of the general business credit and, therefore, is subject to the limitations that apply to the latter credit. Specifically, the general business credit is generally nonrefundable, except for the provisions of section 168(k)(4), so if the taxpayer does not have a sufficient precredit tax liability against which to use the credit in the current tax year, the taxpayer must either carry back some or all of the credit to the preceding tax year (if had a tax liability that year), or carry the credit forward for use in a future tax year. Unused general business credits may be carried forward up to 20 years.

Group Aggregation Rules

When Congress originally enacted the research credit in 1981, it included rules “intended to prevent artificial increases in research expenditures by shifting expenditures among commonly controlled or otherwise related persons.”⁵ Without such rules, a corporate group might shift current research expenditures away from members that would not be able to earn the credit due to their high base expenditures to members with lower base expenditures. A group could, thereby, increase the amount of credit it earned without actually increasing its research spending in the aggregate. Under the IRC, for purposes of determining the amount of the research credit, the qualified expenses of the same controlled groups of corporations are aggregated together. The language of the relevant subsection specifically states that:

⁵Joint Committee on Taxation, *General Explanation of the Economic Recovery Tax Act of 1981* (JCS-71-81), December 29, 1981.

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1. All members of the same controlled group of corporations shall be treated as a single taxpayer,⁶ and
 2. The credit (if any) allowable under this section to each such member shall be its proportionate share of the qualified research expenses and basic research payments giving rise to the credit.

Congress directed that Treasury regulations drafted to implement these aggregation rules be consistent with these stated principles. As discussed in a later section, some tax practitioners say that Treasury's regulations on this issue are unnecessarily burdensome.

The Marginal Incentive Provided by the Research Tax Credit

One of the key measures that we will use to compare credit designs is the marginal effective rate (MER) of the credit, which quantifies the incentive that a credit provides to marginal spending and which can be simply stated as

$$\text{MER} = \text{change in the credit benefit} / \text{marginal qualified research expenses (QREs)}$$

The MER is the same as the marginal rate of incentive that we presented in figure 1. It measures the reduction in the after-tax price of marginal research due to the credit. In the example of a flat credit with a 20-percent statutory rate shown in that figure, the taxpayer received \$20 when it increased its spending by \$100, giving it an MER of 20 percent (the credit reduces the price of marginal research by 20 percent).⁷ However, factors other than just the statutory rate of a tax credit can also be important in determining its marginal incentive. Measures that take those other factors into account are commonly known as "effective rates." In a later section we explain how various features of the credit's design can affect the MER;

⁶The definition of a "controlled group of corporations" for purposes of the credit has the same meaning as used in determining a parent -subsidiary controlled group of corporations for the consolidated return rules except the aggregate rule is broader, substituting corporations that are greater than 50 percent owned for 80 percent owned corporations. The aggregation rules also apply to trades or businesses under common control. A trade or business is defined as a sole proprietorship, a partnership, a trust or estate or a corporation that is carrying on a trade or business.

⁷The average effective rate (AER) of the credit equals the total credit benefit that the taxpayer earns divided by its total qualified spending. In the case of the uncapped flat credit, the AER equals the MER because the taxpayer earns the same rate on every dollar that it spends. In contrast, the AER of an incremental credit will differ from that credit's MER. In the third example shown in figure 1, the MER is 20 percent (\$20 / \$100); however, the AER is slightly less than 2 percent (\$20 / \$1,100).

however, one factor that reduces the MER for all credit earners, regardless of the design, is the offset of the credit against the section 174 deduction for research spending (or the alternative election of the reduced credit amount) mentioned earlier. For corporations subject to the top corporate income tax rate of 35 percent, this offset effectively reduces the regular credit's MER from 20 percent to 13 percent and the ASC's MER from 14 percent to 9.1 percent.⁸ Another factor that reduces the MER of many taxpayers is the fact that they do not have sufficient tax liabilities to use all of the credits they earn in the current year. When a taxpayer cannot use the credit until sometime in the future, the present value of the credit decreases according to the taxpayer's discount rate. For example, if the taxpayer has a discount rate of 5 percent and must delay the use of \$1 million of credit for three years, the present value of that credit is reduced to approximately \$864,000.⁹ Such a delay, therefore, would reduce the regular credit's MER from 13 percent to about 11.2 percent. This delay in the use of the credit also reduces the present value of the revenue cost to the government. In the remainder of this report we make a distinction between the amount of net credit (after the section 174 offset) that taxpayers earn for a given tax year and the credit's discounted revenue cost, which reflects delays in the use of credits. Unless otherwise specified, we use the term revenue cost to refer to the discounted revenue cost.

Estimating the Credit's Stimulative Effect

Three pieces of information are needed to estimate the amount of spending stimulated by the research credit. Then, to determine how much spending is stimulated per dollar of revenue cost (colloquially known as the "bang-per-buck" of the credit), the tax revenue cost of the credit is also needed. The steps in this estimation process are illustrated in figure 2. The shaded boxes identify the information required. The first step is to multiply the weighted average MER provided by the credit times a measure of the responsiveness of total research spending to the price reduction.¹⁰ This responsiveness measure is called the price elasticity of

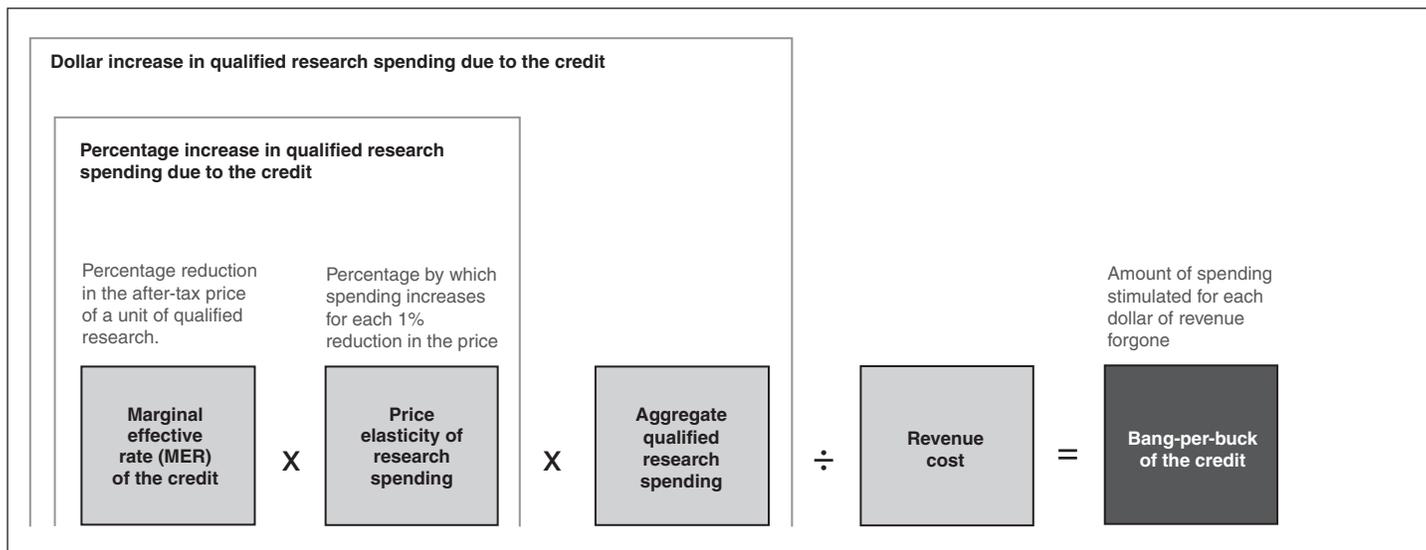
⁸At the 35 percent tax rate the value of being able to deduct \$1 from taxable income is \$0.35. Therefore, when a taxpayer must reduce its deduction for each dollar of research credit, the value of the credit is reduced by 35 percent. Expressed in terms of the rate of credit, the 35 percent reduction drops the MER from 20 percent to $(1 - 0.35) \times 20$ percent, or 13 percent.

⁹The present value = \$1 million / $(1 + 0.05)^3$.

¹⁰This weighted average MER is computed by estimating each taxpayer's MER and giving each one a weight that equals the taxpayer's share of aggregate QREs.

research spending and is defined as the percentage change in total QREs divided by the percentage change in the price of a unit of research. If the average MER were 5 percent and the price elasticity were -1, then the credit would increase total QREs by 5 percent. The next step in the computation is to apply the percentage increase to the amount of aggregate qualified spending that would have been done without the credit in order to determine the total amount of spending stimulated by the credit. Finally, the bang-per-buck can be estimated by dividing the total amount stimulated by the credit's revenue cost.

Figure 2: Information Needed to Estimate the Bang-per-Buck of the Credit



Source: GAO.

In this study, we provide some estimates of the credit's weighted average MER and revenue cost, as well as estimates of the aggregate amount of qualified research spending. We have not estimated the price elasticity of research spending and the available estimates from past empirical research leave considerable uncertainty regarding the size of that

elasticity.¹¹ Nevertheless, as can be seen in figure 2, for any value of the price elasticity, a credit design that provides the same weighted average MER as another design, but at a lower revenue cost, should provide a higher bang-per-buck than that other credit. Therefore, comparing different designs on the basis of their MER and revenue cost should be equivalent to comparing them on the basis of their bang-per-buck.

To fully assess the research credit's value to society, more than just the amount of spending stimulated per dollar of revenue cost would have to be examined. A comparison would have to be made between (1) the total benefits gained by society from the research stimulated by the credit and (2) the estimated costs to society resulting from the collection of taxes required to fund the credit. The social benefits of the research conducted by individual businesses include any new products, productivity increases, or cost reductions that benefit other businesses and consumers throughout the economy. Although most economists agree that research spending can generate social benefits, the effects of the research on other businesses and consumers are difficult to measure. We are not aware of any studies that have empirically estimated the credit's net benefit to society.

¹¹In 1996, at the request of Congressman Robert T. Matsui, we reviewed then-recent studies of the effectiveness of the credit to determine whether adequate evidence existed to support claims that each dollar of the tax credit stimulated at least one dollar of research spending in the short run and about two dollars of spending in the long run. We concluded that all of the available studies had data and methodological limitations that were significant enough to leave considerable uncertainty about the true responsiveness of research spending to tax incentives. None of the studies we reviewed estimated the long-run price elasticity of spending to be greater (in absolute terms) than -2; other estimates were considerably lower. We are not aware of any studies since 1996 that provide new estimates of the price elasticity of research spending by U.S. firms. In a later section we report our own estimates of the average MER and the revenue cost of the research credit and note what the bang-per-buck of the credit would be, if one assumed particular values for the price elasticity.

Large Corporations Have Dominated the Use of the Research Credit, Which Provided an Average Marginal Incentive of About 7 Percent in 2003 through 2005

Although more than 15,000 corporate taxpayers claimed research credits each year from 2003 through 2005, a significantly smaller population of large corporations (those with business receipts of \$1 billion or more) claimed most of the credit during this period. In 2005, 549 such corporations accounted for about 65 percent of the \$6 billion of net credit claimed that year (see figure 4 and table 3 in appendix II).¹² Even within the population of large corporations credit use is concentrated among the largest users. The 101 corporations in our panel database in 2004 accounted for about 50 percent of the net credit claimed that year. Corporations with business receipts of \$1 billion or more accounted for an even larger share—about 70 percent—of the \$131 billion of total QREs reported by credit claimants for 2005.¹³ In 2005 approximately 69 percent of QREs were for wages paid to employees engaged in qualified research activities. Almost all of the remaining QREs were for supplies used in research processes (about 16 percent) and for contract research (about 15 percent).¹⁴

Prior to the introduction of the ASC in 2006, taxpayers that used the regular credit accounted for the majority of QREs and an even larger

¹²The aggregate data on research credit claimants that we present differ in several respects from the data that IRS publicly reports. First, IRS excludes credit data reported by S corporations, which are “pass-through” entities, meaning that they are not subject to the corporate income tax. Instead, these entities’ income, deductions, and credits are allocated to their shareholders. We include S corporations in our tables and figures that show the amounts of qualified spending done and the amounts of credits earned because those entities do the spending that generate the credits. However, we exclude S corporations from our computations of MERs because the latter depend on the tax attributes of the shareholders, not the S corporations themselves. Second, IRS reports the amounts of credit claimed as they are reported on the taxpayers’ returns, which means in some cases these amounts will be for reduced credits, while in other cases they will be for full credits (with the taxpayers reducing their research expense deductions elsewhere on their returns). For the sake of consistency when comparing amounts of credits across different taxpayers, we report all credits on a net basis (subtracting the offset against the deduction where relevant). Third, the aggregated data IRS reports contains some double counting of QREs, which occurs because members of controlled groups are each required to report the total QREs of all group members. (They each report only their own share of the group’s total credit.) We have eliminated clear cases of double counting for all taxpayers with at least \$10 million of QREs (see appendix I for details).

¹³IRS’s aggregate data shows QREs and credits growing by about 13 percent and 15 percent, respectively, from 2005 to 2006. We would expect approximately the same rate of growth in our totals between those two years. The taxpayer-level data for 2006 were not available in time for us to make them consistent with the series reported in our tables and figures.

¹⁴These shares are based on data for those corporations that reported their spending by category.

majority of the research credit claimed.¹⁵ In 2005, regular credit users reported about 75 percent of all QREs and claimed about 90 percent of total research credits.¹⁶ (See figure 5 in appendix II.) Their share of total credits was larger than their share of total QREs because the regular credit rules were more generous than those of the AIRC for taxpayers who could qualify for the former. Most of the regular credit users were subject to the 50-percent minimum base, which, as we will explain in a later section, had a significant effect on the MER they received from the credit. The lack of current tax liabilities was another factor that affected the MERs of many credit claimants. In 2005, 44 percent of total net credits earned could not be used immediately. (See figure 6 in appendix II.)

By taking into account factors, such as which credit a taxpayer selected, whether it was subject to a minimum base, and whether it could use its credit immediately, we were able to estimate MERs for all of the credit claimants represented in SOI's corporate database (see appendix I for details). These individual estimates allowed us to compute a weighted average MER for all taxpayers. We also estimated the discounted cost to the government of the credits that all taxpayers earned. These estimates, along with data on total QREs, permitted us to estimate the bang-per-buck of the credit for 2003 through 2005 for alternative assumptions about the price elasticity of research spending. (See table 4 in appendix II.) Our estimate of the overall MER in 2005 ranged between 6.4 percent and 7.3 percent, depending on assumptions about discount rates and the length of time before taxpayers could use their credits. Our estimates of the discounted revenue cost were also sensitive to these assumptions and ranged between \$4.8 billion and \$5.8 billion. The bang-per-buck estimates were not sensitive to these particular assumptions;¹⁷ however, they were

¹⁵The data available from IRS, which covers corporate returns with tax years ending on or before June 30, 2007, do not yet reflect the full impact of the ASC option (first available for tax years ending after December 31, 2006). In a later section we estimate how many of our panel members would have chosen the ASC if it had been available in 2003 and 2004.

¹⁶The data in the figure do not include the negligible amounts of basic research credits earned or the qualified spending giving rise to those credits. In 2005 basic credits amounted to less than 1 percent of all credits earned and basic research spending was only about 0.2 percent of all qualified research spending. In 2005 corporations also reported receiving about \$150 million of credits from pass-through entities. Some of these credits may be from S corporations included in our population and, therefore, would have been double-counted if we included them in the figure.

¹⁷The discounting in the MER is counteracted by the discounting in the revenue cost when computing the bang-per-buck because one is a factor in the numerator and the other is a factor in the denominator.

quite sensitive to the price elasticity assumptions. If the elasticity was -0.5, the bang-per-buck for 2005 would have been about \$0.80. If the elasticity was -2, the bang-per-buck would have been about \$3.00.

Data on amended claims filed by our panel of large corporations indicate that, in the aggregate, these amendments increased the amount of credit claimed by between 1.5 percent and 5.4 percent (relative to the amounts claimed on initial returns) for each tax year from 2000 through 2003. (See tables 5 through 8 in appendix II.) The credit increase through amendments for tax year 2004 was only 0.5 percent. Data from IRS examinations of these large corporations indicate that examiners recommended changes that, in the aggregate, would have decreased credits claimed by between 16.5 and 27.1 percent each tax year from 2000 through 2003.¹⁸ (See tables 9 through 12 in appendix II.) The lower percentage change of 9 percent for 2004 reflects, in part, the fact that audits for that tax year had not progressed as far as those for the earlier years.

Changes of these magnitudes raise the question of how much credit taxpayers actually expected to receive when they filed their claims and, more important, when they were making their research spending decisions for the years in question.¹⁹ These expectations are critical because they are what affect the taxpayer's decisions, not the amounts of credit actually received well after the decisions have been made. For those taxpayers that do not expect to file amendments and do not expect IRS to change their credits, the amounts claimed on their original returns should be the best estimate of their expectations. For taxpayers that know they may be stretching the rules with some of the expenses they are trying to claim as QREs, their post-exam credit amounts may be better estimates of their expectations. In other cases, given the lack of clarity in certain aspects of the definitions of both QREs and gross receipts, taxpayers may be

¹⁸The data on amendments and examinations that we obtained from IRS's Large and Mid-Size Business (LMSB) Division reflect the status of claims as of late 2007. Some of the audit changes that examiners had recommended at that point in time had already been agreed to by taxpayers; others were still open and ultimately could be appealed by taxpayers.

¹⁹The percentages reported above represent averages across all of the panel corporations—both those that had their credits changed and those that did not. The percentage reductions for those corporations that actually had credits changed by examiners were actually higher—between 19.6 percent and 36.6 percent from 2000 through 2003.

uncertain whether they will receive any credit for particular research projects. Such uncertainty reduces the credit's effective incentive.

Important Trade-Offs Exist in the Choice of Research Credit Designs

The regular credit provides a higher average MER for a given revenue cost than does the current ASC; however, over time, the historically fixed base of the regular credit becomes a very poor measure of the research spending that taxpayers would have done anyway. As a result, the benefits and incentives provided by the credit become allocated arbitrarily and inequitably across taxpayers, likely causing inefficiencies in resource allocation.

As we noted earlier, an ideal incremental credit would reward marginal research spending but not any spending that a taxpayer would have done anyway. In reality, it is impossible for policymakers to know how much research spending taxpayers would have done without the credit. Any practical base that can be designed for the credit will only approximate the ideal base with some degree of inaccuracy. The primary base for the regular credit (except for start-up companies) is determined by a taxpayer's spending behavior that occurred up to 25 years ago (see the computation rules on page 7).²⁰ There is little reason to believe that, in most cases, the ratio of research spending to gross receipts from that long ago, when multiplied by the taxpayer's most recent 4-year average of gross receipts, would accurately approximate the ideal base for that taxpayer.

Most credit claimants received substantial windfalls. Regular credit claimants subject to the 50 percent minimum base represented about 71 percent of all claimants in 2005 (see figure 5 in appendix II). More than half of the credit such claimants earned was a windfall. Even the highest elasticity estimates and the largest possible MER (which together should produce the largest increase in research spending) indicate that spending increases due to the credit represent less than 15 percent of the total research spending of these claimants. Since regular credit users subject to the 50 percent minimum base receive a credit for half of their research spending, the credit for marginal spending is less than half of the credit they receive.

²⁰We use the term primary base in reference to the base that is computed prior to determining whether that base is greater or less than the minimum base (50 percent of current-year QREs). The taxpayer's ultimate base is the greater of the primary base or the minimum base.

Inaccuracies in the base also cause disparities across taxpayers in both the marginal incentives and windfall benefits that they receive from the credit. Table 1 shows the extent of the disparities across taxpayers that use different credit options and are subject to different constraints. Taxpayers for which bases exceeded their actual spending received no incentive from the credit. Regular credit users whose primary bases were not so inaccurately low that the minimum base took effect received had MERs of 13 percent (if they could use their credits immediately), while those with primary bases so inaccurate that they were subject to the minimum base had their MERs cut to 6.5 percent (again, if they could use their credits immediately).²¹ Using the IRS tax data, we estimated that the regular credit users subject to the minimum base received an average effective rate of credit (total credit divided by total spending) more than one and one-half times as large as those who were not subject to the minimum base. The average effective rate includes windfall credits, which the MER does not. This result indicates that, even though the minimum base reduced the credits that taxpayers earned on both their marginal spending and on the spending they would have done anyway, taxpayers subject to the minimum base still received larger windfall credits than those who were not.

Meanwhile, AIRC users received significantly lower MERs and average effective credit rates than did either group of regular credit users.

Table 1: Maximum MERs and Average Effective Rates of Credit for Different Categories of Credit Claimants, 2005

	Had QREs below base amounts	Claimed regular credit		Claimed AIRC
		Not subject to minimum base	Subject to minimum base	
Maximum MER	0%	13.0%	6.5%	2.4%
Average Effective Rate	0%	4.1%	6.5%	1.9%

Source: GAO analysis based on IRS data and the IRC.

Although data are not yet available on credit use after the ASC was introduced, we applied current credit rules to the historical data from our panel of large credit claimants to estimate how many of them would have chosen ASC if it had been available in 2003 and 2004. We found that, if taxpayers had selected the option that provided them with the largest credit amount, most of the panel members would have switched to the

²¹Appendix III provides a detailed explanation of how these results arise.

ASC, but a significant number would still have claimed the regular credit. ASC users would have accounted for about 62 percent of the panel population's total QREs and between 56 percent to 60 percent of the revenue cost of all panel members in those years. (See table 13.) Some taxpayers still had MERs over 10 percent while others had negative MERs.

The disparate distribution of incentives and windfalls is not only inequitable, it can also result in a misallocation of research spending and economic activity in general across competing sectors.²² These misallocations may reduce economic efficiency and, thereby, diminish any economic benefits of the credit.

An additional significant problem with the regular credit's base is the difficulty that taxpayers have in substantiating their base computations to the IRS. Many businesses lack the types of records dating to the mid 1980s that are needed to complete these computations with a high degree of accuracy and the substantiation of base QREs has become a leading issue of contention between regular credit users and the IRS. (This problem will be discussed in more detail in a later section.)

Under the ASC's Moving-Average Base, Marginal Incentives Are Reduced Because Current Spending Reduces the Amount of Credit Earned in Future Years

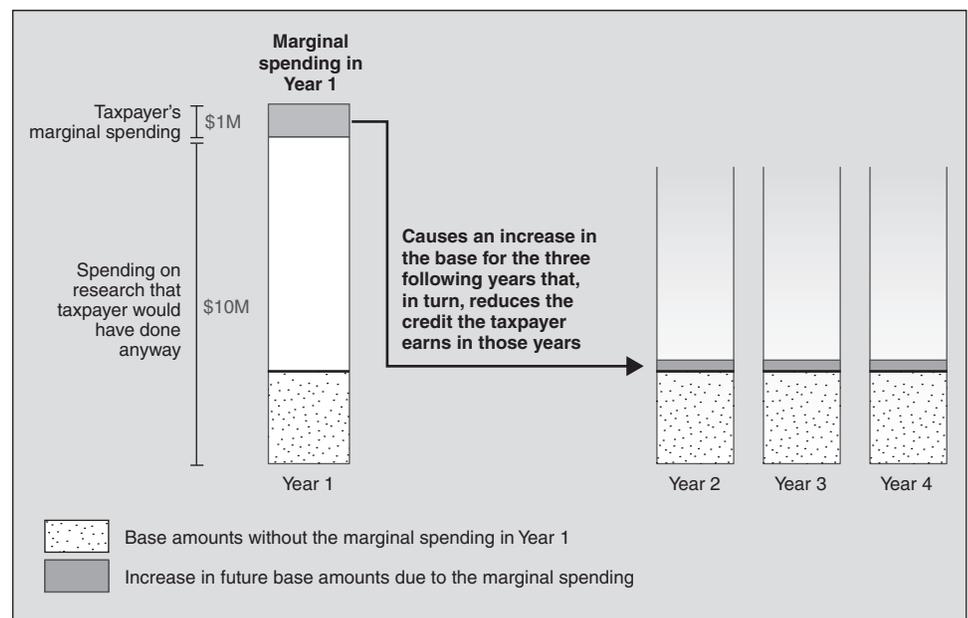
The base of the ASC continually updates itself; however, an important disadvantage of this updating is that a taxpayer's current year research spending will increase its base in future years, thereby reducing the amount of credit it earns in those years. Figure 3 illustrates this problem in the case that a taxpayer earns a credit each year but is not subject to the minimum base. For every \$1 million of spending increase this year, the taxpayer's base in each of the next 3 years would increase by \$166,667. These base increases reduce the amount of credit that the taxpayer can earn in each of the next 3 years by \$15,167, for a combined total of \$45,500.²³ As a result, the actual benefit that the taxpayer receives for increasing this year's spending is cut in half, and the MER is reduced to 4.6

²²The inequitable distribution of the marginal incentives distorts the allocation of research spending, while the inequitable distribution of the total credits earned distorts the allocation of resources in general.

²³The current spending is weighted by one-third in the computation of next year's base, which is the average of 3 years of spending. The base equals half of that average. Therefore, each \$1 million of current spending increases next year's base by \$1 million / 6 and it has the same effect on the bases in the following 2 years. The credit amount equals $0.091 \times 166,667$, reflecting the fact that the 14 percent rate is effectively reduced to 9.1 percent due to the offset against the deduction.

percent.²⁴ If the taxpayer anticipated that its future spending would decline so much that it would not be able to earn any credit in the next 3 years, then there would be no negative future consequences from increasing this year's spending and the MER would be 9.1 percent. However, if a taxpayer does not expect to exceed its base in the current year, even after increasing its spending by a marginal amount, but plans to increase its future spending enough to earn credits in the future years, then it would receive no current benefit for that marginal spending. The taxpayers would still suffer the negative effects in the future years, meaning that, in this case, the MER would actually be negative.

Figure 3: Illustration of How Current Spending Increases Reduce Future Credits Under the ASC



Source: GAO.

Given that the ASC base is only one-half of the taxpayer's past 3 years' average spending, most research-performing companies should be able to earn some credit every year, which was an important reason why this option was introduced. However, the low base is likely to be below most

²⁴The future effects would be discounted for the time value of money so the benefit would be slightly higher.

taxpayer's ideal base and some are likely to earn credit on substantial amounts of research spending that they would have done anyway. There currently is no minimum base for the ASC to limit the amount of windfall credit that taxpayers can earn. Only the lower credit rate (14 percent vs. 20 percent for the regular credit) contains the cost of these windfalls.

The Introduction of the ASC Option Is Likely to Have Lowered the Bang-per-Buck of the Research Credit but Increased the Number of Taxpayers Receiving Positive Incentives

By applying the credit rules that existed immediately prior to the introduction of the ASC to the historical data for our panel of corporations and, then, applying the rules that existed in 2009, we were able to compare how these taxpayers would have fared under the different sets of options available. If we assumed a relatively low discount rate and short length of carryforward (for those who could not use their credits immediately), then the estimated weighted average MER for our panel prior to the introduction of the ASC ranged between 7.4 percent and 8.3 percent, depending on which years of data we used and whether the data related to before or after amendments and IRS exams.²⁵ If the ASC option had been available to these corporations and they chose the credit option that provided them the largest amount of credit, we estimate that their weighted average MER would have been between 5.6 percent and 6.3 percent. (See table 14 in appendix II.) This decline in the MER would have been accompanied by an increase in the revenue cost of the credit of between about 17 percent and 29 percent.²⁶ These results indicate that the introduction of the ASC lowered the bang-per-buck of the credit. The availability of the new option would not have reduced any taxpayer's windfall credit, but it would likely have increased the windfalls of some. Those taxpayers that would have switched from the regular credit to the

²⁵We do not know whether taxpayers' expectations relating to the amount of credit they will receive on their marginal spending are best reflected in the amounts of credit they report on their original tax returns, on their amended tax returns, or the amounts after adjustments resulting from IRS examinations. We provide separate estimates based on each of these three alternatives. The estimates values for MERs and revenue costs that we present in table 14 and elsewhere in this report vary depending on which of these three types of data we use; however, the variations do not affect any of our conclusions or recommendations.

²⁶If we had assumed a higher discount rate and longer carryforward length, then the MERs and revenue costs would have been lower in all cases, but the effect of the introduction the ASC on the credit's bang-per-buck would have been similar.

ASC are likely to have seen their MERs decline, while those who switched from the AIRC may have seen their MERs increase or decrease.²⁷

Our estimates are based on an analysis of a fixed population of corporations; it does not reflect the effects of the likely increase in the number of taxpayers claiming the credit thanks to the lower base of the ASC. The addition of these new claimants likely would have reduced the credit's bang-per-buck further because they would all have the lower MERs provided by the ASC. The MERs of these taxpayers would be higher than the zero MERs they faced before the ASC was available; however, the revenue cost of providing them with the credit, which also was zero previously, would have increased as well.

Changing the Regular Credit to Reduce Distortions Caused by Base Inaccuracies Would Come at the Cost of Reducing the Credit's Bang-per-Buck

The problems we identified with the base of the regular credit can be addressed by either (1) eliminating the regular credit option or (2) retaining the regular credit but updating its base so that the distribution of credit benefits and incentives across taxpayers would be less uneven and arbitrary. Under either of these approaches the primary bases for all taxpayers would be linked to their recent spending behavior, rather than decades-old behavior. The recent behavior is likely to be more closely correlated with their ideal bases than the older behavior would be.

The results of our simulations (summarized in the top portion of table 2) indicate that both of these changes would have approximately the same effect because, in each case, all of the corporations in our panel would use

²⁷The regular credit users that had the lowest average rates of credit (and, thereby, were more likely to switch to the ASC) were those that were not subject to the minimum base. Their MER under the regular credit would have been 13 percent (before taking tax liability constraints into account); the maximum MER that we estimated for our panel corporations that could use all of their credits immediately was between 10.9 percent and 12.5 percent, depending on the discount rate assumption. The maximum MER under the AIRC was 3.25 percent.

the ASC.²⁸ (Details of our results are presented in tables 15 and 16 in appendix II.) Under the first change, the ASC would be the only option available; under the second change, all of the taxpayers would receive larger amounts of credits under the ASC than under the regular credit (except for those that could not earn either credit), so they would voluntarily choose the ASC.²⁹ In both cases, if the rate of the ASC is kept at 14 percent, both the average MER and the revenue cost would decrease, but the percentage decrease in the average MER in most cases would be at least twice as large, meaning that the credit's bang-per-buck would decrease. If the rate of the ASC were raised to 20 percent, the average MER would increase relative to existing rules under most combinations of assumptions, but the revenue cost would increase to a much larger extent, again, meaning that the bang-per-buck would decrease.

No clear purpose would be served by retaining both the ASC and a regular credit whose base would be updated almost as frequently as that of the ASC. If the bases for both of the options were linked to recent spending behavior, there would be no rationale for providing taxpayers with different rates of credit under two options. Moreover, once taxpayers began to expect regular updates of the base, the expected negative effects on future credits would lower the MER of the regular credit in the same way that they do for the ASC. One potential compromise between a frequently updated base that significantly reduces the credit's bang-per-buck and a fixed base that causes distorting disparities is to have a base that is updated only in those cases where it has become evidently far out of line for individual taxpayers. For example, taxpayers that spend less than 75 percent of their base amount for the regular credit could be given

²⁸We used our panel data to simulate the effects of these two approaches for correcting base distortions. To simulate an update of the regular credit base for our panel corporations we set the base equal to the average QREs over the three years preceding the year in which the credit is earned. We were constrained to use a 3-year average, given the limits of our panel database; however, past evidence suggests that updates of the base should not be much less frequent than every 3 years. In 1995, we testified that the inaccuracy of the base began to be a problem as early as 3 years after the introduction of the regular credit's design. As of tax year 1992, 60 percent of all credit claimants were already subject to the minimum base constraint. See GAO, *Tax Policy: Additional Information on the Research Tax Credit*, GAO/T-GGD-95-161 (Washington, D.C.: May 10, 1995).

²⁹The revenue costs of these two changes would be the same but the average MER would be very slightly higher if the regular credit option were retained simply because taxpayers would have the option of switching to that credit in future years if it suited them better. That small probability of switching in the future can reduce the negative future effects that the taxpayer expects to encounter under the ASC. See appendix I for further explanation.

the option of using a more recent period of years for computing their fixed base percentage. Taxpayers at the other extreme—those subject to the current minimum base—could be required to use a more recent base period. Taxpayers between these two extremes would not have their bases updated, which means that, if they are not close to the minimum base, they would not face negative future effects. However, one significant problem with this approach is that it would give taxpayers who are close to being subject to the minimum base an extremely large disincentive to increase their spending. In addition, the taxpayers without updated bases would still face the substantial recordkeeping difficulties that are discussed in a later section.

Table 2: Summary Comparison of Leading Design Options

Options for the ASC	Options for the regular credit	
	Eliminate the regular credit option	Retain the option but update the base ^a
No minimum base and credit rate = 14 percent	Relative to 2009 law, this combination is likely to reduce both the average MER and the revenue cost; however, it is likely to reduce the average MER to a greater degree, resulting in a decline in the credit's bang-per-buck. The benefit of this combination is that it would significantly reduce unintended disparities in MERs across taxpayers.	If no minimum base were added to the ASC the short-term results of updating the base of the regular credit would differ only minimally from those of eliminating the regular credit because all taxpayers in our panel would choose the ASC over the regular credit. Over the longer term, until the base is updated again, the situation is likely to gradually approach that which existed under 2009 law.
No minimum base and credit rate = 20 percent	Raising the rate of the ASC to 20 percent would increase the revenue cost significantly and also increase the average MER under most of the combinations of assumptions we examined. The increases in the average MER would be smaller than the increases in the revenue cost, again resulting in a decline in the credit's bang-per-buck. This combination would also significantly reduce unintended disparities in MERs across taxpayers.	Same as above in the short term. Over the longer term, there should be a slower and smaller shift back to use of the regular credit if the ASC rate is raised to 20 percent.
50-percent minimum base and credit rate = 14 percent	Relative to having only an ASC with no minimum base, this design is likely to provide the same incentive at a lower revenue cost, thereby providing a higher bang-per-buck.	If the rate of the ASC were kept at 14 percent, some taxpayers would choose the regular credit option over the ASC. Those taxpayers receive a higher MER than they would with the ASC, raising the average MER for the whole population. In the short run, before the inaccuracy of the regular credit's base grows, unintended disparities in MERs should be no worse than with the ASC only.

Options for the ASC	Options for the regular credit	
	Eliminate the regular credit option	Retain the option but update the base ^a
50-percent minimum base and credit rate = 20 percent	Same as immediately above.	The results of this design would differ only minimally from those of allowing only an ASC with a 20-percent rate and a 50-percent minimum base because almost all taxpayers in our panel would choose the ASC over the regular credit.
75-percent minimum base and credit rate = 14 percent	Under almost all assumptions we found the revenue savings to be less than or equal to those gained by adding a 50-percent minimum base.	If the rate of the ASC were kept at 14 percent, some taxpayers would choose the regular credit option over the ASC. Those taxpayers receive a higher MER than they would with the ASC, raising the average MER for the whole population. In the short run, before the inaccuracy of the regular credit's base grows, unintended disparities in MERs should be no worse than with the ASC only.
75-percent minimum base and credit rate = 20 percent	Under almost all assumptions we found the revenue savings to be less than or equal to those gained by adding a 50-percent minimum base.	The results of this design would differ only minimally from those of allowing only an ASC with a 20-percent rate and a 50-percent minimum base because ASC users would still account for between and 90 percent of the total revenue cost of the credit.

Source: GAO.

^aThe minimum base for the regular credit would be 50 percent, except in the last two cases where it would be 75 percent.

The Credit's Bang-per-Buck Can Be Improved by Adding a Minimum Base Constraint to the ASC

Results from simulations based on our panel database suggest that adding a minimum base to the ASC is likely to improve its bang-per-buck.³⁰ The effects of adding a minimum base vary, depending on whether both the ASC and regular option are retained, or only the former. These variations are summarized in the lower portion of table 2 and further details are provided in tables 17, 18 and 19 in appendix II.

Under most combinations of assumptions that we examined, when an ASC is the only option available, an ASC with a 50-percent minimum base could provide the same average MER as an ASC without a minimum base, but at a lower revenue cost. In all but one unlikely case, the reductions in discounted revenue cost ranged between 1.5 percent and 18 percent with most exceeding 3 percent.³¹ Revenue savings would be achieved

³⁰The effects on taxpayers' MERs of adding a minimum base to the ASC are more complicated than the effects of the regular credit's minimum base. See appendix III for details.

³¹The only cases that we found where the minimum base would have a slightly negative effect on the bang-per-buck were when we assumed a discount rate of 7 percent or higher. We believe that taxpayer's discount rates are likely to be lower than that (see appendix I for further discussion).

regardless of whether the rate of the ASC is 14 percent or 20 percent. We also examined the effects of adding a 75-percent minimum base; however, under almost all assumptions we found the revenue savings to be less than or equal to those gained by adding a 50-percent minimum base.

If both the ASC with a 14-percent rate and the regular credit with a 20-percent rate and an updated base are available, the addition of a minimum base to the ASC would cause some taxpayers to prefer the regular credit over the ASC.³² Those regular credit users would have higher MERs than they would have had under the ASC, so the average MER would be higher if both options were available. Those users' credit amounts would also be higher; however, the percentage differences in their credits would be smaller than the percentage differences in their MERs (see tables 18 and 19), meaning that the credit's bang-per-buck would be slightly higher. However, this advantage in terms of bang-per-buck would come at the cost of providing unequal incentives across taxpayers without a rationale.

In addition to examining the effects of adding a minimum base to the ASC we also simulated the effects of increasing the credit's base rate (i.e., having the base equal to 75 percent or 100 percent of a taxpayer's 3-year moving average of spending, rather than 50 percent as under current rules). We found that these changes would significantly increase the percentage of our panel corporations that have negative MERs.

Issues of Contention between Taxpayers and IRS Relating to the Research Credit Are Both Extensive and Acute

³²If the rates of both credits were 20-percent, then all of the members of our panel would choose the ASC over the regular credit. In that case the differences between having only an ASC with a minimum base and having both credits with minimum bases would be negligible. As explained earlier, those differences are due to the possibility that taxpayers could choose the regular credit in future years.

Several Aspects of the Definition of Qualified Research Expenses Have Been Significant Sources of Contention between Taxpayers and IRS

A well-targeted definition of QREs (and IRS's ability to enforce the definition) can improve the efficiency of the credit to the extent that it directs the subsidy toward research with high external benefits and away from research with low external benefits. By focusing the subsidy in this manner, the definition can increase the amount of social benefit generated per dollar of tax subsidy provided through the credit. Specifying a definition that serves this purpose and that is also readily applied by both IRS and taxpayers has proven to be a challenge for both Congress and the Department of the Treasury. There are numerous areas of disagreement between IRS and taxpayers concerning what types of spending qualify for the research credit. These disputes raise the cost of the credit to both taxpayers and IRS and diminish the credit's incentive effect by making the ultimate benefit to taxpayers less certain.

Many of the tax practitioners we interviewed had a common general complaint that IRS examiners often demanded that the research activities result in a higher standard of innovation than required by either the IRC or Treasury regulations. The IRS officials we interviewed disagreed with these assertions and referred to language from their Research Credit Audit Technique Guide that instructs examiners on the relevant language from current regulations. Both practitioners and IRS officials acknowledged that some controversies arise because language in the IRC and regulations does not always provide a bright line for identifying qualified activities. For example, one qualification requirement is that the research must be intended to eliminate uncertainty concerning the development or improvement of a business component. The regulations say that uncertainty exists "if the information available to the taxpayer does not establish the capability or method for developing or improving the business component, or the appropriate design of the business component."³³ An IRS official said that examiners could use clarification of the meaning of "information available to the taxpayer," while a practitioner noted that the regulations do not say what degree of improvement in a product is required for the underlying research to be considered qualified. The practitioner said that research for improvements is more difficult to get qualified than research for new products.

³³Treas. Reg. Section 1.41-4(a)(3)

Several particularly contentious issues relate to specific types of research activities or expenses, including the following:³⁴

The definition and qualification standards for internal-use software (IUS). Research relating to the development of software for the taxpayer's own internal use is generally excluded from qualified research, unless it meets an additional set of standards that are not applied to other research activities.³⁵ The IRC provides Treasury the authority to specify exceptions to this exclusion but Treasury did not address this issue when it published final research credit regulations in 2004. Treasury pointed to the significant changes in computer software and its role in business activity since the mid-1980s (when the IUS exclusion was added to the IRC) as making it difficult to determine how Congress intended the new technology to be treated. Meanwhile, tax practitioners complain that IRS continues to consider most software development expenditures in the services industry to be IUS.³⁶ Some commentators have questioned whether there is still an economic rationale for distinguishing between IUS and software used for other purposes, given that innovations in software can produce spillover benefits regardless of whether the software is sold to third parties. IRS officials say that eliminating the distinction would significantly increase the revenue cost of the credit but they doubt that it would simplify administration. They believe that a bright-line definition of IUS, such as that contained in 2001 proposed regulations, is the only

³⁴See appendix IV for summaries of these and other issues relating to the definition of QREs.

³⁵If the software is used in another activity that constitutes qualified research, or in a production process that meets the requirements of the credit, then it is not considered IUS.

³⁶The practitioners say that this practice runs counter to congressional guidance provided in the conference report to accompany the Tax Relief Extension Act of 1999 Pub. L. No. 106-170 (H.R. Conf. Rep. No. 106-478, 106th Cong. at 132 (1999)). IRS officials respond by noting that the report said only that software research should not be deemed IUS solely because the business component involves the provision of a service. The development activity still must satisfy the other qualification criteria of Section 41.

practical approach for dealing with this issue.³⁷ The development of IUS regulations has been included in all of Treasury's priority guidance plans since the issue was left out of the final research credit regulations; however, Treasury officials have not indicated when they are likely to be issued or what stand they are likely to take.

Late-stage testing of products and production processes. Treasury regulations provide that “the term research or experimental expenditures does not include expenditures for the ordinary testing or inspection of materials or products for quality control (quality control testing).” However, the regulations clarify that “quality control testing does not include testing to determine if the design of the product is appropriate.”³⁸ Some tax consultants told us that IRS fairly consistently disqualifies research designed to address uncertainty relating to the appropriate design of a product. One of them said that IRS rejected testing activities simply on the basis of whether the testing techniques, themselves, were routine. IRS officials said that they typically reject testing that is done after the taxpayer has proven the acceptability of its production process internally. They noted that there is no bright line between nonqualifying ordinary quality control testing and qualified validation testing. These determinations are made on a case-by-case basis for each activity. The official also said that they have disagreements with taxpayers over when commercial production begins and suggested that this is one area where some further clarification in regulations might help. Product testing is a particularly important issue for software development, which in general (not just IUS) is another area of significant contention between IRS and taxpayers.

Direct supervisory and support activities. Qualified research expenses include the wages of employees who provide direct supervision or direct support of qualified research activities. The practitioners we

³⁷The notice of proposed rulemaking 66 FR 66362 (proposed December 26, 2001) stated that: “Unless computer software is developed to be commercially sold, leased, licensed or otherwise marketed for separately stated consideration to unrelated third parties, it is presumed to be developed by (or for the benefit of) the taxpayer primarily for the taxpayer's internal use.” Financial services and telecommunications companies are concerned with such a test. They note that their software systems are integrally related to the provision of services to their customers, yet expenditures to develop those systems would not qualify for the credit (unless they met the additional set of standards) under the “separately stated consideration” standard because they do not charge customers specifically for the use of the software.

³⁸Treas. Reg. Section 1.174-2(a).

interviewed said that it is extremely difficult to get IRS to accept that higher level managers are often involved in research and the direct supervision of research. Many of their clients have flat organizational structures and the best researchers are often given higher titles so that they can be paid more. They say that IRS often rejects wage claims simply on the basis of job titles. IRS officials told us that wages of higher level managers could be eligible for the credit; however, the burden of proof is on the taxpayer to substantiate the amount of time that those managers actually spent directly supervising a qualified activity. Regarding the issue of direct support, some commentators would like IRS's guidance to more clearly state that activities such as bid and proposal preparation (at the front end of the research process) and development testing and certification testing (at the final stages of the process) are qualified support activities that do not have to meet specific qualification tests themselves, as long as the activities that they support already qualify as eligible research. IRS officials told us that they would like better guidance on this issue and were concerned that some taxpayers want to include the wages of anyone with any connection at all to the research, such as marketing employees who attend meetings to talk about what customers want.

Supplies. The IRC specifically excludes expenditures to acquire depreciable property from eligibility for either the deduction of research expenditures under section 174 or for the research credit.³⁹ Taxpayers have attempted to claim the deduction or the credit for expenditures that they have made for labor and supplies to construct tangible property, such as molds or prototypes, that they used in qualified research activities. IRS has taken the position that such claims are not allowed (even though the taxpayers do not, themselves, take depreciation allowances for these properties) because the constructed property is of the type that would be subject to depreciation if a taxpayer had purchased it as a final product.⁴⁰ IRS also says that it is also improper for taxpayers to include indirect costs in their claims for “self-constructed supplies,” even when the latter are not

³⁹26 U.S.C. Section 174(c) and 26 U.S.C. Section 41(b)(1)(C)(ii).

⁴⁰In fact, some prototypes that are used in qualified research are subsequently sold to customers who then claim depreciation allowances for them.

depreciable property.⁴¹ Taxpayers are challenging IRS's position in at least one pending court case.⁴² Both taxpayers and IRS examiners would like to see clearer guidance in this area. Treasury has had a project to provide further guidance under section 174 in its priority guidance plans since at least 2005 but the guidance has not yet been issued. IRS has also been concerned with the extent to which taxpayers have attempted to recharacterize ineligible foreign research services contracts as supply purchases.

The Lack of Official Guidance Regarding the Definition of Gross Receipts for Controlled Groups of Corporations Leaves Those Taxpayers Very Uncertain about Their Credit Benefits

For taxpayers claiming the regular research credit the definition of gross receipts is important in calculating the "base amount" to which their current-year QREs are compared. The definition also was critical for determining the amount of credit that taxpayers could earn with the AIRC. (Even though this credit option is no longer available, a decision regarding the definition of gross receipts will affect substantial amounts of AIRC claims that remain in contention between taxpayers and IRS for taxable years before 2009.) Gross receipts do not enter into the computation of the ASC or the basic research credit. If the regular credit is eliminated, this becomes a nonissue for future tax years, but the consequences for taxpayers and the revenue cost to the government from past claims will be substantial (particularly as a result of the extraordinary repatriation of dividends in response to the temporary incentives under IRC section 965).⁴³

The principal issue of contention between taxpayers and IRS is the extent to which sales and other types of payments among members of a controlled group of corporations should be included in that group's gross

⁴¹One example of a self-constructed supply is a chemical that a business produces itself and then uses in a research project. The taxpayer is not permitted to include overhead or administrative costs attributable to the production of that chemical as QREs. However, if the taxpayer had purchased the chemical from a third party, such costs would have been included in the purchase price and could, thereby, be included in QREs.

⁴²*TG Missouri Corporation v. Commissioner*, Docket Number 8333-06 Tax Court.

⁴³The American Jobs Creation Act of 2004, Pub. L. No 108-357 (2004), provided a temporary incentive under IRC section 965 for U.S. corporations to repatriate certain income from foreign affiliates during either the recipient's last tax year beginning before October 22, 2004, or its first tax year beginning after that date, provided that the repatriated income was used for qualified purposes.

receipts for purposes of computing the credit.⁴⁴ Neither the IRC nor regulations are clear on this point and IRS has issued differing legal analyses in specific cases over the years.

IRS's current interpretation of the credit regulations that generally exclude transfers between members of controlled groups is that it applies only to QREs and not to gross receipts; consequently, all intragroup sales should be included when computing a group's total gross receipts. This option would eliminate any double-counting of QREs but could overstate the resources available to the group by double-counting sales and income payments between group members. However, going to the other extreme and excluding all intragroup transactions from the group's total gross receipts could exclude a large share of the export sales of U.S. multinational corporations (those made to foreign affiliates for subsequent resale abroad) from gross receipts. This result would favor regular credit users whose export sales have increased as a share of their total sales and disfavor users whose export shares have declined. These disparities in the credit benefits across taxpayers serve no useful purpose.

An intermediate alternative would be to exclude all transactions between controlled group members except for intermediate sales by U.S. members to foreign members. This approach would not discriminate among taxpayers on the basis of whether they export their products or sell them domestically because it would include all sales that are effectively connected with the conduct of a trade or business within the United States in a group's gross receipts. This option would also eliminate any double-counting of intragroup transfers in gross receipts, which is important if Congress wishes to continue using gross receipts as a measure of the resources available to corporations.

Substantiating the Validity of a Research Credit Claim Is a Demanding Task for Both Taxpayers and IRS

Neither the IRC nor Treasury regulations contain specific recordkeeping requirements for claimants of the research credit. However, claimants are subject to the general recordkeeping rules of IRC section 6001 and Treasury regulations section 1.6001, applicable to all taxpayers, that require them to keep books of account or records that are sufficient to establish the amount of credit they are claiming. In the case of the

⁴⁴See appendix V for a summary of the differing legal interpretations made by IRS and taxpayers, as well as for a more detailed discussion of the consequences of adopting alternative definitions of gross receipts.

research credit, a taxpayer must provide evidence that all of the expenses for which the credit is claimed were devoted to qualified research activities, as defined under IRC section 41. Section 41 requires that the qualification of research activities be determined separately with respect to each business component (e.g., a product, process, or formula), which means that the taxpayer must be able to allocate all of its qualified expenses to specific business components. Moreover, the taxpayer must be able to establish these qualifications and connections to specific components not only for the year in which the credit is being claimed, but also for all of the years in its base period.

There were wide difference in opinions between the IRS examiners and the tax practitioners we interviewed regarding what methods are acceptable for allocating wages between qualifying and nonqualifying activities. Practitioners noted that IRS prefers project accounting but, in its absence, used to accept cost center or hybrid accounting; however, in recent years, IRS has been much less willing to accept claims based on the latter two approaches.⁴⁵ They also said that IRS examiners now regularly require contemporaneous documentation of QREs, even though this requirement was dropped from the credit regulations in 2001. Some practitioners suggested that the changes in IRS's practices came about because examiners were having difficulty determining how much QREs to disallow in audits when they found that a particular activity did not qualify. Others said that IRS does not want to devote the considerable amounts of labor required to review the hybrid documentation. The IRS officials we interviewed said that more taxpayers have or had project accounting than was suggested by the tax practitioners. The officials said that the consultants ignored these accounts because they boxed them in (in terms of identifying qualified research expenses). In their view the high-level surveys and interviews of managers or technical experts from the business, which many taxpayers try to use as evidence, are not a sufficient basis for identifying QREs. The officials noted that sometimes

⁴⁵Large businesses often have cost centers, which are separately identified units (such as research, engineering, manufacturing and marketing departments) in which costs can be segregated and the manager of the center is responsible for all of its expenses. Project accounting is the practice of creating reports that track the financial status of specific projects, the cost of which are often incurred across multiple organizational units. Many firms rely on third-party consultants to conduct studies that bridge their cost-center accounting of research expenses to project-based accounting that is acceptable to IRS. IRS and practitioners often refer to this attempt to bridge the two accounting approaches as the "hybrid" approach.

consultants conduct interviews for one tax year and then extrapolate their results to support credit claims for multiple earlier tax years.

IRS officials have been particularly concerned with the quality of late or amended filings of credit claims. In April 2007, IRS designated “research credit claims” as a Tier I compliance issue because of the volume and difficulty of auditing these claims.⁴⁶ In announcing the designation IRS noted that a growing number of credit claims were based on marketed tax products supported by studies prepared by the major accounting and boutique tax advisory firms. IRS officials expressed concern that when taxpayers submit amendments to their IRS Forms 6765, they often do so late in an audit after IRS has already spent significant time reviewing the initial claims. In many cases the taxpayers settle for 50 cents on the dollar as soon as IRS challenges a claim.

Although most of the tax practitioners we interviewed acknowledged that there was a proliferation of aggressive and sometimes sloppy research credit claims, they pointed to many legitimate reasons for companies to file claims on amended returns, including long-standing uncertainties and changes in the research tax credit regulations. The practitioners say that IRS’s standards are stricter than Congress intended and what has been allowed in recent court cases. IRS disagrees and says its administrative practices are consistent with the court rulings.⁴⁷

The burden of substantiating research credit claims represents a significant discouragement to potential credit users; however, the flexibility in substantiation methods that many practitioners seek could help some taxpayers claim larger credits than those to which they are entitled. Although some taxpayers, particularly those for which research activities constitute a large proportion of their total operations, are able to meet the recordkeeping standards that IRS is currently enforcing, many taxpayers would find it extremely burdensome to meet these requirements. One consulting firm told us that they recently tried to shift all of their clients to project accounting. This effort was successful; however, it was extremely difficult for the businesses. Other practitioners said that many taxpayers simply would not take on such an effort just to claim the credit. Allowing taxpayers to allocate their expenses between

⁴⁶IRS uses the term credit claims specifically in reference to claims made after initial returns are filed.

⁴⁷ See appendix VI for further discussion.

qualified and nonqualified activities after the fact and, in part, on the basis of oral testimony of the taxpayers' experts would be less burdensome for businesses than requiring contemporaneous time accounting by type of activity and by specific project. However, the experts would have an incentive to overstate the proportion of labor costs identified as QREs and IRS would have no way to verify these oral estimates. Treasury and IRS face a difficult trade-off between, on the one hand, increasing taxpayer compliance burdens and deterring some taxpayers from using the credit and, on the other hand, accepting overstated credit claims.

Substantiating Base Period QREs Is Extremely Challenging

All of the difficulties that taxpayers face in substantiating their QREs are magnified when it comes to substantiating QREs for the historical base period (1984 through 1988) of the regular credit. Taxpayers are required to use the same definitions of qualified research and gross receipts for both their base period and their current-year spending and receipts. However, many firms do not have good (if any) expenditure records dating back to the early 1980s base period and are unable to precisely adjust their base period records for the changes in definitions promulgated in subsequent regulations and rulings. Taxpayers also have great difficulty adjusting base period amounts to reflect the disposition or acquisition of research-performing entities within their tax consolidated groups. Some practitioners would like to see some flexibility on IRS's part in terms of base period documentation. They noted that in cases where a taxpayer's records are missing or otherwise lacking, courts have permitted taxpayers to prove the existence and amount of expenditure through reasonable estimation techniques. The IRS officials we interviewed said that estimates are allowable only if the taxpayer clearly establishes that it has engaged in qualified research and that its estimates have a sufficiently credible evidentiary basis to ensure accuracy. One official noted that IRS not likely to question a taxpayer's base amount if the latter uses the maximum fixed base percentage; however, he did not think that IRS would have the authority to say that taxpayers could take that approach without showing any records at all for the base period. Neither IRS nor Treasury officials we interviewed saw any administrative problems arising if the IRC

were changed to relieve taxpayers of the requirement to maintain base period records if they used the maximum fixed base percentage.⁴⁸

Taxpayers Would Benefit from Greater Flexibility in Electing the ASC Option

Treasury regulations provide that elections to use the ASC or the AIRC must be made on an original timely filed return for the taxable year and may not be made on a late filed return or an amended return.⁴⁹ Some commentators on the regulations have questioned the need for such limitations on taxpayers' ability to make the elections, which they note the IRC does not specify. These commentators see no reason why taxpayers who do not claim a credit until they file an amended return are permitted to claim the regular credit but not the ASC. They also believe that taxpayers should be allowed to change their election if, as a result of an audit, IRS adjusts the amount of QREs or base QREs in a manner which would make an alternative election more advantageous to the taxpayer.

Treasury officials whom we interviewed said the legal "doctrine of election" indicates that taxpayers must remain committed to their choice once they have made their credit election.⁵⁰ If taxpayers are unhappy with the form of credit, they can choose another form for the following tax year. Allowing taxpayers to elect different forms of the credit on amended returns in response to an audit in order to maximize their credit would create administrative burdens for IRS. IRS officials agreed that permitting changes in credit elections could require examiners to audit some taxpayers' credits twice; however, they saw no problem with allowing taxpayers to claim either alternative credit on an amended return if the taxpayer had not previously filed a regular credit claim for the same tax year.

⁴⁸Our analysis of 2005 tax data from SOI suggests that about 25 percent of all regular credit users had fixed base percentages of 16 percent or were subject to the minimum base constraint and would remain subject to that constraint even if they elected to use a fixed base percentage of 16 percent. Those taxpayers would benefit from this recordkeeping relief.

⁴⁹Treas. Reg. Section 1.41-8(b) (2) and Temp. Treas. Reg. Section 1.41-8T(b) (2).

⁵⁰In the case *Pacific National Co. v. Welch*, 304 U.S. 191 (1938) the Supreme Court held that the taxpayer had made a binding election and reasoned that a change from one method of accounting for payments to another would require recomputation and readjustment of tax liability for subsequent years and impose burdensome uncertainties upon the administration of the revenue laws.

Taxpayers that fail to claim the research credit on timely filed tax returns are materially disadvantaged by the election limitations that apply to any subsequent claims they file on amended returns. There appears to be no reason to prohibit taxpayers from electing either the ASC or AIRC method of credit computation on an amended return for a given tax year, as long as they have not filed a credit claim using a different method on an earlier return for that same tax year.

Existing Rules for Allocating Group Credits Are Unnecessarily Burdensome

Under current Treasury regulations, the controlled group of corporations must, first, compute a “group credit” by applying all of the credit computational rules on an aggregate basis. The group must then allocate the group credit amount among members of the controlled group in proportion to each member’s “stand-alone entity credit.” The stand-alone entity credit means the research credit (if any) that would be allowed to each group member if the group credit rules did not apply. Each member must compute its stand-alone credit according to whichever method provides it the largest credit for that year without regard to the method used to compute the group credit. The consultants with whom we discussed this issue agreed that the rules were very burdensome for those groups that are affected because it forces all of their members to maintain base period records for the regular credit, even if they would like to use just the ASC.⁵¹ Some very large corporate groups must do these computations for all of their subsidiaries, which could number in the hundreds, and they have no effect on the total credit that a group earns.

Treasury maintains that a single, prescribed method is necessary to ensure the group’s members collectively do not claim more than 100 percent of the group credit. Treasury also maintains that the stand-alone credit approach is more consistent with Congress’s intent to have an incremental credit than is the gross QRE allocation method that others have recommended.⁵² In specifying that controlled groups be treated as single taxpayers for purposes of the credit Congress clearly wanted to ensure that a group, as a whole, exceeded its base spending amount before it

⁵¹One practitioner who works primarily with mid-sized businesses, including many S-corporations, noted that the latter are heavily affected by these rules. A second practitioner who also works primarily with S-corporations said that between 10 and 15 percent of their clients are affected by these rules. A practitioner that works primarily with very large corporations said that about 20 percent of their clients are affected by the rules.

⁵²Under the gross QRE approach, the group’s research credit amount is allocated among the members in proportion to their share of the group’s aggregate QREs.

could earn the credit. It is not clear that Congress was concerned that each member has an incentive to exceed its own base. The reason for having a base amount is to contain the revenue cost of the credit by focusing the incentive on marginal spending. In the case of controlled groups the cost is controlled at the group level; whether individual members exceed their own bases has no bearing on the cost of the credit. If the choice between two allocations methods does not affect the revenue cost, then the remaining questions follow:

1. Does one of the methods provide a greater incentive to increase research spending?
2. Is one significantly less burdensome to taxpayers and IRS?

For groups in which individual members determine their own research budgets, neither the stand-alone credit allocation method nor the gross QRE allocation method is unequivocally superior in terms of the marginal incentives that they provide to individual members. Each of the two methods performs better than the other in certain situations that are likely to be common among actual taxpayers.⁵³ Data are not available that would allow us to say whether one of the methods would result in higher overall research spending than the other. For those groups in which the aggregate research spending of all members is determined by group-level management, the only way that the allocation rules can affect the credit's incentive is if they allow the shifting of credits from members without current tax liabilities to those with tax liabilities. If the group credit is computed according to the method that yields the largest credit, then an additional dollar of spending by any group member will increase the group credit by the same amount, regardless of how the group credit total is allocated among members.

The gross QRE allocation method is much less burdensome for controlled groups and for IRS than the stand-alone method because it does not require anyone to maintain base-period records for the regular credit, unless they choose to use that credit themselves. If the regular credit were eliminated, the burden associated with the stand-alone method would be reduced considerably; however, it would still require more work on the part of taxpayers and IRS than would the gross QRE method.

⁵³See appendix VII for a comparison of the marginal incentives provided by the stand-alone credit and gross QRE allocation methods, as well as for a discussion of other issues pertaining to the group credit rules.

Conclusions

Two significant concerns arise from the lack of any update of the regular credit's base since it was introduced in 1989. First, the misallocation of resources that can result from the uneven distribution of both marginal incentives and windfall benefits across taxpayers could lead to missed opportunities for the country to benefit from research projects with higher social rates of return. Second, the requirement to maintain detailed records from the 1980s, updated for subsequent changes in law and regulations, represents a considerable compliance burden for regular credit users (including some that are required to use that option). Regular updates of the base would substantially reduce these problems; however, no clear purpose would be served by retaining both the ASC and a regular credit, the base of which would be updated almost as frequently as that of the ASC. Unfortunately, neither of the problems can be avoided without a reduction in the credit's bang-per-buck. The addition of a minimum base to the ASC would likely improve the bang-per-buck of that credit (the extent would depend on certain estimating assumptions) and also reduce inequities in the distribution of windfall credits.

The research credit presents many challenges to both taxpayers and IRS. In a number of areas, current guidance for identifying QREs does not enable claimants or IRS to make bright-line determinations. In some of these areas further clarification is possible; in others ambiguity may be difficult to reduce. In some cases, drawing lines that make the definition of QREs more liberal would likely result in the credit being less well-targeted to research with large spillover benefits to society. Instead, the credit would be shifted toward a broader subsidy for high-tech jobs or manufacturing in general. Documenting and verifying that particular expenses are qualified for the credit involve considerable resource costs on the part of taxpayers and IRS. Moreover, widespread disagreements between IRS and taxpayers over the adequacy of documentation leave many taxpayers uncertain about the amounts of credit they will ultimately receive. Recordkeeping burdens may discourage some taxpayers from using the credit and the uncertainty reduces the credit's effective incentive. Relaxing recordkeeping requirements would alleviate these problems; however, there remains a risk that such a relaxation could significantly increase the amount of credit provided for spending of questionable merit. Despite the current wide gap between the views of taxpayers and IRS, there may be opportunities to reduce certain burdens without opening the door to abuse. At a minimum, an organized dialogue among Treasury, IRS, and taxpayers should be able to reduce some uncertainty over what types of documentation are acceptable.

Matters for Congressional Consideration

In order to reduce economic inefficiencies and excessive revenue costs resulting from inaccuracies in the base of the research tax credit, Congress should consider the following two actions:

- Eliminating the regular credit option for computing the research credit.
- Adding a minimum base to the ASC that equals 50 percent of the taxpayer's current-year qualified research expenses.

If Congress nevertheless wishes to continue offering the regular research credit to taxpayers, it may wish to consider the following three actions to reduce inaccuracies in the credit's base and to reduce taxpayers' uncertainty and compliance costs and IRS's administrative costs:

- Updating the historical base period that regular credit claimants use to compute their fixed base percentages.
- Eliminating base period recordkeeping requirements for taxpayers that elect to use a fixed base percentage of 16 percent in their computation of the credit.
- Clarifying for Treasury its intent regarding the definition of gross receipts for purposes of computing the research credit for controlled groups of corporations. In particular it may want to consider clarifying that the regulations generally excluding transfers between members of controlled groups apply to both gross receipts and QREs and specifically clarifying how it intended sales by domestic members to foreign members to be treated. Such clarification would help to resolve open controversies relating to past claims, even if the regular credit were discontinued for future years.

Recommendations for Executive Action

In order to allow more taxpayers to benefit from the reduced recordkeeping requirements offered by the ASC option, the Secretary of the Treasury should take the following two actions:

- Modify credit regulations to permit taxpayers to elect any of the computational methods prescribed in the IRC in the first credit claim that they make for a given tax year, regardless of whether that claim is made on an original or amended tax return.
- Modify credit regulations to allow controlled groups to allocate their group credits in proportion to each member's share of total group QREs, provided that all group members agree to this allocation method.

In order to significantly reduce the uncertainty that some taxpayers have about their ability to earn credits for their research activities, the Secretary of the Treasury should take the following six actions:

-
- Issue regulations clarifying the definition of internal-use software.
 - Issue regulations clarifying the definition of gross receipts for purposes of computing the research credit for controlled groups of corporations.
 - Issue regulations regarding the treatment of inventory property under section 174 (specifically relating to the exclusion of depreciable property and indirect costs of self-produced supplies).
 - Provide additional guidance to more clearly identify what types of activities are considered to be qualified support activities.
 - Provide additional guidance to more clearly identify when commercial production of a qualified product is deemed to begin.
 - Organize a working group that includes IRS and taxpayer representatives to develop standards for the substantiation of QREs that
 - can be built upon taxpayers' normal accounting approaches,
 - but also exclude practices IRS finds of greatest threat to compliance, such as high-level surveys and claims filed long after the end of the tax year in which the research was performed.

Agency Comments

We provided a draft of this report to the Secretary of Treasury and the Commissioner of IRS in September 2009. In written comments the Acting Assistant Secretary (Tax Policy) agreed that the credit's structure could be simplified or updated in certain respects to improve its effectiveness. He also agreed that the issuance of guidance relating to the definition of gross receipts, the treatment of inventory property under section 174, and the definition of internal use software will enhance the administration of the credit and Treasury plans to provide additional guidance in the next few months. The Acting Assistant Secretary said that the Administration's priority is to make the credit permanent. His letter is reprinted in appendix VIII. Treasury and IRS officials also provided technical comments that we have addressed as appropriate.

As we agreed with your offices, unless you publicly announce the contents of this report, we plan no further distribution of it until 30 days from the date of this letter. This report is available at no charge on GAO's web site at <http://www.gao.gov>. If you or your staff have any questions on this report, please call me at (202) 512-9110 or whitej@gao.gov. Contact points for our Office of Congressional Relations and Public Affairs may be found

on the last page of this report. Key contributors to this report are listed in appendix VIII.

A handwritten signature in black ink that reads "James R. White". The signature is written in a cursive style with a large, prominent "J" at the beginning.

James R. White
Director Tax Issues
Strategic Issues

Appendix I: Scope and Methodology

Computation of the Marginal Effective Rate of Credit

The Regular Credit Case

If a taxpayer's marginal spending in the current tax year leaves its total qualified spending above its base spending (but not equal to two or more times the base amount determined by its fixed base percentage), the marginal benefit the taxpayer receives from the regular credit equals:

$$0.2 \times 0.65 \times \text{marginal spending},$$

The factor of 0.65 reflects the fact that the taxpayer must either elect to reduce its credit by 35 percent or reduce the size of its section 174 deduction for research spending by the amount of the credit. In either case, for taxpayers subject to the typical 35 percent corporate income tax rate, the benefit of the credit is reduced by 35 percent. In addition, if the taxpayer cannot use all of its credit in the current tax year or carry it back to use against last year's taxes, then the net present value of the benefit is reduced according to the following formula:

$$\text{Discounted benefit} = (0.2 \times 0.65 \times \text{marginal spending}) \times (1 + r)^{-y_0},$$

where r is the taxpayer's discount rate and y_0 is the number of years before the taxpayer is able to use the credit.

If a taxpayer's marginal spending in the current tax year leaves its total qualified spending equal to two or more times the base amount determined by its fixed base percentage, the discounted marginal benefit the taxpayer receives from the regular credit equals:

$$(0.1 \times 0.65 \times \text{marginal spending}) \times (1 + r)^{-y_0},$$

because each additional dollar of spending raises the taxpayer's base by 50 cents. Consequently, the taxpayer's benefit is effectively cut in half.

If the taxpayer's total current-year spending is less than its base spending (even after the marginal spending), then

$$\text{Current benefit} = 0.$$

The Alternative Simplified Credit Case – Current year Effects

Under the alternative simplified credit (ASC) a taxpayer may receive a benefit in the current tax year by spending additional (also known as marginal) amounts on qualified research in that year. However, this additional spending also reduces the potential tax benefits that the taxpayer can earn in the 3 succeeding years. The marginal effective rate (MER) measures the net present value of the current tax benefit and the reductions in future tax benefits resulting from the firm's additional spending on research, all as a percentage of the additional spending.

Current-Year Benefit

If the taxpayer's total current-year spending is greater than its base spending, then

$$\text{Current benefit} = 0.14 \times 0.65 \times \text{marginal spending} \times (1 + r)^{-y_0}.$$

If the taxpayer's total current-year spending is less than its base spending (even after the marginal spending), then

$$\text{Current benefit} = 0.$$

The Alternative Simplified Credit Case - Future-Year Effects

Given that the base spending amount for the next tax year equals half of the taxpayer's average research spending in the current year and the 2 immediately preceding years, the marginal spending in the current year can reduce the value of the credit benefit the taxpayer can earn next year as follows:

$$\text{Benefit reduction next year} = -(1/3) \times 0.5 \times 0.65 \times 0.14 \times \text{current-year marginal spending} \times (1 + r)^{-y_1}.$$

The value of y_1 equals 1 if the credit that the taxpayer loses in the next year could have been used that year. If that lost credit could not have been used until a later year anyway, then y_1 equals the number of years between the current tax year and the year in which the lost credit could have been used.

If the taxpayer's total qualified spending next year is less than its base spending (even after the marginal spending), then

$$\text{Benefit reduction next year} = 0.$$

Benefit reductions in the second and third years into the future are computed in a similar manner.

The Complete MER

Combining all of the effects described above yields the following formula for a taxpayer that exceeds its base spending every year:

$$\text{MER} = \{0.091 \times \text{marginal spending} \times [(1 + r)^{-y_0} - (1/6) \times (1 + r)^{-y_1} - (1/6) \times (1 + r)^{-y_2} - (1/6) \times (1 + r)^{-y_3}]\} / \text{marginal spending}.$$

If a taxpayer's total qualified spending is less than its base spending in any of the four years covered by this formula, then the "(1 + r)" term associated with that year would be set equal to zero.

Computation of the Discounted Revenue Cost

To compute the discounted revenue cost we first compute the net credit (after the offset against the section 174 deduction or the election of a reduced credit) that each taxpayer would earn under existing or hypothetical credit rules, based on their current qualified research expenses (QREs), base QREs, and if relevant, gross receipts. We then use data from each taxpayer's Form 3800 to estimate the amount, if any, of research credit that the taxpayer could use immediately and the amount, if any, that it had to carry forward to future years. In cases where the credit had to be carried forward, we used ranges of assumptions for both discount rates and number of years carried forward (see sensitivity discussion below) to discount the value of credit amounts used in future years.

Data Used for the Computations

Full Population Data

We based our estimates of credit use by the full population of corporate taxpayers on the Statistics of Income (SOI) Division's sample of corporate tax returns for 2003, 2004, and 2005. For 2003 and 2004 we were able to fill in some data that were missing for a few large credit claimants by using data we obtained from Internal Revenue Service (IRS) examiners for our panel database. For all 3 years we adjusted the data for members of controlled groups to avoid the double counting of QREs and gross receipts (see discussion below for further detail).

The Panel Database of the
Largest Credit Users

We began the construction of our panels by selecting all corporations that met either of the following criteria:

- The corporation's total QREs had to account for at least 0.2 percent of aggregate QREs for all firms in SOI's annual samples for either 2003 or 2004; or
- The corporation's total grossed-up credit (meaning prior to any reduction under section 280(c)) had to account for at least 0.2 percent of aggregate grossed-up credits for all firms in SOI's annual samples for either 2003 or 2004.

We attempted to obtain a complete set of tax returns from 2000 through 2004 for each corporate taxpayer that met our panel criteria for either 2003 or 2004. In addition, we tried to keep the scope of each corporate taxpayer over the 5 years to be as consistent as possible with that taxpayer's scope as of 2003 and 2004. (This consistency is important because we wanted the 5-year history of QREs for each taxpayer to closely represent the spending histories that they would actually have used for computing their moving-average base expenditures if the ASC had been in place for 2003 and 2004.)

We constructed time series records for each taxpayer by linking the data from the taxpayer's returns from 2000 through 2004 by the Employer Identification Number (EIN) that SOI included in each year's tax return record. In some cases a taxpayer's time series was reported under more than one EIN over the period. This discontinuity usually occurred in cases of a corporate reorganization, such as a merger or spin-off. In cases where we did not find a complete 5-year set of tax returns for one of the EINs selected into our panel, we searched to see if we could find the missing returns under a different EIN. We focused our search on cases where taxpayers had reported substantial amounts of research credits or QREs for tax years early in our period and then they stopped appearing in SOI's corporate sample (because they stopped filing a return under their initial EIN). For example, we examined the cases of taxpayers that filed returns in 2000 and 2001 and then stopped filing returns to see if they were related to cases in our panel for which we were missing tax returns for those 2 years. If the companies that stopped filing returns were not related to any companies for which we were missing returns, we then checked to see if they were related to any other members of our panel (because they might have been merged into an ongoing corporation that kept the same EIN before and after the merger). Conversely, if the panel member for which we were missing early-year tax returns did not match up with any cases that had stopped filing after those years, we checked to see if that panel

member had been spun off of any other panel member (meaning that it was once included in the consolidated tax return of the other panel member and then was either sold off or became deconsolidated and filed its own return). We did a similar examination for companies that showed dramatic changes in the level of their QREs from one year to the next. We extended our search for potential merger and spin-off candidates to any companies in the annual SOI samples that accounted for at least 0.1 percent of either QREs or grossed up credit in any year from 2000 through 2004. In this manner we identified a number of pairs of taxpayers that combined with or split off from one another during our panel period. We could usually confirm these corporate changes from publicly available information on the Internet, but we also had the IRS examiners review our linkages. In order to ensure that we did not miss any significant mergers or splits among our panel members, we asked the Large and Mid-Sized Business (LMSB) Division examiners that reviewed each case to identify any that we may have missed.

We made the following adjustments to ensure the consistency of spending histories in cases where we had identified significant corporate reorganizations within our panel members:

- In cases in which one of our panel members in 2003 or 2004 encompassed an entity that had filed its own tax return in an earlier year during the panel period, we added the QREs that the former return filer had reported for that year to the QREs that our panel member had reported in the same year (because those QREs of the formerly separate entity would be included in the panel member's moving average base amount under the ASC).
- In cases in which one of our panel members in 2003 or 2004 had sold a subsidiary or spun off some other entity that had been included in its consolidated tax return in an earlier year of our panel period. We subtracted the estimated QREs of that spun-off entity from the panel member's QREs for that earlier year. (We assumed that the spun-off entity's share of total QREs in the earlier year was the same proportion as the following ratio: The spun-off entity's QREs in the first year that it filed its own return, divided by the sum of the spun-off companies QREs plus the QREs of the corporation from which it had been spun off.)

By making these adjustments, we were able to create reasonably consistent spending histories for those cases where we had identified (on our own or with the assistance of IRS examiners) significant corporate reorganizations in our panel population. In a number of cases we concluded that we did not have sufficient information to construct reliably

consistent time series and we, therefore, dropped those cases from our panel.

Although we believe that we have accounted for all major mergers and splits within our panel members, we cannot be sure that we have accounted for all smaller acquisitions or dispositions that may have affected the consistency of the individual spending histories within the panel. For this reason, we ran a sensitivity analysis in which we examined the effects on our results of altering the relationship between current and base QREs for each taxpayer (see below).

Adjusting for Group Credits

Taxpayers that are subject to the group credit rules are required to file their own Form 6765 on which they report their group's aggregate values for QREs, base QREs, and gross receipts; however, the credit amount reported on each member's form is that member's share of the total group's credit. (See appendix VII for an explanation of how these shares are computed.) Whether or not a member can actually use a group credit depends on its own tax position for the year, not on an aggregated group tax position.

We used several indicators to identify potential group credit claimants, based on the reporting requirements described above. First, for claimants of the regular credit we computed the ratio of the amount of credit they claimed, divided by the difference between their current QREs and their base QREs. If this ratio was a value other than 0.13 or 0.2, we flagged the case as a potential group member. Second, for claimants of the alternative incremental research credit (AIRC), we computed the ratio of the credit they actually claimed over the amount of credit that they could have claimed if all of the QREs and gross receipts reported on their 6765 were their own. If this ratio was other than 1 or 0.65, we flagged the case as a potential group claimant. Third, we also searched the SOI databases for groups of cases that reported the same exact amounts of QREs in a given year.

For the purpose of calculating the ASC for group members we gave each member of a group the group's aggregate spending history and gross receipts history; however, each member had its own amount of research credit claimed and its own values for the variables taken from the general business credit form. In order to avoid double-counting (or more) the QREs of the groups or giving them too much weight when computing our weighted average effective rates of credit, we created a variable named CREDSHR, which we then used to assign each group member only a

fraction of the group's total QREs or weighting in the effective rate calculation.

The value of CREDSHR for each group member is equal to the ratio of the amount of research credit that the member claimed over the aggregated amount of credit that the group would be able to claim, based on the group's aggregated QREs and base QREs or gross receipts. In other words, we gave each member a share of the group's QREs that was proportionate to its share of the group's total credit. Although this allocation method is not precisely derived from the group credit allocation regulations, it should yield a close approximation of the true distribution of QREs across group members. We do not have the detailed attachments to Form 6765 that show exactly what each group member's QREs and gross receipts were. In most cases the sum of CREDSHR for all members of a group in our panel population was approximately equal to 100 percent. When the sum did not reach 100 percent we assumed that there are other members who were not represented in the SOI sample for a given year. The absence of these missing members does not affect the validity of the computations for the group members we had; it simply means that the missing members were treated as any other company that did not meet the criteria for inclusion in our panel.

Because some taxpayers in the panel belonged to controlled groups that together determined the amount of qualified spending in 2003 or 2004, we adjusted for the composition of these groups when we assembled the panel. In particular, spending and other variables were adjusted to hold constant the group's composition in 2003 or 2004, the 2 years for which credit was computed. This was accomplished in several ways. First, the SOI data allowed us to identify certain controlled groups from duplications in the amount of reported spending. Second, we researched mergers, acquisitions and dispositions for these firms from 2000 through 2004, or the years for which we constructed the panel. Third, we requested confirmation of our knowledge about these controlled groups from LMSB, in addition to any other information about the groups' composition that LMSB might have had. Clearly, constructing the panel involved balancing trade-offs between the number of users and the availability of data.

Key Assumptions and Sensitivity Analyses

We tested the sensitivity of our results to variations in assumptions or observations concerning the following factors:

Future credit status—The MER for the ASC depends, in part, on whether the taxpayer anticipates being able to earn the credit in each of the next 3 years and, if so, whether that taxpayer would be subject to a minimum base constraint. In order to predict the status for a given taxpayer in a given future year, we needed to predict, within a certain range,¹ the ratio of spending in that year to the average of spending for the 3 years preceding that year. Our baseline prediction was that the probability of a taxpayer moving from one particular ratio range into another specific ratio range was equal the probability of such a move that we observed in our historical data. We used Markov chains of probabilities to predict changes in status two and three years into the future. In our sensitivity analysis, we examined 12 alternative sets of probabilities. For example, in one alternative all taxpayers were less likely to move into a higher range of ratios than they would have been with the observed probabilities.

Switching probabilities—In choice scenarios, we were required to estimate the probability of switching from one credit to another in future years, which has the potential to influence the effect of research spending in 2003 or 2004 on the amount of credit earned in subsequent years for which data are not available. In our sensitivity analysis, we allowed the probability of switching from the ASC to the Regular Credit from one year to the next to be higher or lower than our baseline estimate (which was based on simulated behavior from 2003 to 2004). We did the same for the probability of switching from the Regular Credit to the ASC from one year to the next, and we incorporated all four possible combinations of deviations from the baseline.

Discount rate—At higher rates of discount, credit that is carried forward to be claimed in subsequent years is worth less in present value terms in 2003 or 2004. Additionally, at higher discount rates, the effect of spending in 2003 or 2004 on the amount of credit earned in subsequent years is mitigated, since credit earned in subsequent years is worth less in present value terms in 2003 and 2004 at higher rates of discount. In our sensitivity analysis, we allowed the discount rate to vary between 4 percent and 8 percent.

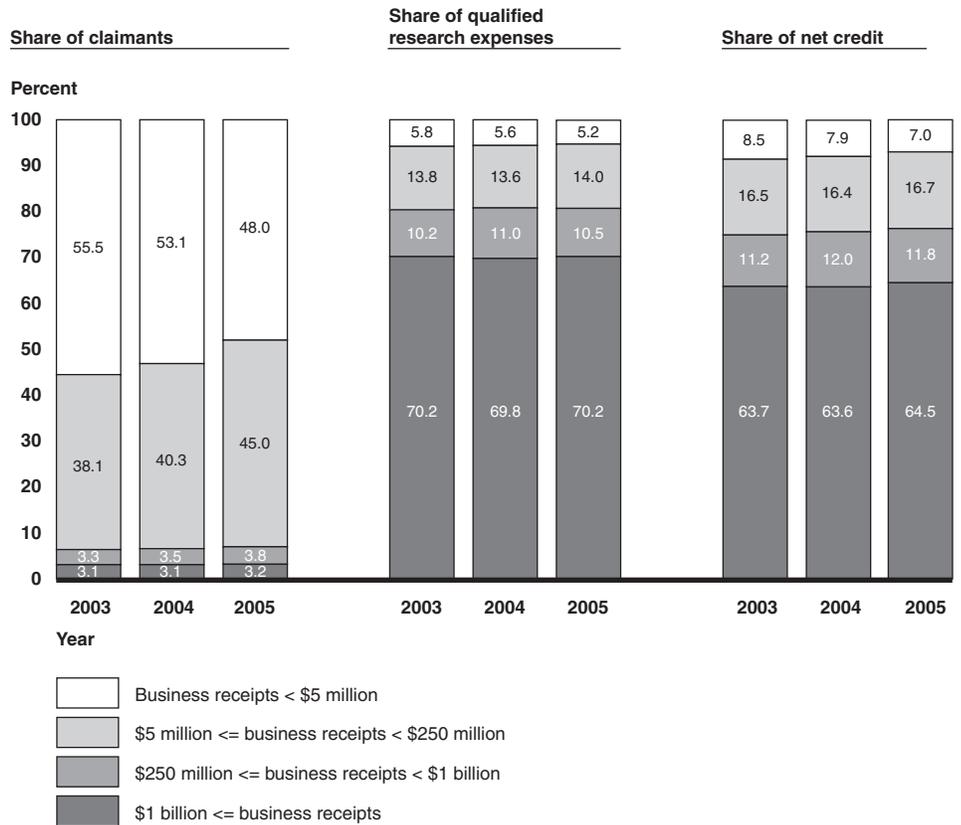
¹Each credit status can be associated with a specific range of values for the ratio. For example, the taxpayer would be able to earn a credit but would be subject to a 50-percent minimum base if its ratio of current to base spending was any value greater than or equal to two.

Carryforward length—The model required an assumption about the number of years that credit would be carried forward. (The Research Tax Credit stipulates that credit that cannot be claimed in the year in which it is earned may be carried forward for up to 20 years.) Lacking data on carryforward patterns, we based our assumption about the length of the carryforward period on behavior that was “observed” as part of the simulation. For example, in some cases we could simulate the taxpayer’s carryforward status in both 2003 and 2004. If this taxpayer were observed to carry forward credit in both years as part of this simulation, it would have a longer carryforward period than if it were observed to carry forward credit in one year or the other, or if it were observed not to carry credit forward at all. In our sensitivity analysis, we allowed the longest carryforward period to vary between 2 and 10 years in length.

The relationship between current and base QREs—We tested how our estimates for the ASC would differ if the spending histories for our panel corporations were significantly different from what we observed. To do this, we estimated what the MERs and discounted revenue costs would be if the ratio of each taxpayer’s current QREs to base QREs were 10 percent higher and 10 percent lower than the observed amounts. Another aspect of our sensitivity analysis involved using of data from different stages in the taxpaying process. We used data from original returns, and from amended and audited returns, where applicable.

Appendix II: Data Relating to the Use of the Research Tax Credit by Corporations

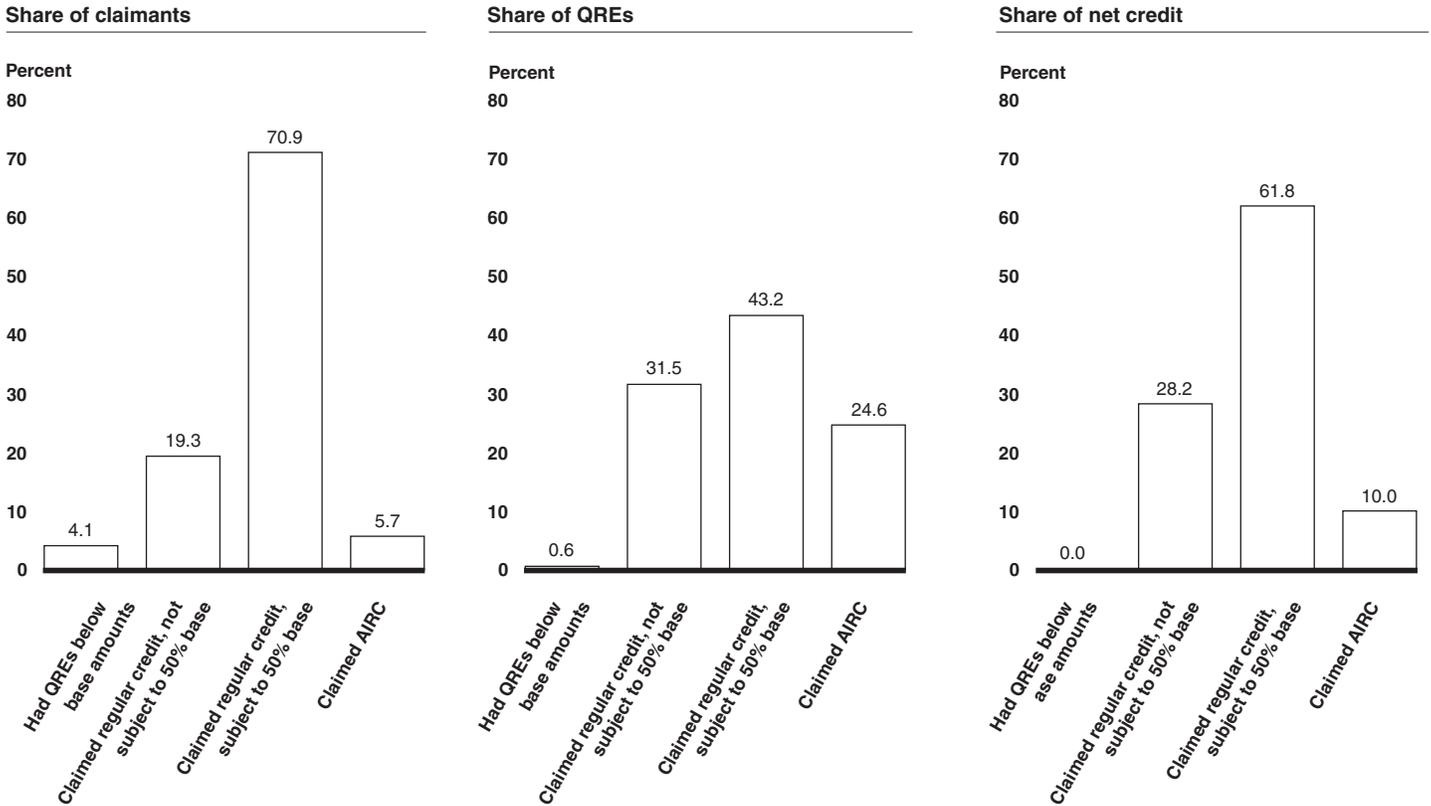
Figure 4: Distribution of Claimants, Qualified Research Expenses, and Net Credits, by Size of Taxpayer, 2003 to 2005



Source: GAO analysis of IRS data.

Appendix II: Data Relating to the Use of the Research Tax Credit by Corporations

Figure 5: Shares of Claimants, QREs and Research Credits, by Taxpayer's Credit Status, 2005



Source: GAO analysis of IRS data.

Figure 6: Percentage of Credit Claimants Subject to Tax Liability Constraints, 2003 to 2005

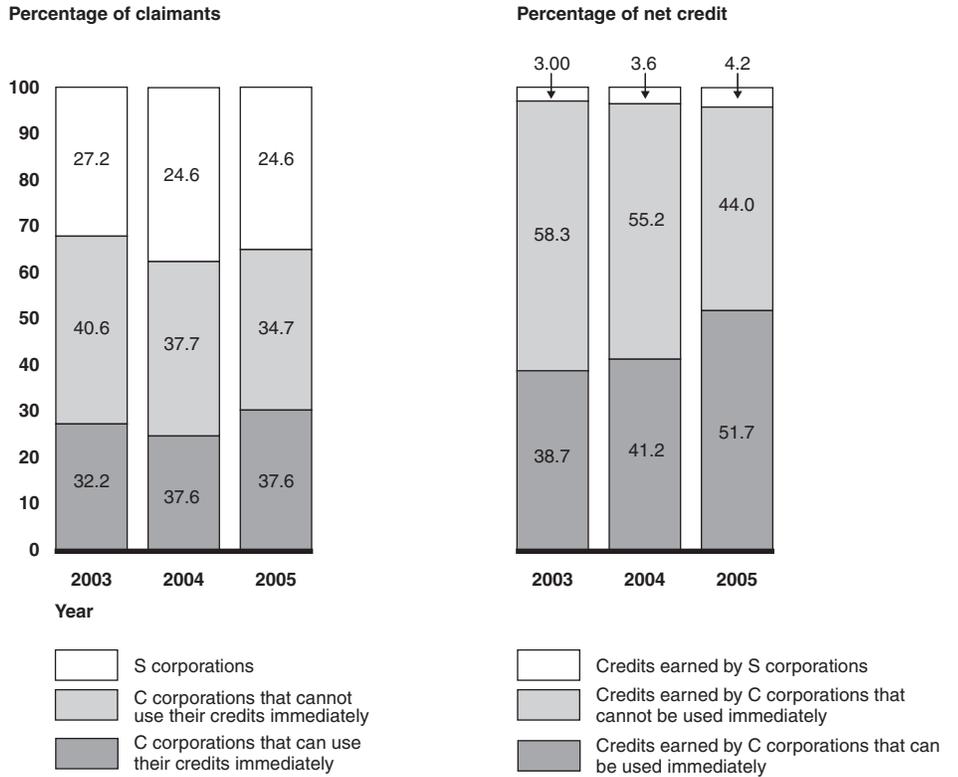


Table 3: Total Claimants, Qualified Research Expenses, and Net Credits, 2003 to 2005

	2003	2004	2005
Number of claimants	15,678	16,731	17,105
Qualified research expenses	119.1	122.3	130.9
Net credit	5.1	5.4	6.0

Source: GAO analysis of IRS data.

Note: Qualified research expenses and net credit in billions of dollars.

**Appendix II: Data Relating to the Use of the
Research Tax Credit by Corporations**

Table 4: Marginal Effective Rates, Discounted Revenue Costs, and Bangs-per-Buck of the Research Credit, 2003 to 2005

	Under low discount rate and short carryforward assumptions			Under high discount rate and long carryforward assumptions		
	2003	2004	2005	2003	2004	2005
All claimants						
Average MER	7.59%	7.38%	7.31%	5.93%	5.46%	6.36%
Discounted revenue cost	4.7	5.0	5.8	3.6	3.9	4.8
Regular credit						
Average MER	9.26%	9.11%	8.98%	7.22%	6.70%	7.77%
Discounted revenue cost	4.2	4.4	5.0	3.3	3.3	4.3
AIRC						
Average MER	2.31%	2.34%	2.37%	1.85%	1.86%	2.20%
Discounted revenue cost	.5	.5	.6	.4	.4	.5
Bang-per-buck if the price elasticity equaled:						
-0.5	.90	.85	0.80	.92	.84	0.81
-1	1.74	1.64	1.55	1.78	1.64	1.57
-1.5	2.52	2.38	2.25	2.60	2.40	2.29
-2	3.25	3.07	2.90	3.38	3.12	2.97

Source: GAO analysis of IRS data.

Note: Revenue cost is in billions of dollars; bang-per-buck is in dollars. MER is the marginal effective rate of the credit.

Table 5: Comparison of Initial and Amended Claims of the Research Credit by Panel Corporations

Dollars in millions					
	2000	2001	2002	2003	2004
Number of cases	107	109	109	104	105
Initial net research credit claimed					
Regular credit	3,146	2,940	2,550	2,248	2,290
AIRC	274	328	338	421	466
Total	3,420	3,268	2,888	2,669	2,756
Net difference between final amendment and initial claim—dollar amounts					
Regular credit	65	81	4	205	12
AIRC	54	60	39	-62	2
Total	119	141	43	143	13

**Appendix II: Data Relating to the Use of the
Research Tax Credit by Corporations**

Dollars in millions					
	2000	2001	2002	2003	2004
Net difference between final amendment and initial claim—percentage change					
Regular credit	2.1%	2.7%	0.2%	9.1%	0.5%
AIRC	19.6%	18.4%	11.6%	-14.6%	0.4%
Total	3.5%	4.3%	1.5%	5.4%	0.5%

Source: GAO analysis of IRS data.

Note: The number of cases in this table represents the number of corporations or corporate groups for which we were able to determine whether or not the amount of credit claimed was amended as of December 2007 and, if so, what the amount of the amended credit was. It includes cases that made changes as well as those that did not.

Table 6: Comparison of Initial and Amended Claims of the Research Credit by Those Corporations That Made a Change

	2000	2001	2002	2003	2004
Number of cases	28	32	25	19	9
Net difference between final amendment and initial claim—percentage change					
Regular credit	18.5%	10.5%	1.0%	64.6%	7.1%
AIRC	37.8%	33.6%	61.3%	-48.8%	7.9%
Total	24.1%	14.9%	9.2%	32.4%	7.2%

Source: GAO analysis of IRS data.

Note: The number of cases in this table represents the subset of cases from the first table that actually amended the amount of research credit claimed.

Table 7: Changes in the Basic Elements of the Research Credit Computation between Initial and Amended Claims

Dollars in millions					
	2000	2001	2002	2003	2004
Number of cases	89	90	94	90	94
Elements from the initial claims					
Net credit claimed	3,109	2,906	2,668	2,390	2,635
Current year QREs	62,404	63,226	62,114	60,295	66,131
Base QREs (for regular credit claimants not subject to the 50% base limit)	13,087	15,280	18,136	20,550	17,911
Average gross receipts (for those claiming the AIRC)	319,551	342,545	376,261	382,097	423,817
Net difference between final amendments and initial claims – dollar amounts					
Net credit claimed	88	141	45	24	7

**Appendix II: Data Relating to the Use of the
Research Tax Credit by Corporations**

Dollars in millions					
	2000	2001	2002	2003	2004
Current year QREs	2,313	2,422	1,172	237	90
Base QREs (for regular credit claimants not subject to the 50% limit)	-3	26	31	-56	-37
Average gross receipts (for those claiming the AIRC)	-29,437	-32,649	-9,235	-5,059	0
Net difference between final amendments and initial claims— percentage change					
Net credit claimed	2.8%	4.8%	1.7%	1.0%	0.3%
Current year QREs	3.7%	3.8%	1.9%	0.4%	0.1%
Base QREs (for regular credit claimants not subject to the 50% limit)	0.0%	0.2%	0.2%	-0.3%	-0.2%
Average gross receipts (for those claiming the AIRC)	-9.2%	-9.5%	-2.5%	-1.3%	0.0%

Source: GAO analysis of IRS data.

Note: The number of cases in this table represents those corporations for which data relating to the detailed elements of their computations were available. It includes cases that made changes as well as those that did not.

Table 8: Changes in the Basic Elements of the Research Credit Computation between Initial and Amended Claims for Those Corporations That Made a Change

	2000	2001	2002	2003	2004
Number of cases	17	25	16	14	8
Net difference between final amendments and initial claims— percentage change					
Net credit claimed	39.7%	19.4%	15.3%	10.8%	5.5%
Current year QREs	24.8%	12.6%	13.8%	3.5%	2.6%
Base QREs (for regular credit claimants not subject to the 50% limit)	-0.8%	1.1%	1.2%	-3.0%	-3.6%
Average gross receipts (for those claiming the AIRC)	-16.0%	-16.1%	-8.4%	-7.1%	0.0%

Source: GAO analysis of IRS data.

Note: The number of cases in this table represents those corporations that actually amended the amount of research credit claimed and for which data relating to the detailed elements of their computations were available.

**Appendix II: Data Relating to the Use of the
Research Tax Credit by Corporations**

Table 9: Comparison of Final Taxpayer Pre-Exam Credit Claim to Latest Available IRS Position

Dollars in millions					
	2000	2001	2002	2003	2004
Number of cases	107	109	109	104	105
Final taxpayer pre-exam net research credit claim					
Regular credit	3,211	3,021	2,554	2,453	2,302
AIRC	328	388	377	360	468
Total	3,539	3,409	2,931	2,81	2,770
Net difference between final taxpayer claim and latest IRS position—dollar amounts					
Regular credit	-540	-599	-748	-654	-236
AIRC	-44	-58	-45	-34	-14
Total	-584	-657	-794	-689	-250
Net difference between final taxpayer claim and latest IRS position—percentage changes					
Regular credit	-16.8%	-19.8%	-29.3%	-26.7%	-10.2%
AIRC	-13.4%	-14.9%	-12.0%	-9.6%	-3.0%
Total	-16.5%	-19.3%	-27.1%	-24.5%	-9.0%

Source: GAO analysis of IRS data.

Note: The number of cases in this table represents the number of corporations or corporate groups for which we were able to determine whether or not IRS examiners had recommended an adjustment in the amount of credit claimed as of December 2007 and, if so, what the amount of the adjusted credit was. It includes cases where IRS made an adjustment as well as those where IRS did not.

Table 10: Comparison of Final Taxpayer Pre-Exam Credit Claim to Latest Available IRS Position for Those Cases in Which IRS Made a Change

	2000	2001	2002	2003	2004
Number of cases	69	66	62	49	28
Net Difference between final taxpayer claim and latest IRS position – % changes					
Regular credit	-19.5%	-25.2%	-37.6%	-38.6%	-28.8%
AIRC	-20.7%	-20.0%	-20.1%	-18.6%	-15.5%
Total	-19.6%	-24.7%	-35.8%	-36.6%	-27.5%

Source: GAO analysis of IRS data.

Note: The number of cases in this table represents the subset of cases from table 9 for which IRS actually changed the credit amount upon examination.

**Appendix II: Data Relating to the Use of the
Research Tax Credit by Corporations**

Table 11: Changes in the Basic Elements of the Research Credit Computation between Final Taxpayer Pre-Exam Credit Claim to Latest Available IRS Position

Dollars in millions					
	2000	2001	2002	2003	2004
Number of Cases	78	79	85	79	86
Elements from final taxpayer claims					
Net credit claimed	2,237	2,353	2,257	1,967	2,283
Current year QREs	48,904	53,459	54,941	52,283	59,611
Base QREs (for regular credit claimants not subject to the 50% limit)	9,046	11,779	15,991	18,230	16,456
Average gross receipts (for those claiming the AIRC)	290,004	309,896	367,026	377,037	423,817
Net difference between final taxpayer pre-exam claim and latest IRS position—dollar amounts					
Net credit claimed	-297	-282	-362	-335	-74
Current year QREs	-4,994	-4,557	-3,868	-2,848	-1,375
Base QREs (for regular credit claimants not subject to the 50% limit)	-243	-385	-162	401	-366
Average gross receipts (for those claiming the AIRC)	24,381	49,468	64,806	45,998	9,517
Net difference between final taxpayer pre-exam claim and latest IRS position—percentage changes					
Net credit claimed	-13.3%	-12.0%	-16.0%	-16.9%	-3.3%
Current year QREs	-10.2%	-8.5%	-7.0%	-5.4%	-2.3%
Base QREs (for regular credit claimants not subject to the 50% limit)	-2.7%	-3.3%	-1.0%	2.2%	-2.2%
Average gross receipts (for those claiming the AIRC)	8.4%	16.0%	17.7%	12.9%	2.2%

Source: GAO analysis of IRS data.

Note: The number of cases in this table represents those corporations for which data relating to the detailed elements of their computations were available. It includes cases where IRS made changes as well as those where it did not.

Table 12: Changes in the Basic Elements of the Research Credit Computation between Final Taxpayer Pre-Exam Credit Claim to Latest Available IRS Position for Those Cases in Which IRS Made a Change

	2000	2001	2002	2003	2004
Number of cases	45	43	45	32	18
Net difference between final taxpayer pre-exam claim and latest IRS position—percentage changes					
Net credit claimed	-16.6%	-16.4%	-22.0%	-30.9%	-15.8%
Current year QREs	-13.4%	-11.4%	-10.0%	-10.5%	-10.4%
Base QREs (for regular credit claimants not subject to the 50% limit)	-3.5%	-4.1%	-1.3%	4.0%	-6.5%
Average gross receipts (for those claiming the AIRC)	13.2%	23.4%	31.1%	26.6%	14.9%

Source: GAO analysis of IRS data.

Note: The number of cases in this table represents the subset of cases from table 11 for which IRS actually changed the credit amount upon examination.

Appendix II: Data Relating to the Use of the Research Tax Credit by Corporations

Note: The number of cases in this table represents those cases where IRS actually changed the credit amount upon exam and for which data relating to the detailed elements of their computations were available.

Table 13: Distribution of QREs and Revenues Cost by Type of Credit User Prior to and After the Introduction of the ASC (Panel Corporations Only)

	Share of QREs	Share of Revenue Cost	
		(Low Discount Rate and Carryforward Assumptions)	(High Discount Rate and Carryforward Assumptions)
2003 Data			
Prior to ASC			
Regular credit users	65.9%	79.9%	78.3%
AIRC users	34.1%	20.1%	21.7%
2009 credit rules			
Regular credit users	37.4%	42.6%	36.7%
ASC users	62.6%	57.4%	63.3%
2004 Data			
Prior to ASC			
Regular credit users	64.2%	78.5%	77.1%
AIRC users	35.8%	21.5%	22.9%
2009 credit rules			
Regular credit users	38.7%	45.4%	43.2%
ASC users	61.3%	54.6%	56.8%

Source: GAO analysis of IRS data.

**Appendix II: Data Relating to the Use of the
Research Tax Credit by Corporations**

Table 14: Weighted Average Marginal Incentives and Revenue Costs for the Panel Population Before and after the Introduction of the ASC

	Prior to Introduction of ASC		Rules Effective for 2009		Percentage Change	
	Weighted Average MER	Revenue Cost (\$ billions)	Weighted Average MER	Revenue Cost (\$ billions)	Weighted Average MER	Revenue Cost
4% Discount Rate and Short Carryforward Assumed						
2003 Filing Year for Panel						
Initial return	7.8%	2.5	6.2%	3.0	-21.4%	20.4%
After amendments	8.3%	2.6	6.3%	3.0	-24.7%	16.8%
After exam recommendations	7.4%	1.8	5.9%	2.3	-20.7%	28.8%
2004 Filing Year for Panel						
Initial return	7.4%	2.7	6.0%	3.3	-18.7%	22.5%
After amendments	7.4%	2.7	5.7%	3.2	-23.2%	21.1%
After exam recommendations	8.1%	1.9	5.6%	2.4	-30.6%	28.8%
8% Discount Rate and Long Carryforward Assumed						
2003 Filing Year for Panel						
Initial return	5.9%	1.8	4.8%	2.3	-19.2%	24.2%
After amendments	6.4%	1.9	4.9%	2.3	-23.4%	19.5%
After exam recommendations	5.3%	1.3	4.4%	1.8	-17.0%	32.8%
2004 Filing Year for Panel						
Initial return	5.2%	2.0	4.3%	2.4	-16.9%	24.4%
After amendments	5.2%	2.0	4.1%	2.4	-21.6%	22.8%
After exam recommendations	5.7%	1.4	4.1%	1.8	-29.3%	31.5%

Source: GAO analysis of IRS data.

**Appendix II: Data Relating to the Use of the
Research Tax Credit by Corporations**

Table 15: Percentage Changes in Marginal Incentives and Revenue Costs Relative to 2009 Rules If the ASC Is the Only Credit Allowed

	When the ASC's Rate = 14%		When the ASC's Rate = 20% ^a	
	% Change in Weighted Average MER	% Change in Revenue Cost	% Change in Weighted Average MER	% Change in Revenue Cost
4% Discount Rate and Short Carryforward Assumed				
Panel Data with 2003 as the Filing Year				
Initial return	-30.1%	-11.2%	-1.9%	25.5%
After amendments	-31.6%	-12.4%	-3.9%	24.7%
After recommended exam changes	-29.4%	-9.6%	0.3%	29.0%
Panel Data with 2004 as the Filing Year				
Initial return	-26.3%	-10.9%	4.7%	27.2%
After amendments	-22.4%	-11.3%	10.0%	26.7%
After recommended exam changes	-22.8%	-7.0%	10.0%	32.8%
8% Discount Rate and Long Carryforward Assumed				
Panel Data with 2003 as the Filing Year				
Initial return	-25.4%	-8.6%	-6.9%	27.8%
After amendments	-27.4%	-10.1%	-8.8%	25.4%
After recommended exam changes	-21.2%	-7.7%	9.7%	30.4%
Panel Data with 2004 as the Filing Year				
Initial return	-21.7%	-9.2%	7.4%	29.0%
After amendments	-17.4%	-9.6%	12.3%	28.3%
After recommended exam changes	-19.7%	-6.2%	12.9%	33.1%

Source: GAO analysis of IRS data.

^aThis is the rate for the revised set of credit options. In the comparison the rate of the ASC for 2009 is kept at 14%.

**Appendix II: Data Relating to the Use of the
Research Tax Credit by Corporations**

Table 16: Percentage Changes in Marginal Incentives and Revenue Costs Relative to 2009 Rules If a Choice Is Allowed between the ASC and the Regular Credit with an Updated Base

	When the ASC's Rate = 14%		When the ASC's Rate = 20% ^a	
	% Change in Weighted Average MER	% Change in Revenue Cost	% Change in Weighted Average MER	% Change in Revenue Cost
4% Discount Rate and Short Carryforward Assumed				
2003 Filing Year for Panel				
Initial return	-28.0%	-11.2%	1.6%	26.5%
After amendments	-31.6%	-12.4%	-3.1%	24.7%
After exam recommendations	-29.4%	-9.6%	0.8%	29.0%
2004 Filing Year for Panel				
Initial return	-26.3%	-10.9%	4.7%	27.2%
After amendments	-22.4%	-11.3%	10.8%	26.7%
After exam recommendations	-22.8%	-7.0%	10.1%	32.8%
8% Discount Rate and Long Carryforward Assumed				
2003 Filing Year for Panel				
Initial return	-25.4%	-8.6%	-6.8%	27.8%
After amendments	-27.4%	-10.1%	-8.3%	25.4%
After exam recommendations	-21.2%	-7.7%	10.3%	30.4%
2004 Filing Year for Panel				
Initial return	-21.7%	-9.2%	7.4%	29.0%
After amendments	-17.4%	-9.6%	12.9%	28.3%
After exam recommendations	-18.0%	-6.2%	13.0%	33.1%

Source: GAO analysis of IRS data.

^aThis is the rate for the revised set of credit options. In the comparison the rate of the ASC for 2009 is kept at 14%.

**Appendix II: Data Relating to the Use of the
Research Tax Credit by Corporations**

Table 17: Percentage Revenue Savings from Adding a Minimum Base Constraint to the ASC If the ASC Is the Only Credit Allowed

	When the ASC's Rate = 14%		When the ASC's Rate = 20%	
	Minimum Base = 50% of Current Research Spending	Minimum Base = 75% of Current Research Spending	Minimum Base = 50% of Current Research Spending	Minimum Base = 75% of Current Research Spending
4% Discount Rate and Short Carryforward Assumed				
2003 Filing Year for Panel				
Initial return	4.1%	2.7%	5.1%	6.6%
After amendments	3.3%	5.6%	2.0%	6.0%
After exam recommendations	16.5%	4.4%	18.1%	4.8%
2004 Filing Year for Panel				
Initial return	2.3%	-2.0%	1.9%	-3.4%
After amendments	1.5%	-3.4%	1.2%	-2.3%
After exam recommendations	5.6%	0.1%	4.3%	1.1%
8% Discount Rate and Long Carryforward Assumed				
2003 Filing Year for Panel				
Initial return	1.9%	0.5%	6.3%	7.9%
After amendments	-2.3%	0.1%	3.2%	7.2%
After exam recommendations	10.5%	1.8%	11.5%	-5.2%
2004 Filing Year for Panel				
Initial return	-4.3%	-3.7%	-3.4%	-4.0%
After amendments	-4.3%	-5.3%	-2.1%	-3.1%
After exam recommendations	-0.2%	-1.8%	0.3%	0.0%

Source: GAO analysis of IRS data.

Note: The ASC rates for the credits with minimum bases are adjusted to provide the same average incentive as the ASC without a minimum base.

**Appendix II: Data Relating to the Use of the
Research Tax Credit by Corporations**

Table 18: Percentage Reductions in Marginal Incentives and Revenue Costs If Only the ASC Is Allowed, Rather than Both the ASC and the Regular Credit, When Both Credits Have a 50% Minimum Base

	When the ASC Rate = 14%		When the ASC Rate = 20%	
	% Change in Weighted Average MER	% Change in Revenue Cost	% Change in Weighted Average MER	% Change in Revenue Cost
4% Discount Rate and Short Carryforward Assumed				
2003 Filing Year for Panel				
Initial return	-7.5%	-1.4%	-0.9%	0.0%
After amendments	-6.3%	-0.9%	-0.7%	0.0%
After exam recommendations	-5.6%	-1.1%	-0.7%	0.0%
2004 Filing Year for Panel				
Initial return	-10.3%	-0.8%	-0.6%	0.0%
After amendments	-5.9%	-0.6%	-0.6%	0.0%
After exam recommendations	-7.8%	-0.8%	-0.4%	0.0%
8% Discount Rate and Long Carryforward Assumed				
2003 Filing Year for Panel				
Initial return	-7.9%	-1.6%	-0.8%	0.0%
After amendments	-6.7%	-1.0%	-0.5%	0.0%
After exam recommendations	-6.2%	-1.2%	-0.8%	0.0%
2004 Filing Year for Panel				
Initial return	-11.3%	-0.7%	-0.6%	0.0%
After amendments	-5.5%	-0.5%	-0.5%	0.0%
After exam recommendations	-7.6%	-0.7%	0.3%	0.0%

Source: GAO analysis of IRS data.

**Appendix II: Data Relating to the Use of the
Research Tax Credit by Corporations**

Table 19: Percentage Reductions in Marginal Incentives and Revenue Costs If Only the ASC Is Allowed, Rather than Both the ASC and the Regular Credit, When Both Credits Have a 75% Minimum Base

	When the ASC Rate = 14%		When the ASC Rate = 20%	
	% Change in Weighted Average MER	% Change in Revenue Cost	% Change in Weighted Average MER	% Change in Revenue Cost
4% Discount Rate and Short Carryforward Assumed				
2003 Filing Year for Panel				
Initial return	-27.6%	-4.8%	-0.9%	-0.1%
After amendments	-29.9%	-4.3%	-0.6%	-0.1%
After exam recommendations	-11.1%	-3.9%	-0.9%	-0.1%
2004 Filing Year for Panel				
Initial return	-19.2%	-5.8%	-1.4%	-0.1%
After amendments	-25.5%	-5.7%	-2.4%	0.0%
After exam recommendations	-25.0%	-5.8%	-1.6%	-0.1%
8% Discount Rate and Long Carryforward Assumed				
2003 Filing Year for Panel				
Initial return	-32.3%	-5.9%	-0.8%	-0.1%
After amendments	-34.8%	-5.1%	-0.4%	0.0%
After exam recommendations	-10.5%	-4.3%	-1.0%	-0.1%
2004 Filing Year for Panel				
Initial return	-20.8%	-6.6%	-1.1%	-0.1%
After amendments	-27.7%	-6.6%	-2.4%	-0.1%
After exam recommendations	-27.3%	-5.9%	-1.2%	-0.01%

Source: GAO analysis of IRS data.

Appendix III: Examples of How the Base of the Credit Affects Marginal Incentives and Windfall Credits

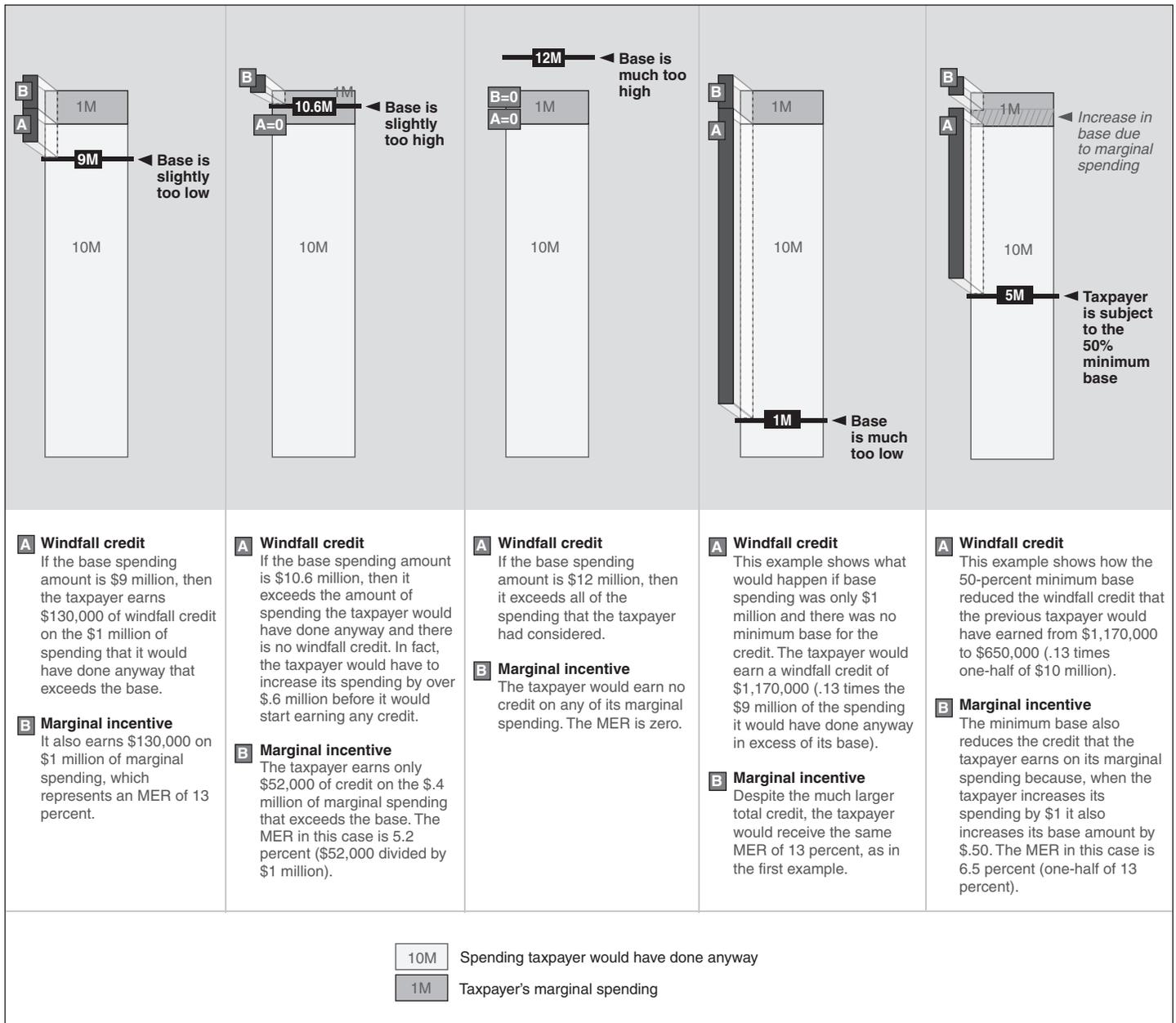
Figure 7 presents five examples that illustrate how inaccuracies in the credit's base cause disparities across taxpayers in both the marginal incentives and windfall benefits that they receive from the credit. In each example the taxpayer would have spent \$10 million on qualified research in the current year, even without the credit. Also in each example, the taxpayer is contemplating doing an additional \$1 million in spending, but wants to estimate how much of a credit benefit it will receive for that marginal spending before deciding whether to undertake it. What differs across each example is the size of the taxpayer's base for the regular credit. In the first example the taxpayer's spending and gross receipts history result in a primary base that is relatively close to its ideal base, being only \$1 million below the latter. The taxpayer receives a windfall credit of \$130,000 for the \$1 million worth of spending that it would have done anyway in excess of its base. The taxpayer would receive an additional \$130,000 worth of credit if it increased its spending by \$1 million, which represents a marginal effective rate (MER) of 13 percent—the maximum MER available under the regular credit.¹ The taxpayer's total credit (\$260,000) divided by its total spending (\$11 million) equals its average effective rate of credit (about 2.4 percent). In the second example the taxpayer's primary base exceeds the ideal base by \$600,000, which prevents the taxpayer from receiving any windfall credit; however, it also reduces the incentive that the taxpayer has to spend another \$1 million on research by cutting the credit on that marginal spending from \$130,000 to \$52,000, for an MER of 5.2 percent. In the third example the taxpayer's primary base is well above all of the spending that the taxpayer was contemplating for the year, so the credit provides no incentive for the taxpayer to increase its spending beyond what it would have done anyway. The MER is zero. The fourth example shows what could happen when a taxpayer's primary base was much too low and if there were no minimum base for the credit. The credit would provide the taxpayer with the same marginal incentive as in the first example; however, the taxpayer's windfall credit would be nine times larger than in that first case. Finally, the last example shows how the minimum base can reduce the cost of the credit by significantly reducing windfalls in some cases. Unfortunately, this windfall cannot be reduced without also cutting the marginal incentive. Given that the minimum base is 50-percent of current spending, every \$1 million of marginal spending increases the base by \$500,000, so the

¹The 13 percent rate of credit reflects the 20-percent statutory rate and the offset against the section 174 deduction.

Appendix III: Examples of How the Base of the Credit Affects Marginal Incentives and Windfall Credits

taxpayer can earn only \$650,000 of credit on that spending, representing an MER of 6.5 percent.

Figure 7: Illustration of How Inaccuracies in the Base of the Credit Result in Disparities in Incentives Across Taxpayers



Source: GAO.

**Appendix III: Examples of How the Base of
the Credit Affects Marginal Incentives and
Windfall Credits**

ASC users currently are not subject to a minimum base. If they were to be, then the final example in figure 7 shows how that minimum base could affect their current year credits. The minimum base could also affect the negative future-year effects arising from current-year marginal spending (which were illustrated in figure 3). If a taxpayer's primary base for the ASC would be less than the minimum base in future years, even after accounting for the increase due to current-year marginal spending, then current spending would not cause any reduction in future credits. If the primary base exceeded the minimum base in future years, then the negative future effects would occur, just as they did in the case without a minimum base.

Appendix IV: Issues Relating to the Definition of Qualified Research Expenses

Background and Significance

In 1986, Congress narrowed the definition of qualified research out of a concern that many taxpayers claiming the credit did not engage in high technology activities and some claimed the credit for virtually any expenditures relating to product development.¹ Currently, research activities must satisfy four tests in order to qualify for the credit:

1. Expenditures connected with the research must be eligible for treatment as expenses under section 174.²
2. The research must be undertaken for the purpose of discovering information that is technological in nature.
3. The taxpayer must intend that information to be discovered will be useful in the development of a new or improved business component of the taxpayer.
4. Substantially all of the research activities must constitute elements of a process of experimentation for a purpose relating to a new or improved function, performance, reliability, or quality.

These four eligibility criteria are known as the section 174 test, discovering technological information test, business component test, and process of experimentation test.

Treasury regulations³ elaborate on these requirements as follows:

- Research is undertaken for the purpose of discovering information if it is intended to eliminate uncertainty concerning the development or improvement of a business component.

¹See S. Rep. No. 99-313 (1986), pp. 694-95

²In order to meet the section 174 test, the expenditure must (1) be incurred in connection with the taxpayer's trade or business, and (2) represent a research and development cost in the experimental or laboratory sense. Expenditures represent research and development costs in the experimental or laboratory sense if they are for activities intended to discover information that would eliminate uncertainty concerning the development or improvement of a product. Uncertainty exists if the information available to the taxpayer does not establish the capability or method for developing or improving the product or the appropriate design of the product. Whether expenditures qualify as research or experimental expenditures depends on the nature of the activity to which the expenditures relate, not the nature of the product or improvement being developed or the level of technological advancement the product or improvement represents. See Treas. Reg. Section 1.174-2(a)(1). Expenditures for land and depreciable property are not allowed under section 174, although in certain cases, depreciation may be treated as a section 174 expense. (Depreciation is not a qualified research expenditure (QRE) under section 41).

³Treas. Reg. Section 1.41-4.

- Uncertainty exists if the information available to the taxpayer does not establish the capability or method for developing or improving the business component, or the appropriate design of the business component.
- A determination that research is undertaken for the purpose of discovering information that is technological in nature does not *require the taxpayer be seeking to obtain information that exceeds, expands or refines the common knowledge of skilled professionals in the particular field of science or engineering in which the taxpayer is performing the research*; nor does it require that the taxpayer succeed in developing a new or improved business component. (The underlined language, which TD 9104 explicitly rejected, is commonly referred to as “the discovery test” from TD 8930, which many commenters contended was an overly stringent interpretation of the discovering technological information test.)
- Generally, the issuance of a U.S. patent is conclusive evidence that the research meets the “discovering information” test. However, the issuance of a patent is not a precondition for credit availability.
- A process of experimentation is designed to evaluate one or more alternatives to achieve a result where the capability or method of achieving that result, or the appropriate design of that result, is uncertain as of the beginning of the taxpayer’s research activities. The process must fundamentally rely on the principles of the physical or biological sciences, engineering or computer science.
- A process of experimentation is undertaken for a qualified purpose if it relates to a new or improved function, performance, reliability or quality of the business component. Research relating to style, taste, cosmetic, or seasonal design factors does not qualify.

The Internal Revenue Code (IRC) identifies the following types of activities that do not qualify as research for purposes of the credit:⁴

- Any research conducted after the beginning of commercial production of the business component.
- Any research related to the adaptation of an existing business component to a particular customer’s requirement or related to the reproduction of an existing business component.
- Efficiency surveys; activity relating to management function; market research, testing or development; routine data collection; routine or ordinary testing or inspection for quality control; or any research in the social sciences, arts or humanities.

⁴26 U.S.C. Section 41(d)(4).

- Except to the extent provided in regulations, any research with respect to computer software which is developed by (or for the benefit of) the taxpayer primarily for internal use by the taxpayer, other than for use in:⁵
 - an activity which constitutes qualified research, or
 - a production process that meets the requirements of the credit.
- Research conducted outside the United States, the Commonwealth of Puerto Rico, or any possession of the United States.
- Any research to the extent funded by any grant, contract, or otherwise by another person (or government entity).

There are numerous areas of disagreement between IRS and taxpayers concerning what types of spending qualify for the research credit. These disputes raise the cost of the credit to both taxpayers and IRS and diminish the credit's incentive effect by making the ultimate benefit to taxpayers less certain.

General Qualification Tests

The tax practitioners we interviewed almost universally told us that Internal Revenue Service (IRS) auditors are still applying the discovery test from Department of the Treasury regulations⁶ that were explicitly rejected in subsequent regulations.⁷ Some of the tax consultants pointed to language in the regulations saying that the section 174 and process of experimentation tests are met as long as the experimentation addresses uncertainty relating to either the capability or method for developing or improving the product, or the appropriate design of the product. One consultant said IRS examiners have disqualified design and development activities that address these uncertainties because they considered the activities to be “routine development” or “routine engineering.”

Officials from IRS's Large and Mid-Size Business (LMSB) Division whom we interviewed denied that examiners are inappropriately applying the old discovery test and referred to language from their Research Credit Audit Technique Guide that instructs examiners on the relevant language from

⁵Treasury has yet to issue final regulations regarding internal-use software. See further discussion below.

⁶T.D. 8930, 66 Fed. Reg. 280 (2001) (TD 8930).

⁷T.D. 9104, 66 Fed. Reg. 22-01 (T.D.9104). In *United States v. McFerrin*, 570 F. 3d. 672 (5th Cir. 2009), the Court of Appeals held that the IRS inappropriately applied the discovery test. In *Union Carbide Corp. et. al. v. Commissioner*, T.C. Memo 2009-50, the Tax Court applied the eliminate uncertainty test instead of the discovery standard.

current regulations. One of the practitioners that complained about the standards used by examiners acknowledged that, if they call in IRS's Research Credit Technical Advisors, they can get the correct rules applied.

Both practitioners and IRS officials acknowledged that some controversies arise because language in the IRC and regulations does not always provide a bright line for identifying qualified activities. For example, one qualification requirement is that the research must be intended to eliminate uncertainty concerning the development or improvement of a business component. The regulations say that uncertainty exists "if the information available to the taxpayer does not establish the capability or method for developing or improving the business component, or the appropriate design of the business component."⁸ An IRS official said that examiners could use clarification of the meaning of "information available to the taxpayer," while a practitioner noted that the regulations do not say what degree of improvement in a product is required for the underlying research to be considered qualified. The practitioner said that research for improvements is more difficult to get approved as QREs than research for new products.

Product testing around the end of the development process is a particularly contentious issue under the section 174 and process of experimentation tests. Treasury regulations provide that "the term research or experimental expenditures does not include expenditures for the ordinary testing or inspection of materials or products for quality control (quality control testing)." However, the regulations clarify that "quality control testing does not include testing to determine if the design of the product is appropriate."⁹ Some tax consultants told us that IRS fairly consistently disqualifies research designed to address uncertainty relating to the appropriate design of a product. One of them said that IRS rejected testing activities simply on the basis of whether the testing techniques, themselves, were routine.¹⁰ IRS officials said that they

⁸Treas. Reg. Section 1.41-4(a)(3).

⁹Treas. Reg. Section 1.174-2(a).

¹⁰The consultant shared a redacted excerpt from IRS's audit summary for a client in which the examiner referred to the taxpayer's software testing, including regression testing, functional testing, security testing, and stress testing as "routine" and "run-of-the-mill" and concluded that such testing is generally not a qualifying process of experimentation activity.

typically reject testing that is done after the taxpayer has proven the acceptability of its production process internally. They have disagreements with taxpayers over when commercial production begins and suggested that this is one area where some further clarification in regulations might help. Officials from IRS Appeals told us that they could benefit from additional guidance (including industry-specific guidance) in the regulations relating to the process of experimentation test.

Product testing is a particularly important issue for software development, which is another area of significant contention between IRS and taxpayers. Many tax consultants and industry groups that we spoke with believe that IRS has a general bias against software development activities qualifying for the credit. For their part, IRS officials believe that the true cause of controversy is taxpayers' belief in the so-called "per se rule," which considers all software development to inherently entail a qualifying process of experimentation. The officials note that IRS and the courts have uniformly rejected this notion. IRS's *Audit Guidelines on the Application of the Process of Experimentation for All Software* state that, in order for a software development activity to meet the experimentation test, as specified in Treasury regulations, it must do all of the following: address one of the qualified uncertainties; evaluate alternatives; and rely on the principles of computer science. The guidelines identify numerous activities, including the detection of flaws and bugs in software, as "high risk categories of software development," which usually fail to constitute qualified research. A special subset of controversies relate to software that is considered to have been developed for a taxpayer's own use.

Internal-Use Software

When Congress narrowed the definition of the term "qualified research" in the Tax Reform Act of 1986,¹¹ it specifically excluded several activities, one of them being the development of computer software for the taxpayer's own internal use (other than for use in an activity which constitutes qualified research, or a production process that meets the requirements of the credit). The act provided Treasury the authority to specify exceptions to this exclusion; however, the legislative history to the Act states that Congress intended that regulations would make the costs of new or improved internal-use software (IUS) eligible for the credit only if the research satisfies, in addition to the general requirements for credit eligibility, the following three-part test that

¹¹Pub. L. No. 99-514 (1986).

1. the software was innovative;
2. the software development involved significant economic risk; and
3. the software was not commercially available for use by the taxpayer.

The statutory exclusion for internal-use software and the regulatory exceptions to this exclusion have been the subject of a series of proposed and final regulations (and also considerable controversy). On January 3, 2001, Treasury published final regulations¹² ruling that “software is developed primarily for the taxpayer’s internal use if the software is to be used internally, for example, in general administrative functions of the taxpayer (such as payroll, bookkeeping, or personnel management) or in providing noncomputer services (such as accounting, consulting, or banking services).”¹³ If the software was developed primarily for those purposes, it was deemed to be IUS, even if it is subsequently sold, leased or licensed to third parties. This regulation did not provide a specific definition but instead identified two general categories of software as examples of IUS. In response to further taxpayer concerns Treasury reconsidered the positions it took in TD 8930 and issued proposed regulations on December 26, 2001, which stated, among other things, that, unless computer software is developed to be commercially sold, leased, licensed or otherwise marketed, for separately stated consideration to unrelated third parties, it is presumed to be IUS.¹⁴

In publishing both TD 8930 and the proposed regulations Treasury declined to adopt the recommendation of commentators that the definition of IUS should not include software used to deliver a service to customers or software that includes an interface with customers or the public. Financial services and telecommunications companies are among those particularly concerned with this issue. They note that their software systems are integrally related to the provision of services to their customers, yet expenditures to develop those systems would not qualify for the credit (unless they met the additional set of standards) under the “separately stated consideration” standard because they do not charge customers specifically for the use of the software.

¹²TD 8930, 66 Fed. Reg. 280 (2001) (TD 8930).

¹³Software used to provide noncomputer services was excepted from the additional three-part test if that software, among other things, contained features or improvements not yet offered by a taxpayer’s competitors.

¹⁴66 Fed. Reg. 66362 (Proposed Regulations).

Several commentators noted that the original treatment of IUS introduced by the 1986 act predated the occurrence of a dramatic shift in computer usage that transformed the US economy from one based on production of tangible goods to one based on services and information. They question whether there is still an economic rationale for making a distinction between IUS and software used for other purposes, given that innovations in software can produce spillover benefits regardless of whether the software is sold to third parties. Some commentators supported their recommendations for a narrower definition of IUS by referring to the legislative history included in the Conference Report accompanying the Tax Relief Extension Act of 1999,¹⁵ which included the following language:

The conferees further note the rapid pace of technological advance, especially in service-related industries, and urge the Secretary to consider carefully the comments he has and may receive in promulgating regulations in connection with what constitutes “internal use” with respect to software expenditures. The conferees also wish to observe that software research that otherwise satisfies the requirements of section 41, which is undertaken to support the provision of service, should not be deemed to be “internal use” solely because the business component involves the provision of a service.¹⁶

Tax consultants complain that IRS continues to consider software development expenditures in the services industry to be IUS, despite the guidance Congress provided in the 1999 conference report. Some also say that the lack of clarity in current guidance regarding the characteristics of innovative software has permitted IRS examiners to apply an overly restrictive interpretation of this eligibility requirement. IRS officials told us that some exceptions were added to both TD 8930 and the proposed regulations in response to the conference report. They also note that the report did not suggest that all software providing a service should be excepted from IUS treatment; rather, it suggested that such software not be automatically classified as IUS.

Treasury itself acknowledged the changes in computer software and its role in business activity since the mid-1980s in an Advanced Notice of

¹⁵Pub. L. No. 106-170 (1999).

¹⁶H.R. Conf. Rep. No. 106-478, at 132 (1999).

Proposed Rulemaking,¹⁷ which explained why the department was not ready to address the issue of IUS in the final regulations on the research credit that it published in 2004. Treasury said it was concerned about the difficulty of effecting congressional intent behind the exclusion for internal-use software with respect to software being developed today. As an example, it was concerned that the tendency toward the integration of software across many functions of a taxpayer's business activities may make it difficult for both taxpayers and the IRS to separate internal-use software from non-internal-use software under any particular definition of internal-use software. Even with Congress's broad grant of regulatory authority to Treasury on this issue, Treasury believed that this authority may not be broad enough to resolve those difficulties.

Treasury has not yet been able to publish final regulations relating to IUS; the issue remains on the department's latest priority guidance plan. In the meantime, for tax years beginning after December 31, 1985, Treasury has allowed taxpayers to rely upon all of the provisions relating to IUS in the proposed regulations or, alternatively, on all of the provisions relating to IUS in TD 8930. However, if taxpayers choose to rely on TD 8930, Treasury required that they also apply the "discovery test" contained in that document. Nonetheless, a recent court decision allowed a taxpayer to rely on TD 8930 for IUS guidance and TD 9104 regarding the discovering technological information test.¹⁸ The Department of Justice has filed a motion for reconsideration on the grounds that the court's holding is based on a mistake in law.

Direct Supervision and Direct Support of Qualified Research Activities

Qualified research expenses include the wages of employees who provide direct supervision or direct support of qualified research activities. Treasury regulations define direct supervision as "the immediate supervision (first-line management) of qualified research."¹⁹ Direct supervision does not include supervision by a higher level manager. The same section of the regulations provides the following examples of activities that qualify as direct support: the typing of a report describing laboratory results derived from qualified research, the machining of a part

¹⁷69 Fed. Reg. 43.

¹⁸See *FEDEX Corp. et. al. v. United States*, No 08-2423 (W.D. Tenn. June 9, 2009) where a federal district court ruled there was an inconsistency in the government's guidance.

¹⁹Treas. Reg. Section 1-41-2(c).

of an experimental model, and the cleaning of equipment used in qualified research. The section also provides the following examples of activities that do not qualify: payroll, accounting and general janitorial services.

Some practitioners told us that IRS is very stringent with respect to allowing the wages of supervisors higher in the chain of command to be included in QREs. Many of their clients have flat organizational structures and the best researchers are often given higher titles so that they can be paid more. They say that IRS often rejects wage claims simply on the basis of job titles. IRS officials told us that wages higher level managers could be eligible for the credit; however, the burden of proof is on the taxpayer to substantiate the amount of time that those managers actually spent directly supervising a qualified activity. They note that some taxpayers try to include unallowable costs relating to production labor, sales and marketing, information technology personnel, and legal personnel.

Some commentators would like IRS's guidance to more clearly state that activities such as bid and proposal preparation (at the front end of the research process) and development testing and certification testing (at the final stages of the process) are qualified support activities that do not have to meet specific qualification tests themselves, as long as the activities that they support already qualify as eligible research. IRS officials told us that they would like better guidance on this issue and were concerned that some taxpayers want to include the wages of anyone with any connection at all to the research, such as marketing employees who attend meetings to talk about what customers want.

Exclusion of Activities Occurring after the Commencement of Commercial Production

According to existing Treasury regulations, activities are conducted after the beginning of commercial production of a business component if such activities are conducted after the component is developed to the point where it is ready for commercial sale or use, or meets the basic functional and economic requirements of the taxpayer for the component's sale or use.²⁰ The regulations specifically identify the following activities as being deemed to occur after the beginning of commercial production of a business component:

- A. Preproduction planning for a finished business component;

²⁰Treas. Reg. Section 1.41-4(c)(2).

- B. Tooling-up for production;
- C. Trial production runs;
- D. Trouble shooting involving detecting faults in production equipment or processes;
- E. Accumulating data relating to production processes; and
- F. Debugging flaws in a business component.

The exclusions relating to postcommencement activities apply separately for the activities relating to the development of the product and the activities relating to the development of the process for commercially manufacturing that product. For example, even after a product meets the taxpayer's basic functional and economic requirements, activities relating to the development of the manufacturing process still may constitute qualified research, provided that the development of the process itself separately satisfies the standard eligibility requirements and the activities are conducted before the process meets the taxpayer's basic functional and economic requirements or is ready for commercial use.

Some commentators requested clarification of these regulations, suggesting a need for greater flexibility in defining the commencement of commercial production. In particular, they objected to Treasury deeming certain activities, such as preproduction planning, tooling, trial production runs, and debugging flaws, to occur after commencement of production when they often actually occur before the manufacturing process is ready for commercial use. Treasury, as stated in the preamble to the final regulations, believes that “the multitude of factual situations to which these exclusions might apply make it impractical to provide additional clarification that is both meaningful and of broad application.”²¹ It also stated that the specific exclusions do not apply to research activities that otherwise satisfy the requirements for qualified research. Some tax consultants claim that IRS disallows research relating to the development of manufacturing processes that should qualify (according to the consultants' interpretation of those regulations). IRS officials acknowledged that they do have disputes with taxpayers regarding when commercial production of a particular product has begun and that their determinations must be based on the facts and circumstances of the particular cases. There is no “bright line” test for when a product is ready for commercial production or when a manufacturing process is no longer being improved.

²¹ T.D. 9104.

Supplies and Depreciable Assets

The Internal Revenue Code specifically excludes expenditures to acquire “property of a character subject to the allowance for depreciation” from eligibility for either the deduction of research expenditures under section 174 or for the research credit.²² Taxpayers have attempted to claim the deduction or the credit for expenditures that they have made for labor and supplies to construct tangible property, such as molds or prototypes, that they used in qualified research activities. IRS has taken the position that such claims are not allowed (even though the taxpayers do not, themselves, take depreciation allowances for these properties) because the constructed property is of the type that would be subject to depreciation if a taxpayer had purchased it as a final product.²³ IRS also says that it is also improper for taxpayers to include indirect costs in their claims for “self-constructed supplies,” even when the latter are not depreciable property.²⁴ Taxpayers are challenging IRS’s position in at least one pending court case²⁵ because, among other reasons, they believe the agency’s position is inconsistent with both Treasury regulations under section 174, which allow the deductibility of expenditures for pilot models and the legislative history of section 41, which, they say, implies that such expenditures could qualify for the credit. IRS says that some taxpayers have labeled custom-designed property intended to be held for sale in their ordinary course of business as prototypes, solely for the purpose of claiming the research credit. Consequently, IRS considers the costs associated with the manufacture of such products to be “inventory costs” and not QREs. Both taxpayers and IRS examiners would like to see clearer guidance in this area and Treasury has a project to provide further guidance under section 174 in its most recent priority guidance plan. IRS has also been concerned with the extent to which taxpayers have attempted to recharacterize ineligible foreign research services contracts as supply purchases.

²² 26 U.S.C. Section 174(c) and 26 U.S.C. Section 41(b)(1)(C)(ii).

²³ In fact, some prototypes that are used in qualified research are subsequently sold to customers who then claim depreciation allowances for them.

²⁴ One example of a self-constructed supply is a chemical that a business produces itself and then uses in a research project. IRS’s position is that the taxpayer is not permitted to include overhead or administrative costs attributable to the production of that chemical as QREs. However, if the taxpayer had purchased the chemical from a third party, such costs would have been included in the purchase price and could, thereby, be included in QREs.

²⁵ *TG Missouri Corporation v. Commissioner*, Docket Number 8333-06 Tax Court.

Appendix V: Issues Relating to the Definition of Gross Receipts for a Controlled Group of Corporations

Background and Significance

For taxpayers claiming the regular research credit the definition of gross receipts is important in calculating the base amount to which their current-year qualified research expenses (QRE) are compared. The definition also was critical for determining the amount of credit that taxpayers could earn with the alternative incremental research credit (AIRC). (Even though this credit option is no longer available, a decision regarding the definition of gross receipts will affect substantial amounts of AIRC claims that remain in contention between taxpayers and the Internal Revenue Service (IRS) for taxable years before 2009.) Gross receipts do not enter into the computation of the alternative simplified credit (ASC) or the basic research credit.

The House Budget Report¹ accompanying the Omnibus Budget Reconciliation Act of 1989² that introduced the current form of the regular credit provided two rationales for indexing a taxpayer's base spending amount to the growth in its gross receipts:

1. Businesses often determine their research budgets as a fixed percentage of their gross receipts; therefore, the revised computation of the base amount would better achieve the intended objective of approximating the amount of research the taxpayer would have done in any case.
2. Indexing the base to gross receipts would effectively index the credit for inflation.
3. Neither the House, Senate, nor Conference reports accompanying the Small Business Job Protection Act of 1996 provided any rationale for the design of the AIRC.

Neither the statute nor the legislative histories for either of these Acts defined the term gross receipts in detail. Section 41(c)(7) of the IRC simply provides that, for purposes of the credit, gross receipts for any taxable year are reduced by returns and allowances made during the tax year, and, in the case of a foreign corporation, that only gross receipts effectively connected with the conduct of a trade or business within the United States, Puerto Rico, or any U.S. possession are taken into account.

Department of the Treasury regulations for the credit generally define gross receipts as the total amount, as determined under the taxpayer's

¹H. Conf. Rep. No. 101-247 (1989).

²Pub. L. No. 101-508 (1989).

method of accounting, derived by a taxpayer from all its activities and all sources. However, “in recognition of the fact that certain extraordinary gross receipts might not be taken into account when a business determines its research budget,” the regulations provide, among other things, that certain extraordinary items (such as receipts from the sale or exchange of capital assets) are excluded from the computation of gross receipts.³

The principal issue of contention between taxpayers and IRS is the extent to which sales and other types of payments among members of a controlled group of corporations should be included in that group’s gross receipts for purposes of computing the credit. Neither the IRC nor Treasury regulations are clear on this point and IRS has issued differing legal analyses in specific cases over the years. Several of the tax practitioners that we interviewed emphasized the importance of this issue, particularly as a consequence of the extraordinary repatriation of dividends in response to the temporary incentives under section 965. One noted that it is the most significant Fin 48 issue for them.⁴ Others noted that it is a \$100 million issue for some taxpayers and will determine whether other taxpayers will earn any credit or not in given years. Uncertainty surrounding the definition of gross receipts makes it difficult for some regular credit users to know how much credit they would receive for spending more on research and, thereby, reduces the effectiveness of the credit.

Differing Legal Positions Taken by IRS and Taxpayers

Several private sector commentators and tax professionals we interviewed have taken the position that all transfers within a controlled group of corporations, including those between foreign subsidiaries and U.S. parent corporations should be excluded from gross receipts. In 2002 IRS issued a Chief Counsel Advice memorandum that supported this interpretation on behalf of a particular taxpayer, noting that the decision was based on the particular facts and circumstances of the case and should not be cited as precedent for other cases.⁵ A subsequent, 2006, IRS Chief Counsel Memorandum came to the opposite conclusion, again based on the

³TD 8930, 66 Fed. Reg. 280 (2001) (TD 8930).

⁴FIN 48, Accounting for Uncertainty in Income Taxes, is guidance provided by the Financial Accounting Standards Board that standardizes accounting for uncertain tax benefits and requires companies to disclose their tax reserve amounts.

⁵CCA 200233011 (5/1/2002).

specific facts and circumstances of the case. The uncertainty for taxpayers results from the fact that neither memorandum identified which particular circumstances in each case were decisive and the descriptions provided of each case were very similar.⁶ Moreover, the two IRS memorandums applied differing interpretations of congressional intent.

The critical disagreement between IRS and the taxpayer representatives is whether the disregarding of intragroup transfers under the group credit rules applies to gross receipts as well as to qualified research expenses. The current position taken by IRS is that the credit regulations section stating that transfers between members of a controlled group are generally disregarded is that it applies only to QREs and not to gross receipts because those rules were in place prior to 1989, when gross receipts first became a factor in the computation of the credit, and neither Congress (with respect to the Internal Revenue Code (IRC)) nor Treasury (with respect to its regulations) modified the rules to specifically indicate that they apply to gross receipts. Some tax professionals counter this reasoning by saying that the specific language in the IRC states that the rules apply for purposes of “determining the amount of the credit”; consequently, there was no need for Congress to explicitly link the rules to gross receipts because the latter obviously play a critical role in determining the amount of the credit. Treasury has yet to address the treatment of gross receipts under the group credit rules, even though the issue has been in Treasury’s priority guidance plans since 2004.

A Treasury official told us that one issue the department would need to decide, even if they accept that Congress intended for the rules to apply to gross receipts, is whether Congress intended such a broad exclusion or, instead, wanted to generally exclude intragroup transactions, except for sales by a domestic member to a foreign affiliate that are subsequently passed through as sales to foreign third parties.

Consequences of Alternative Decisions

In General

Changing the scope of gross receipts would not affect the amount of regular credit earned by a regular credit user (and, therefore, the revenue cost) if the relative sizes of the various components of that taxpayer’s gross receipts remained the same as they were during the base period. For

⁶CCA 200620023 (2/14/2006).

example, if dividends from foreign members accounted for 10 percent of the group's gross receipts during the base period and 10 percent of the gross receipts over the past four years, then the taxpayer's regular credit would be the same regardless of whether such dividends were counted in gross receipts. However, if the share of such dividends in gross receipts had grown over time, the taxpayer's credit would be smaller if those dividends were included in the definition of gross receipts than if they were excluded. Conversely, if the dividend share declined over time the inclusion of the dividends in gross receipts would give the taxpayer a larger credit.

The effect that changes in the scope of gross receipts would have on the marginal incentive that the regular credit provides to a particular taxpayer would depend on whether the changes affect the credit constraints that the taxpayer faces. Specifically,

- the inclusion of a component that has increased its relative share since the base period would eliminate the marginal incentive for a taxpayer who had been able to earn the credit if the inclusion caused that taxpayer's base amount to exceed current-year QREs;
- the inclusion of a component that has increased its relative share would increase the marginal incentive if it increased the taxpayer's base amount from being less than half of its current-year QREs to more than half (because this would remove the taxpayer from being subject to the 50-percent base constraint);⁷
- The inclusion of a component that has decreased its relative share since the base period would have effects opposite to those described in the first two bullets; and
- if any potential component of gross receipts accounts for the same proportion of the taxpayer's total gross receipts in the base period and over the last 4 years, then the marginal incentive would not be affected by the inclusion or exclusion of that component.

The broader the definition of gross receipts, the less credit taxpayers would earn under the AIRC (for a given set of credit rates). This would reduce the revenue cost of the AIRC and it may reduce the marginal incentive provided to some taxpayers, depending on where their resultant ratio of QREs to gross receipts leaves them in the credit's graduated rate

⁷When a taxpayer that is subject to the 50-percent base constraint increases its current-year spending by \$1, its base QREs increase by 50 cents and its credit increases by 10 cents (which equals $0.2 \times (\$1 \text{ minus } 50 \text{ cents})$). When a taxpayer that is not subject to that constraint increases its current-year spending by \$1, its credit increases by 20 cents.

structure. Unless Congress reverses its decision and reinstates the AIRC for tax years after 2008, the amount of research spending will not be affected by any reduction in that credit's marginal incentive resulting from a broader interpretation of gross receipts.

**Option 1—Exclude All
Transactions Between
Controlled Group Members
From the Group's Total Gross
Receipts**

Under this option, gross receipts would consist of all payments received from parties outside of the group by any member of the group that are derived from the member's trade or business within the United States, except for those extraordinary items currently excluded by Treasury regulations. Sales of products by a U.S. member to a foreign member that are subsequently sold to a foreign third party would be excluded, as would be any dividend or royalty payments that are derived from such sales. Any amounts that a foreign member receives from third parties that are derived from that member's trade or business within the United States would be included in the group's total gross receipts on a current basis (not just when such amounts are repatriated to the United States). Also, any sales that a domestic member makes to third parties within the United States of products imported from a foreign member (even when the latter has no trade or business within the United States) would be included in the group's gross receipts.

If Section 41(c)(7) of the IRC reflects an expectation by Congress that taxpayers would not fund research within the United States out of sales made by foreign members, this option would meet that expectation. It would be consistent with the view that foreign members should be allowed to use their resources for the research they perform abroad and, given that the foreign research does not qualify for the credit, the foreign resources should not enter into the credit computation either. In addition, this option would provide symmetry between the treatment of sales by U.S. members of products imported from foreign affiliates and sales by foreign members of products that they purchase from U.S. members. However, this option would provide disparate treatment between foreign sales that a U.S. member makes directly to a foreign third party (which would be included in the group's gross receipts) and foreign sales that a U.S. member passes through a foreign member (which would be excluded). This disparate treatment would give regular credit users some incentive to pass their sales through foreign members rather than to sell directly to foreign third parties. It also would provide some advantage for regular credit users to manufacture and sell products overseas, rather than to manufacture them in the United States and sell them directly to third

parties overseas; however, it would not give those users any advantage to manufacture overseas, rather than to manufacture in the United States and pass their sales through foreign members.⁸ It is not clear that any of these incentive effects that would result from this option would be significant relative to the many other tax and nontax factors that businesses consider when deciding where to locate their activities and how to route products and transfers through their affiliates. Perhaps most importantly, this option could exclude a substantial amount of export sales of U.S. multinational corporations from gross receipts. This result would favor regular credit users whose export sales have increased as a share of their total sales and disfavor users whose export shares have declined. It would also provide more generous AIRC benefits to users that export relatively large shares of their products than to users whose export shares are smaller. These disparities in the credit benefits across taxpayers serve no useful purpose.

Option 2—Include All Transactions Covered by Treasury’s Current Definition, Except Payments for Research Services, Even If They Are Made Between Two Members of Controlled Group.

This option, which would be consistent with IRS’s current interpretation that the aggregation rules for computing the group credit apply only to QREs and not to gross receipts, appears to be inconsistent with Congress’s intent of using the ratio of QREs to gross receipts as a measure of a taxpayer’s research effort in the base period and in the current year. This option would eliminate any double-counting of QREs but would overstate the resources available to the group by double-counting sales and income payments between group members. One consequence of this approach would be to encourage regular credit users to reduce the volume of intragroup transfers as a share of total gross receipts relative to what that share was during the base period. Distorting business practices in this manner would serve no purpose and could reduce efficiency. For AIRC users this option would reduce the amount of credit they could earn and would put taxpayers with relatively high volumes of intragroup transactions at an unjustified disadvantage.

Option 3—Exclude Everything That Would Be Excluded Under Option 1, Except for Intermediate Sales by U.S. Members to Foreign Members.

This option is preferable to option 1 because it would not discriminate among taxpayers on the basis of whether they export their products or sell them domestically because it would include all sales that are effectively connected with the conduct of a trade or business within the United States in a group’s gross receipts. This option is preferable to option 2 because it would eliminate any double-counting of intragroup transfers in gross

⁸ Many U.S. manufacturers that export their products do so through foreign affiliates, rather than directly to foreign third parties.

receipts, which is important if Congress wishes to continue using gross receipts as a measure of the resources available to corporations. Relative to option 1, this option would give corporate groups that use the regular credit some incentive to produce goods abroad that they intend to sell abroad, rather than produce them in the United States; however, it is not clear that this incentive is significant relative to other factors that influence the location of production.

Option 3 would be less costly than option 1 and more costly than option 2 in terms of historic claims by users of the AIRC. In terms of future claims by users of the regular credit, the relative costs of the three options are difficult to determine because they depend on how the proportionate shares of certain types of intragroup transfers in the future will compare to what they were during taxpayer's base periods.

Appendix VI: Issues Relating to Recordkeeping and Substantiation

Substantiating the validity of a research credit claim is a demanding task for both taxpayers and the Internal Revenue Service (IRS), particularly in cases where research is not a primary function of the business in question. Two factors have led to a considerable degree of controversy between IRS and taxpayers over the types of evidence that are sufficient to support a claim for the credit:

- Most taxpayers do not maintain project-based accounts for normal business purposes (and even those that do must collect additional details solely for purposes of claiming the credit),
- There has been an increase in the number of taxpayers filing claims on amended returns, based on studies prepared by consultants, and
- There is no specific guidance in law, regulations, or from IRS examiners as to what constitutes sufficient substantiation.

Neither the Internal Revenue Code (IRC) nor Department of the Treasury regulations contain specific recordkeeping requirements for claimants of the research credit. However, claimants are subject to the general recordkeeping rules of the IRC¹ and Treasury regulations,² applicable to all taxpayers, that require them to keep books of account or records that are sufficient to establish the amount of credit they are claiming. In the case of the research credit, a taxpayer must provide evidence that all of the expenses for which the credit is claimed were devoted to qualified research activities, as defined under IRC section 41. Under that section the qualification of research activities are determined separately with respect to each business component (e.g., a product, process, or formula), which means that the taxpayer must be able to allocate all of its qualified expenses to specific business components. Moreover, the taxpayer must be able to establish these qualifications and connections to specific components not only for the year in which the credit is being claimed, but also for all of the years in its base period.

Establishing the Nexus between Expenses and Qualified Activities

The tax practitioners we interviewed recognize that a nexus needs to be shown between expenses and business components or projects; however, they noted that documenting this connection requires considerable effort for businesses that use cost center accounting, rather than project

¹26 U.S.C. Section 6001.

²Treas. Reg. Section 1.6001.

accounting to track their expenses. Standard business accounting typically focuses on the financial status of organizational units, such as geographical or functional departments. Large businesses often have cost centers, which are separately identified units (such as research, engineering, manufacturing and marketing departments) in which costs can be segregated and the manager of the center is responsible for all of its expenses. Project accounting is the practice of creating reports that track the financial status of specific projects, the cost of which are often incurred across multiple organizational units.

Practitioners that work with both large multinational corporations and small family-owned businesses told us that most of their clients claiming the research credit do not use project accounting. Project accounting is typically used by government contractors, which are usually required to account for their costs on a contract-by-contract basis, and in certain industries, such as pharmaceuticals and software development. However, even those firms that use project accounting need to collect additional details that are required only for purposes of claiming the credit. Consequently, many firms rely on third-party consultants (with expertise in the complexities of research credit rules) to conduct studies that bridge their cost-center accounting of research expenditures to project-based accounting that is acceptable to IRS. IRS and practitioners often refer to this attempt to bridge the two accounting approaches as the “hybrid” approach.

A key component of the documentation needed to support a credit claim, regardless of which accounting approach a taxpayer uses, is the allocation of wage expenses between qualifying and nonqualifying activities. In the case of a taxpayer using project accounting, those accounts make it easier to demonstrate that an employee worked on a project to develop a new or improved business component; however, even then, additional support is needed to show how much of the employee’s time was spent on activities that qualify as a process of experimentation intended to eliminate uncertainty (or on a qualifying support activity). In the case of a taxpayer using cost-center accounting, documentation also needs to be generated to show the amount of wages devoted to each qualifying project. Wage allocations made by consultants are typically based on after-the-fact surveys or interviews of managers who are asked to estimate the percent time that their employees spent on different projects and activities. In addition, subject matter experts (SME), such as a firm’s managers, scientists and engineers, are often interviewed to gain explanations of how particular activities meet the standards of qualifying research. Some of the consultants also told us they also try to gather whatever relevant technical

documentation may exist to support this testimonial evidence. In the case of large corporations with numerous research projects detailed allocation estimates may be made for only a representative sample of projects and then extrapolated across the population of all projects.

There were wide difference in opinions between the IRS examiners and the tax practitioners we interviewed regarding what methods are acceptable for allocating wages between qualifying and nonqualifying activities. Practitioners noted that IRS used to accept cost center or hybrid accounting in the absence of project accounting; however, in recent years IRS has been much less willing to accept claims based on the first two approaches. They also said that IRS examiners now regularly require contemporaneous documentation of qualified research expenses (QRE), even though this requirement was dropped from the credit regulations in 2001. Some practitioners suggested that the changes in IRS's practices came about because examiners were having difficulty determining how much QREs to disallow in audits when they found that a particular activity did not qualify. Others said that IRS does not want to devote the considerable amounts of labor required to review the hybrid documentation. The IRS officials we interviewed said that many more taxpayers have or had project accounting than was suggested by the tax practitioners. The officials said that the consultants ignored these accounts because they boxed them in (in terms of identifying qualified research expenses). They noted that, before the surge in new claims by firms that had never claimed the credit previously, taxpayers used to supply more documentary evidence, such as budgets and e-mails. In their view the use of high level surveys and uncorroborated testimony of SMEs are not a sufficient basis for identifying QREs. The officials noted that sometimes consultants conduct interviews for one tax year and then extrapolate their results to support credit claims for multiple earlier tax years. In their view, these are the types of claims that the new penalty on erroneous claims will combat.³ These officials would also like to see a new line item added to tax returns on which taxpayers would be required to show the amount of the research deduction they were claiming under IRC section 174. They would like to make taxpayers go on record as

³The Small Business and Work Opportunity Tax Act of 2007, Pub.L. No. 110-28 (2007) provided IRS with the authority to impose a penalty on any taxpayer that claimed an excessive amount of refund or credit, unless the taxpayer can show that the claim has a reasonable basis. The penalty equals 20 percent of the excessive portion of the claim (defined as the amount not allowable under law). The penalty does not apply to earned income credit claims. See 26 U.S.C. Section 6676(a).

having considered the expenses to be research when they first incurred them, rather than after the fact on an amended return.

A common complaint among the practitioners we interviewed is that IRS examiners routinely reject their credit studies but will not also say what would be acceptable, short of contemporaneous project-based accounts. They also say that IRS mixes up a taxpayer's requirement to keep records and what is required to substantiate credit claims. The taxpayers do have records of all their expenses, but not of which ones are tied to qualified activities. Supplemental records and narratives are needed to explain how the expenses qualify. The practitioners said that it is unreasonable to expect that many businesses will maintain contemporaneous records of how much time each of their employees spends on qualified activities simply for purposes of claiming the credit; therefore, after-the-fact estimated allocations should be allowed. Some observed that when Congress renewed the credit in 1999 it expressed concern about unnecessary and costly taxpayer recordkeeping burdens and reaffirmed that "eligibility for the credit is not intended to be contingent on meeting unreasonable recordkeeping requirements." They also note that recent court decisions have allowed the research tax credit in the absence of contemporaneous allocations when the evidence provided by the taxpayer has been convincing, which courts have cited in two recently decided research tax credit cases. IRS officials told us that their current practices are consistent with these recent decisions, which, they emphasize, require estimates to have a credible evidentiary basis.⁴ The key issue is not the contemporaneity of the evidence, but its quality (e.g., time survey estimates made by employees who actually performed or supervised the research, rather than estimates made by someone in the firm's tax department who had no first-hand knowledge of the research). Some practitioners doubted the usefulness of specific recordkeeping guidelines, given the wide range of practice across industries. Others would greatly welcome additional guidance and thought that the separate audit technique guides that IRS developed for the pharmaceuticals and

⁴In two decisions earlier this year (a Tax Court opinion in *Union Carbide Corp. v. Commissioner*, T.C. Memo 2009-50, and a Fifth Circuit appellate decision in *United States v. McFerrin*, 570 F. 3d. 672(5th Cir. 2009)) courts referred to an earlier ruling in *Cohan v. Commissioner*, 39 F. 3d. 540 (1930) in supporting taxpayers' use of testimony and other evidence in estimating their credits. IRS recognizes that under the *Cohan* rule the courts may estimate the allowable amount of credit, but only if two conditions are met: (1) the taxpayer has demonstrated that it has engaged in qualified research but does not have sufficient records to document the amount of QREs and (2) there is sufficient credible evidence to provide a basis for making an estimate.

aerospace industries, which several practitioners commended, could serve as models.

IRS officials say that they do not require project-based accounting records and they disagree with taxpayer assertions that they routinely deny credit claims for lack of such accounting or lack of contemporaneous records. Examiners consider these types of records to be the most reliable and relevant form of substantiation; however, in the absence of project-based accounts, the examiners are instructed to consider and verify all credible evidence.

The officials note that two audit technique guides (ATG) they have published—one (issued in June 2005) covering research credit issues in general and the other (issued in May 2008) covering issues relating to amended claims—provide general descriptions of necessary documentation and lists specific types of documentation that would be acceptable for addressing particular issues.⁵ The latter states that IRS does not have to accept either estimates or extrapolations because IRC section 6001 requires taxpayers to keep records to support their claims. It instructs examiners to consider the extent to which taxpayers rely on oral testimony and/or estimations, rather than documentation, when deciding whether to reject a claim and that information to support the claim should be contemporaneous. Examiners are also directed to consider whether oral testimony was from employees who actually performed the qualified research and how much time elapsed between the research and the testimony. To enable examiners to make such determinations without having to go through often voluminous amounts of documentation, IRS is now requiring examiners to issue a standardized information document request (IDR) questionnaire to all taxpayers with amended claims for the research tax credit that are in the early stages of examination. This IDR asks taxpayers for complete answers (not just references to other documentation) to questions concerning key aspects of the support for their credit claims. For example, the IDR asks what percentage of QREs are base on oral testimony or employee surveys, who was interviewed or surveyed, and how much time elapsed between the claim year and the time of the interview or survey. If some of the support for the answers is contained in other records, the taxpayer must supply specific location

⁵*Credit for Increasing Research Activities (i.e. Research Tax Credit) Audit Technique Guide (ATG) (June 2005) and Research Credit Claims Audit Techniques Guide (RCCATG): for Increasing Research Activities Section 41 (LMSB-04-0508-030) (May 2008).*

references. The ATG advises examiners that, in some cases they can use the responses to the IDR alone to determine that the amount claimed is not adequately supported and should be disallowed without further examination.

The IRS officials we interviewed pointed to the research credit recordkeeping agreements (RCRA) as examples of the recordkeeping that they would accept and some practitioners said that IRS could use the knowledge it gained through RCRA about industry-specific recordkeeping practices to develop more industry-specific recordkeeping guidance. The officials said a contemporaneous allocation was not an absolute requirement, but timeliness is a major factor in improving the credibility of any evidence.

Amended Filings Abuses and Penalties

In designating research credit claims (i.e., claims made after the initial filing of a tax return) as a Tier I compliance issue, IRS noted that a growing number of the credit claims were based on marketed tax products supported by studies prepared by the major accounting and boutique firms. It further noted that these studies were typically marketed on a contingency fee basis and exhibited one or more of the following characteristics:

- high-level estimates;
- biased judgment samples;
- lack of nexus between the business component and QREs; and
- inadequate contemporaneous documentation.⁶

IRS's concern is focused on credit claims that were not taken into account on a taxpayer's original return and the Tier I coverage is limited to that type of claim. Most of these claims are made on amended returns, which generally must be filed within 3 years after the date the corporation filed its original return or within 2 years after the date the corporation paid the tax (if filing a claim for a refund), whichever is later. The period may be longer for taxpayers that file for extensions.

IRS officials have noted a particular concern with new or expanded credit claims that can be made for tax years up to 20 years earlier than the current tax year, provided that the taxpayer still has unused tax credits or

⁶Issues relating to the sufficiency of taxpayers' support for their claims are discussed in a separate section covering recordkeeping and substantiation.

net operating loss carryforwards from that earlier year.⁷ These long-delayed credit changes are especially troublesome for IRS examiners because many taxpayers do not file an amended Form 6765 or specifically indicate anywhere on their current year returns that they have changed the amounts of credit claimed for earlier years.⁸ Consequently, the adjusted claims are not likely to be detected unless IRS is already auditing the taxpayer's current return. IRS officials said that this practice has gone from seldom to quite often in recent years and is being used by both large and mid-size firms.

IRS officials expressed concern that when taxpayers do submit amendments to their Forms 6765, they often do so late in an audit after IRS has already spent significant time reviewing the initial claims. In many cases the taxpayers settle for 50 cents on the dollar as soon as IRS challenges a claim. In other cases, taxpayers make claims based on studies that consultants have sold to them on a contingency-fee basis. Treasury Circular No. 230 now prohibits those who practice before IRS from collecting contingency fees for these types of studies; however, some studies may be prepared by consultants who do not practice before IRS.⁹

IRS officials said one reason that led the agency to designate the credit as a Tier 1 issue was to push taxpayers to make better initial credit claims before IRS spends substantial time on audits. As a result of the Tier I designation, the research credit has been assigned an issue management team to ensure that the issue is fully developed with appropriate direction and a compliance resolution strategy. Three requirements that currently form part of this strategy are that:

- all claims for the credit that are not made on or before the due date of the taxpayer's Form 1120 for a given tax year must be filed at IRS's Ogden Service Center;

⁷26 U.S.C. Section 39(a). Any unused credits after the last year of the 20-year carryforward period may be taken as a deduction in the tax year following the last tax year of the 20-year carryforward period.

⁸These taxpayers simply include the new amount of research credit from the earlier year in the amount on line on IRS Form 3800 (General Business Credit), which shows the total amount of all types of credits carried forward from any earlier years. This practice is applicable to all credits included under the general business credit, not just the research credit.

⁹Practicing before IRS essentially means communicating with the IRS on behalf of a taxpayer or otherwise representing a taxpayer's interests to IRS.

- examiners must issue a standardized information document request (IDR) to taxpayers at the outset of all new examinations of the credit; and
- in all cases where any amount of a research credit claim is disallowed by IRS, the examiners must determine whether the recently enacted penalty for filing erroneous claims for refund or credit should be applied. The examiners must obtain and document the concurrence of a technical advisor in all such cases where they decide not to impose the penalty.

Although most of the tax practitioners we interviewed acknowledged that there was a proliferation of aggressive and sometimes sloppy research credit claims, they pointed to many legitimate reasons for companies to file claims on amended returns, including the following:

- Substantiating and documenting research expenses in a manner that is acceptable to IRS is time consuming and labor intensive, making it difficult to file for the credit on a timely basis on an original return. The firms' tax preparers need the assistance of the firms' scientists, engineers, and technicians, who cannot be made available in time for a current-year filing. Pulling these technical experts away from their research represents a significant financial burden for taxpayers. Consequently, when taxpayers go through this effort it makes sense for them to cover multiple tax years at a time on amended returns.
- The prevalence of amended returns in recent years also can be attributed to long-standing uncertainties in credit regulations. The definition of qualified research expenses was only resolved in final regulations in 2003¹⁰, and the "discovery test" was also abandoned in the final regulations by Treasury and IRS.¹¹ This clarification of the rules prompted taxpayers to file claims for the credit for past tax years on amended returns. Similarly, changes in regulations relating to the definition of gross receipts also prompted many taxpayers to file amended claims.
- Start-up companies often don't consider it worthwhile to file credit claims until they turn profitable. Once they decide to make the effort, they also submit their claims for earlier years through amended returns.
- The long-term nature of research projects is another reason why taxpayers submit claims on amended returns. Taxpayers must often

¹⁰ Treas. Reg. Section 1.41-4, TD 9104, 69 Fed. Reg. 22

¹¹ IRS Notice 2001-19, 2001-10, 66 Fed. Reg. 66362.

know the end result of a process/project to establish the eligibility of research expenses as part of a “process of experimentation,” which is part of the statutory definition of qualified expenses.

- Many firms, large and small, don’t realize that they actually do things that qualify for the credit. Once outside consultants make them aware of this fact, it makes sense for them to want to go back and claim the credit for earlier years as well.

Many large practitioners we interviewed said that aggressive and poorly documented research credit claims are largely generated by “boutique” research credit consultants who aggressively market their services. The larger practitioners feel that IRS has taken things too far by presuming that all amended claims are abusive. They said the larger accounting firms are governed by strict professional standards and the new penalties will not have much effect on their behavior, but the penalties should help to reduce abuses by the boutique firms. Practitioners did express concern that the new penalties would make the audit and appeals processes even more contentious and they questioned the appropriateness of imposing penalties in areas where Treasury guidance is limited and problematic. The only practitioner we interviewed that had actual experience with the new penalties said that the penalties were typically applied in all cases where claims were reduced; however, after taxpayers had spent the time and money to make legal cases against them, all of the penalties were rescinded.

The IRS officials we interviewed expressed strong disagreement with the view of the large accounting firms that the abusive amended returns problem is primarily a “boutique” practitioner problem. They said that you can see any problematic practice at any level of practitioner. However, the officials did note that the use of the credit has expanded downward in terms of the size of the claimants and that the expansion has been driven by the growth of boutique research credit consultant shops.

Base Period Documentation

All of the difficulties that taxpayers face in substantiating their QREs are magnified when it comes to substantiating QREs for the historical base period (1984 through 1988) of the regular credit. Taxpayers are required to use the same definitions of qualified research and gross receipts for both their base period and their current-year spending and receipts. However, given the fact that few firms have good (if any) expenditure records dating back to the early 1980s base period, most firms are unable to precisely adjust their base period records for the changes in definitions promulgated in subsequent regulations and rulings. Taxpayers also have

great difficulty adjusting base period amounts to reflect the disposition or acquisition of research-performing entities within their tax consolidated groups. Some practitioners would like to see some flexibility on IRS's part in terms of the use of estimates and employee testimony to substantiate QREs in accordance with the *Cohan* rule; other practitioners simply suggested doing away with the regular credit. They believe that some taxpayers will choose to use the new ASC simply to avoid the burden of base period documentation.¹² One IRS official noted that IRS is not likely to challenge a taxpayer's base amount if the latter uses the maximum fixed base percentage;¹³ however, he did not think that IRS would have the authority to say that taxpayers could take that approach without showing any records at all for the base period. Neither the IRS nor Treasury officials we interviewed saw any administrative problems arising if the IRC were changed to relieve taxpayers of the requirement to maintain base period records if they used the maximum fixed base percentage. Our analysis of taxpayer data from SOI for 2005 suggests that about 25 percent of all regular credit users had fixed base percentages of 16 percent or were subject to the minimum base constraint and would remain subject to that constraint even if they elected to use a fixed base percentage of 16 percent.

Specific Issues Relating to Sampling

Many taxpayers use statistical sampling to estimate their QREs and IRS frequently uses sampling when auditing taxpayer's records supporting research credit claims. Several practitioners we interviewed had specific concerns with IRS's guidance and audit practices relating to sampling; however, some noted that they have seen improvements in recent months. The practitioners' biggest concern is that, unless taxpayers can achieve a 10 percent relative precision in their estimates, IRS makes them use the lower limit of the confidence interval for their estimates of QREs, which is the least advantageous to the taxpayer. Practitioners say this standard is too difficult to meet, even in cases where taxpayers use large samples, and that IRS should have a less demanding threshold for allowing taxpayers to use point estimates. Moreover, they objected to IRS's requirement that they exclude the "certainty stratum" when calculating relative precision,

¹² However, as explained in the section on the allocation of credits among members of controlled groups, current regulations require all members to compute (and substantiate) amounts they would earn under the regular credit, even if the group elects to use the ASC.

¹³ No changes that IRS may make to base period spending amounts could ever raise a taxpayer's fixed base percentage above the maximum of 16 percent.

which they considered to be just bad statistics.¹⁴ IRS officials responded that having a precision threshold encourages taxpayers to do a quality sample and that 10 percent precision is a good indicator of a high quality sample. They said that without some control standards taxpayers could try to make do with very small samples. The officials also noted that there are methods other than increasing sample sizes, such as improving sample design, population definition and stratification techniques, by which taxpayers can reduce their sampling errors. With respect to the exclusion of the certainty stratum, IRS acknowledged that this requirement was not justified on statistical grounds; however, they believe it is needed to prevent potential abuses. They are concerned that taxpayers would include extraneous accounts in their 100 percent stratum for the sole purpose of reducing their relative precision. IRS officials said that they are in the final stages of releasing guidance on sampling that addresses practitioners' concerns regarding the certainty stratum and the 10-percent precision test.

Practitioners also expressed concerns that IRS was hardening its position against accepting multi-year samples. They said it is more cost-effective to take one sample that covers multiple years and has a reasonable overall accuracy for the entire time period than to take several single-year samples that have narrow confidence intervals each year. IRS acknowledged that the practitioners' point was correct from a statistical point of view; however, they noted that, given the incremental nature of the credit, that it is important for estimates of QREs to be accurate for each specific year, not just over the multi-year period as a whole. In addition, IRS does not want to encourage taxpayers to hold off filing their claims for several years and then do a multi-year sample.

Recordkeeping and Prefiling Agreements

Practitioners and taxpayer representatives differed on the usefulness of IRS's RCRA and prefiling agreement (PFA) programs. The RCRA program was a pilot effort intended to let IRS develop and evaluate procedures that would reduce costs for both taxpayers and IRS by resolving issues concerning the type and amount of documents that a taxpayer must maintain and produce to support research credit claims. Taxpayers that complied with the terms of the agreements worked out with IRS are

¹⁴ The certainty stratum actually consists of the stratum of a stratified sample in which cases are sampled at a 100 percent rate, plus the stratum in which cases are sampled at an 80 percent rate.

deemed to have satisfied their recordkeeping requirements for the tax years covered by the agreement. Five taxpayers participated in the pilot program. The PFA program is an ongoing effort by IRS designed to permit taxpayers, before filing their returns, to resolve the treatment of an issue that would likely be disputed in an examination.

Some of the practitioners had had good experiences with PFAs for particular clients, but they noted that the \$50 thousand fee was too expensive and that IRS has been less willing to enter into PFAs because it did not have sufficient staff resources. Other practitioners said that RCRA and PFAs are not likely to be much help, given the animosity and distrust between taxpayers and IRS. They think that IRS is asking for too much in these agreements. One noted that it had five recent experiences with PFAs and all of them were bad, so it no longer recommends them to clients. In the current environment taxpayers are unwilling to invite IRS in for a look at their records and taxpayers do not believe that an RCRA ensures that IRS will not ask for additional documents during an exam. In addition, the practitioners said that RCRA are unlikely to be helpful in the long-term, given the variable nature of research projects. Agreements made in an RCRA may not be applicable to other research projects in future tax years, or even the same project in future tax years as the project evolves.

Appendix VII: Issues Relating to the Computation Rules for the Group Credit

Background and Significance

When Congress originally enacted the research credit in 1981 it included rules “intended to prevent artificial increases in research expenditures by shifting expenditures among commonly controlled or otherwise related persons.”¹ Without such rules a corporate group might shift current research expenditures away from members that would not be able to earn the credit due to their high base expenditures to members with lower base expenditures. A group could, thereby, increase the amount of credit it earned without actually increasing its research spending in the aggregate. Department of the Treasury and Internal Revenue Service (IRS) officials told us that the rules also guard against manipulation within a group that would shift credits from members with tax losses to those with tax liabilities. Under the Internal Revenue Code (IRC), for purposes of determining the amount of the research credit, the qualified expenses of the same controlled groups of corporations are aggregated together. The language of the relevant subsection specifically states that:

- A. all members of the same controlled group of corporations² shall be treated as a single taxpayer, and
- B. the credit (if any) allowable under this section to each such member shall be its proportionate share of the qualified research expenses and basic research payments giving rise to the credit.

Congress directed that Treasury regulations drafted to implement these aggregation rules be consistent with these stated principles.

Under current Treasury regulations³ the controlled group of corporations must, first, compute a “group credit” by applying all of the credit computational rules on an aggregate basis. The group must then allocate the group credit amount among members of the controlled group in proportion to each member’s “stand-alone entity credit” (as long as the group credit amount does not exceed the sum of the stand-alone entity

¹Joint Committee on Taxation, *General Explanation of the Economic Recovery Tax Act of 1981* (JCS-71-81), December 29, 1981.

²The definition of a “controlled group of corporations” for purposes of the credit has the same meaning as used in determining a parent–subsidiary controlled group of corporations for the consolidated return rules except the aggregate rule is broader substituting corporations that are greater than 50 percent owned for 80 percent owned corporations. The aggregation rules also apply to trades or businesses under common control. A trade or business is defined as a sole proprietorship, a partnership, a trust or estate or a corporation that is carrying on a trade or business.

³Treas. Reg. Section 1-46-6.

credits of all members). If the group credit does exceed the sum of the stand-alone credits, then the excess amount is allocated among the members in proportion to their share of the group's aggregate qualified research expenses (QRE). The stand-alone entity credit means the research credit (if any) that would be allowed to each group member if the group credit rules did not apply. Each member must compute its stand-alone credit according to whichever method provides it the largest credit for that year without regard to the method used to compute the group credit. The group credit may be computed using either the rules for the regular credit or the rules for the alternative simplified credit (ASC) (or, until the end of tax year 2008, the rules for the alternative incremental research credit (AIRC)). The group credit computation is the same for all members of the group.

For purposes of the initial allocation of the group credit among members that file their own federal income tax returns, consolidated groups of corporations are treated as single members.⁴ However, once a consolidated member receives its allocation of the group credit, that allocation must be further allocated among the individual members of the consolidated group in a manner similar to the one used for the initial allocation.

Although some private sector research credit consultants told us that the group credit rules do not affect large numbers of taxpayers, several others said that the opposite was true with one pointing out that the rules affect all groups that have any of the following:

- members that are between 50 percent and 80 percent owned;
- noncorporate members;
- members departing in a given year; or
- U.S. subsidiaries that are owned by foreign parents and are members of different U.S. consolidated groups.

One consultant that works primarily with mid-sized businesses, including many S corporations, noted that such corporations are heavily affected by these rules. A second consultant that also works primarily with S corporations said that between 10 and 15 percent of their clients are affected by these rules. The consultants with whom we discussed this

⁴A consolidated group of corporations is one in which all members (each of which must be at least 80 percent owned (vote and value) by the group) file a federal income tax return as one taxpayer.

issue agreed that the rules were very burdensome for those groups that are affected. Some very large corporate groups must do these computations for all of their subsidiaries, which could number in the hundreds, and they have no effect on the total credit that a group earns. None of these affected groups can benefit from the simplified recordkeeping that the ASC offers to other taxpayers because they must be able to show which stand-alone credit method provides the highest credit for each member, which can only be done by computing the credit under both the ASC and regular credit rules (and AIRC rules in the years for which it was available) for each member. Some consultants expressed concern that IRS could reject credit claims completely even if the only deficiency is in the allocation computation.

Differing Legal Positions Taken by IRS and Taxpayers

The primary objection that taxpayer representatives have raised with respect to the group credit regulations is that all affected groups are required to use the same burdensome allocation procedures even though there is no clear basis for them in the IRC, which they say only requires that the allocation be in proportion to the QREs “giving rise to the credit.” Some commentators contend that the stand-alone credit method does not satisfy the principle set out in the IRC any better than would a simpler allocation based on each member’s share of current QREs. If a group, as a whole, is above its base spending amount, then an additional dollar of spending by any group member will increase the group credit by the same amount, regardless of how the group credit total is allocated among members. Some would say, in this sense, all QREs give rise to the credit to the same extent. Several public commentators and consultants we interviewed recommend that groups be allowed to allocate their group credits by any reasonable means, as long as the sum of the credits that each member receives does not exceed the group credit amount.

Treasury maintains that a single, prescribed method is necessary to ensure the group’s members collectively do not claim more than 100 percent of the group credit. An official explained that if two members of a group each used a different method that maximized their share of the group credit, this would result in the members claiming in aggregate more than the group credit amount. If taxpayers could use any reasonable method of allocation and group members used different methods, then IRS would have no basis for saying whose individual credit had to be reduced in order that the aggregate claims by members did not exceed the group credit amount. While acknowledging that disagreements within groups are likely to be rare, the official noted a case where representatives of two

members of the same group separately argued in favor of differing allocation rules.

Treasury also maintains that the stand-alone credit approach is more consistent with Congress's intent to have an incremental credit than is the gross QRE approach. According to Treasury, the former approach appears to be the only one that would provide each member some incentive to exceed their base spending amount, given that each member may not know the tax positions of other group members (i.e., current-year and base QREs) until the end of the tax year. The individual member may not know the extent to which one more dollar of its own spending will increase the group credit amount, but it does know that by maximizing its stand-alone credit amount, it will maximize its share of whatever amount the group earns as a credit in the aggregate. An IRS official added that requiring everyone to use the stand-alone method would ensure a fairer distribution of the credit within groups. Otherwise, a parent corporation may discriminate in favor of 100-percent owned members and against 50-percent members in the allocation of credits because some of the benefit given to the latter would go to unrelated parties.

Consequences of Alternative Decisions

Effects on Compliance and Enforcement Burden

Allowing controlled groups to use an alternative allocation method could significantly reduce both the compliance burden on the affected groups and IRS's cost of verifying their compliance. If a controlled group agrees to use the ASC computation for its group credit and allocates that credit among its members on the basis of either each member's current QREs or each member's stand-alone ASC, then no member would have to maintain and update records from the base period for the regular credit, nor would IRS have to review those records. Under the current regulations every member's credit claim would be open to revision if IRS found that any of their base period spending records are deficient. This alternative approach should not impose any other types of costs on IRS beyond what it faces under the current regulations. Under either of these approaches the only way that IRS can confirm that the group credit has not been exceeded is to add up all of the credits claimed by individual members and compare that to the group credit amount.

Effects on Marginal Incentives

In specifying that controlled groups be treated as single taxpayers for purposes of the credit Congress clearly wanted to ensure that a group, as a

whole, exceeded its base spending amount before it could earn the credit. It is not clear that Congress was concerned that each member has an incentive to exceed its own base.

For groups in which individual members determine their own research budgets, the allocation rules can affect aggregate group research spending because they affect the incentives that each member faces. Therefore, if one of the allocation methods on average provides higher marginal incentives to individual group members, then applying that method could result in higher overall research spending. However, neither the stand-alone credit allocation method nor the gross QRE allocation method is unequivocally superior in terms of the marginal incentives that they provide to individual members. Each of the two methods performs better than the other in certain situations that are likely to be common among actual taxpayers.⁵ Data are not available that would allow us to say whether one of the methods would result in higher overall research spending than the other.⁶

For those groups in which the aggregate research spending of all members is determined by group-level management, the only way that the allocation rules can affect the credit's incentive is if they allow the shifting of credits from members without current tax liabilities to those with tax liabilities. If the group credit is computed according to the method that yields the largest credit, then an additional dollar of spending by any group member will increase the group credit by the same amount, regardless of how the group credit total is allocated among members. However, if group management were able to shift credits from tax loss members to those with positive liabilities, the group would be able to use more of its aggregate credit immediately, rather than carrying it forward to future years. The effect of this type of shifting on the efficiency of the credit should be relatively minor because, when a credit is carried forward, the benefit to the taxpayer and the cost to the government are both discounted to the same degree. In any case, a controlled group's ability to target credit shares to members with positive tax liabilities should not be

⁵See the technical addendum for a description of selected situations in which each method is superior.

⁶Taxpayers are not required to show the computations of their members' stand-alone credits on their tax returns. Each group member reports the group's total QREs and base QREs on its tax return; therefore, data on the spending of individual members are not available.

greater under the gross QRE allocation method than under the stand-alone credit allocation method.

The Computation of Marginal Incentives for Individual Members of a Controlled Group

The marginal incentive that a particular member of a controlled group would face under alternative group credit allocation methods depends on multiple factors, including:

1. Which credit method (regular or alternative simplified credit (ASC)) is used to compute the group credit;
 2. Which credit method yields the highest stand-alone credit for the member;
 3. What, if any, base constraints apply to whichever credit is used;
 4. Whether or not the member is allowed to use its highest stand-alone credit method;
 5. How the size of the member's stand-alone credit compares to its current-year qualified research expenses (QRE); and
 6. How the member's share of the group's total QREs compares to its share of the sum of all members' stand-alone credits.
-

When Both the Group and the Member Use the Regular Credit Computation Method

In the case where a controlled group uses the regular credit method to compute its group credit and an individual member earns its highest stand-alone credit under the regular credit method and the group credit is less than or equal to the sum of the members' stand-alone credit, the marginal incentive for that member to spend an additional dollar on research under the current rules (MERSA) can be computed as:

$$\text{MERSA} = [(ISAC + mrm) / (ISUMSAC + mrm)] \times (IGC + mrg) - (ISAC / ISUMSAC) \times IGC$$

where ISAC is the member's initial stand-alone credit before making its additional expenditure; ISUMSAC is the initial sum of the stand-alone credits of all group members before the one member spends its additional dollar; IGC is the initial group credit before the member spends the additional dollar; mrm is the applicable marginal rate of credit for the member's stand-alone credit; and mrg is the applicable marginal rate of

credit for the group credit.⁷ The italicized part of this formula shows the member's share of the group credit after spending an additional dollar on research;⁸ the unitalicized part of the formula shows the member's share before the additional expenditure. The difference between the two parts equals the marginal benefit that the member receives for spending the additional dollar.

If the group credit exceeds the sum of the stand-alone credits, then the formula for MERSA becomes:

$$\begin{aligned} \text{MERSA} = & \text{mrm} + [(IQRE + 1) / (ISUMQRE + 1)] \times (IGC + \text{mrg} - \\ & (ISUMSAC + \text{mrm})) \\ & - (IQRE / ISUMQRE) \times (IGC - ISUMSAC) \end{aligned}$$

The first term on the right-hand side of the formula, "mrm," represents the member's share of that portion of the group credit that equals the sum of the stand-alone credits.⁹ The remainder of the formula shows the member's share of the excess of the group credit over the sum of the stand-alone credits.¹⁰ The italicized portion of the formula shows the member's share of the excess portion of the credit after spending an

⁷The mrm equals 0.2 if the member can earn the regular credit without being subject to the 50-percent base limitation; it equals .1 if the member is subject to that limitation. The mrg is also either 0.2 or 0.1, depending on whether the group is subject to the 50-percent limit. The formulas in this appendix ignore the 35 percent reduction in the credit benefit due to the offset against the section 174 deduction. (This offset would simply reduce all of the marginal effective rates we compute by the same proportion with no effect on the comparison we make across allocation methods.) The formulas also ignore delays in credit benefits due to the insufficiency of tax liabilities. (We assume that each taxpayer's tax liability status would be the same under either allocation method, so taking credit carryforwards into account would not change the ranking of the two methods' marginal incentives.)

⁸When the member increases its QREs by \$1 its stand-alone credit increases by mrm, the sum of the group members' stand-alone credit increases by mrm, and the group's credit increases by mrg.

⁹This share is determined as $[(ISAC + \text{mrm}) / (ISUMSAC + \text{mrm})] \times (ISUMSAC + \text{mrm}) - (ISAC / ISUMSAC) \times ISUMSAC$. All of the terms in this expression cancel out, except for mrm.

¹⁰The share of the stand-alone sum is used to allocate that portion of the group credit that is less than or equal to the sum of the stand-alone credits; the share of QREs is used to allocate the portion (if any) of the group credit that exceeds the sum of the stand-alone credits.

additional dollar on research,¹¹ the underlined portion shows the member's share before the additional expenditure.

The marginal incentive that this same member would face if the entire group credit were allocated according to each member's share of the group's gross QREs (MERQ) can be computed as follows:

$$\text{MERQ} = [(\text{IQRE} + 1) / (\text{ISUMQRE} + 1)] \times (\text{IGC} + \text{mrg}) - (\text{IQRE} / \text{ISUMQRE}) \times \text{IGC}$$

where IQRE is the member's initial QREs before making its additional expenditure; ISUMQRE is the initial sum of the QREs of all group members before the one member spends its additional dollar; and IGC is, again, the initial group credit before the member spends the additional dollar. This formula is the same, regardless of whether IGC is less than, equal to, or greater than ISUMSAC.

When Both the Group and the Member Use the ASC Computation Method

The computation of MERs for group members when either the group or the member uses the ASC is more complex than in the case of the regular credit because each dollar a firm spends in the current year will affect its current-year credit as well as its credits in the next three years. The MER is the present value sum of these four separate effects. In the case where a controlled group uses the ASC method to compute its group credit and an individual member earns its highest stand-alone credit under the ASC method and the group credit is less than or equal to the sum of the members' stand-alone credit, the current-year effect when that member spends an additional dollar on research under the current rules can be computed as:

$$\text{CY Effect} = [(\text{ISAC} + \text{mrm}) / (\text{ISUMSAC} + \text{mrm})] \times (\text{IGC} + \text{mrg}) - (\text{ISAC} / \text{ISUMSAC}) \times \text{IGC},$$

which is similar to the first MERSA formula introduced above, except in this case both mrm and mrg will equal 0.14. The marginal incentive effect in the following year can be computed as:

¹¹When the member increases its QREs by \$1 the sum of the group members' QREs also increases by \$1, and the group's credit increases by mrg.

$$\text{Next Year Effect} = [(ISAC1 - (1/6) \times mrm) / (ISUMSAC1 - (1/6) \times mrm)] \times \underline{(IGC1 - (1/6) \times mrg)} - (ISAC1 / ISUMSAC1) \times IGC1$$

The “1” at the end of the variable names indicate that they represent the values for that variable in the first year into the future. The italicized portion of the formula shows how the member’s share of the sum of all group members’ stand-alone credits for the next year would change if the member increased its spending by \$1 this year.¹² The underlined portion shows that the member’s spending also reduces next year’s group credit that is allocated among the members. The final unitalicized, nonunderlined portion is the amount of the group credit that the member would have received next year without the additional spending this year. Similar effects would occur in the 2 subsequent years. The net incentive provided to the member is obtained by discounting the three future effects and adding them to the current-year effect.

The current-year incentive effect that this same member would face if the entire group credit were allocated according to each member’s share of the group’s gross QREs can be computed as follows:

$$\text{CY Effect} = [(IQRE + 1) / (ISUMQRE + 1)] \times (IGC + mrg) - (IQRE / ISUMQRE) \times IGC,$$

which is the same as for the regular credit, except for the value of mrg. The effect in the following year would be:

$$\text{Next Year Effect} = (IQRE1 / ISUMQRE1) \times (IGC1 - (1/6) \times mrg) - (IQRE1 / ISUMQRE1) \times IGC1.$$

The member’s additional spending this year does not affect its share of the groups total spending next year, but it does increase the base for next year’s group credit and, thereby reduces the amount of credit that gets allocated to members. Again, this latter effect would be repeated in the subsequent 2 years. The formulas for the marginal incentives when the ASC is used and the group credit exceeds the sum of the stand-alones are more complicated than those above and are not needed to make the basic

¹²The \$1 increase this year increases next year’s base for the member’s stand-alone credit by 1/6 of a dollar. (This year is only one of the 3 years that factor into next year’s base and only half of each year’s spending goes into that base.) That base increase reduces next year’s credit by 1/6 × 0.14 and that reduction also gets reflected in the sum of the members’ credits.

point that there are common situations in which each credit allocation method provides a higher incentive than the other.

Results Based on Numerical Simulations

One can run numerical simulations with the various formulas for MERSA and MERQ to identify common situations in which each allocation method provides a higher marginal incentive to a member than the other method. The cases identified in table 20 are simply broad examples and do not cover all situations in which one or the other allocation methods is superior; however, they are sufficient to demonstrate that each of the allocation methods performs better than the other in different situations that are likely to be common to actual taxpayers.¹³ For example, when a member of a group is subject to the 50-percent base constraint, the stand-alone credit method provides that member a larger incentive when the member's share of the sum of all members' stand-alone credits is greater than the member's share of the group's gross QREs; the gross QREs method provides a greater incentive when the converse is true. In 2004 approximately 75 percent of all regular credit users were subject to the 50 percent minimum base constraint.

¹³There is also the more obvious case where the gross QRE method provides a higher incentive when the group earns a credit but the individual member cannot exceed its own base under either credit computation method. The statements regarding the ASC in table 20 assume that the credit is extended in its current form for future years.

**Appendix VII: Issues Relating to the
Computation Rules for the Group Credit**

Table 20: A Comparison of Two Methods for Allocating Group Credits in Selected Situations

	When the group credit is less than or equal to the sum of the members' standalone credits	When the group credit is greater than the sum of the members' standalone credits
Both the member and group use the regular credit		
When the member is subject to the 50 percent minimum base constraint (regardless of whether the group is subject to that constraint)	<p>The standalone credit method provides a larger incentive when the member's share of the sum of all members' stand-alone credits is greater than the member's share of the group's gross QREs.</p> <p>The gross QREs method provides a larger incentive when the member's share of the group's gross QREs is greater than the member's share of the sum of all members' stand-alone credits.</p> <p>When the two shares are equal, the two allocation methods provide the same incentive.</p>	<p>The standalone credit method provides a larger incentive when the member's share of the sum of all members' stand-alone credits is greater than the member's share of the group's gross QREs.</p> <p>The gross QREs method provides a larger incentive when the member's share of the group's gross QREs is greater than the member's share of the sum of all members' stand-alone credits.</p> <p>When the two shares are equal, the two allocation methods provide the same incentive.</p>
When the member is not subject to the 50 percent minimum base constraint	<p>The relationship between the two methods is more difficult to summarize under these conditions; however the stand-alone method performs considerably better relative to the gross QREs method under these conditions than when the member is subject to the 50 percent constraint.</p>	<p>The two allocation methods provide the same incentive when the member's share of the sum of stand-alone credits equals the member's share of group QREs times the ratio of the member's stand-alone credit over 0.2 times the member's QREs.</p> <p>The stand-alone credit method provides a larger incentive when the member's share of the sum of all member's stand-alone credits is greater than the member's share of group QREs times the ratio of the member's stand-alone credit over 0.2 times the member's QREs.</p> <p>The gross QREs method provides a larger incentive when the member's share of the sum of all member's stand-alone credits is less than the member's share of group QREs times the ratio of the member's stand-alone credit over 0.2 times the member's QREs.</p> <p>Given that the ratio of the member's stand-alone credit over 0.2 times the member's QREs must always be less than 0.5, the stand-alone method performs considerably better relative to the gross QREs method under these conditions than when the member is subject to the 50 percent constraint.</p>
Both the member and the group use the ASC		

**Appendix VII: Issues Relating to the
Computation Rules for the Group Credit**

	When the group credit is less than or equal to the sum of the members' standalone credits	When the group credit is greater than the sum of the members' standalone credits
When the member's QREs grow at a 5 percent rate per year	<p>The stand-alone credit method provides a larger incentive when the member's share of the sum of all members' stand-alone credits is greater than the member's share of the group's gross QREs.</p> <p>The gross QREs method provides a larger incentive when the member's share of the group's gross QREs is greater than the member's share of the sum of all members' stand-alone credits.</p> <p>When the two shares are equal, the two allocation methods provide the same incentive.</p>	We did not do simulations for such cases because the computations are particularly burdensome.
When the member's QREs grow at a rate of more than 5 percent per year	The higher the rate of growth, the higher the ratio of the member's share of the group's stand-alone credits to the member's share of the group's gross QREs must be in order for the stand-alone credit method to provide a higher incentive than the gross QREs method.	We did not do simulations for such cases.
When the member's QREs grow at a rate of less than 5 percent per year	The lower the rate of growth, the lower the ratio of the member's share of the group's stand-alone credits to the member's share of the group's gross QREs can be in order for the stand-alone credit method to provide a higher incentive than the gross QREs method.	We did not do simulations for such cases.

Source: GAO.

Appendix VIII: Comments from the U.S. Department of Treasury



DEPARTMENT OF THE TREASURY
WASHINGTON, D.C. 20220

OCT 22 2009

Mr. James R. White
Director, Tax Issues
Strategic Issues Team
United States Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. White:

Thank you for the opportunity to comment on GAO's draft report entitled "The Research Tax Credit's Design and Administration Can Be Improved" (GAO-10-136). The draft report recommends that "Congress should consider eliminating the regular credit option and adding a minimum base to the alternative simplified credit. GAO recommends that the Secretary of the Treasury clarify the definition of qualified research expenses and organize a working group to develop standards for documentation."

The research tax credit encourages technological developments that are an important component of economic growth. However, we believe that credit's temporary nature undermines its effectiveness. Uncertainty about the future availability of the research tax credit diminishes the incentive effect of the credit because it is difficult for taxpayers to factor the credit into decisions to invest in research projects that will not be initiated and completed prior to the credit's expiration. Therefore, the Administration's priority is to make the credit permanent and we included a proposal to make it permanent in the Administration's FY 2010 Budget. We also agree that the credit's structure could be simplified or updated in certain respects to improve its effectiveness, and we would be happy to work with Congress on possible improvements.

As noted in the draft report, Treasury and the Internal Revenue Service are currently working on guidance involving several of the interpretive issues surrounding the research credit. For example, we are developing guidance to clarify the definition of gross receipts, the treatment of inventory property under section 174, and the definition of internal use software. We agree with the report that the issuance of such guidance will enhance the administration of the research credit and are working diligently to provide additional guidance in the next few months.

We also have technical comments on the draft report, which we will discuss with your staff.

Thank you again.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael F. Mundaca".

Michael F. Mundaca
Acting Assistant Secretary (Tax Policy)

Appendix IX: GAO Contact and Staff Acknowledgements

GAO Contact

James R. White, (202) 512-9110 or whitej@gao.gov

Acknowledgments

In addition to the contact named above, James Wozny, Assistant Director, Ardith Spence, Susan Baker, Sara Daleski, Kevin Daly, Mitch Karpman, Donna Miller, Cheryl Peterson, and Steven Ray, made key contributions to this report.

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