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ABSTRACT

Because of concerns about the Department of Education's reliance on estimates to project costs of the William D. Ford Federal Direct Loan Program (FDLP) and a lack of historical information on which to base those estimates, Congress asked the General Accounting Office (GAO) to review how the department develops its cost estimates for the program, review and analyze actual versus estimated financial performance, and address factors or circumstances that can significantly affect the department's ability to develop realistic estimates of program costs. This report responds to that request, specifically answering nine related questions. To answer these questions, the GAO reviewed the department's audited financial statements and examined the work papers of its independent auditors for fiscal years 1995 through 1999. It interviewed knowledgeable personnel from the department's Budget Service and compared its practices to other budgeting and accounting standards. The bulk of the report addresses the nine questions and includes numerous tables and figures. An overview of findings, background information on the loan program, and glossary are also included. Appendices include information on estimating credit program costs, and the objectives, scope, and methodology of the report. (EV)

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Report to Congressional Requesters

ED 449 702

January 2001

DEPARTMENT OF EDUCATION

Key Aspects of the Federal Direct Loan Program's Cost Estimates

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Abbreviations

FASAB	Federal Accounting Standards Advisory Board
FCRA	Federal Credit Reform Act of 1990
FDLP	Federal Direct Loan Program
FFELP	Federal Family Education Loan Program
NSLDS	National Student Loan Data System
OMB	Office of Management and Budget
OSFA	Office of Student Financial Assistance
SFFAS	Statement of Federal Financial Accounting Standards

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United States General Accounting Office
Washington, D.C. 20548

January 12, 2001

The Honorable Jim Nussle
Chairman, Committee on the Budget
House of Representatives

The Honorable Judy Biggert
House of Representatives

The Department of Education administers two major federal student loan programs, the William D. Ford Federal Direct Loan Program (FDLP) and the Federal Family Education Loan Program (FFELP). The federal government's role differs significantly between these two programs. Under FDLP, often referred to as the direct loan program, students or their parents borrow money directly from the federal government through the schools the students attend, which include vocational, undergraduate, or graduate schools. The first FDLP loans were made in the fourth quarter of fiscal year 1994. Under FFELP, also known as the guaranteed student loan program, money is borrowed from private lenders, such as banks, and the federal government guarantees repayment if the borrowers default. FFELP is the older of the two programs, having started in fiscal year 1966. As of September 30, 1999, Education reported that the outstanding gross balance of FDLP was $46.5 billion and the total outstanding loan guarantees for FFELP were approximately $127 billion. As of September 30, 1999, Education estimated that it would incur total subsidy costs—the estimated cost of extending credit over the life of the loans—of $1.6 billion for FDLP and $12.2 billion for FFELP.

FDLP, established by P.L. 103-66, was implemented by Education in fiscal year 1994 as another method of delivering loans to students. FDLP makes it possible for students and their families to borrow directly from the federal government through the colleges or other postsecondary institutions the students attend. In fiscal year 1999, 3.2 million loans totaling $17.7 billion were disbursed to borrowers through FDLP.

Because of concerns about Education's reliance on estimates to project FDLP costs and a lack of historical information on which to base those estimates, you asked us to review how Education develops its cost estimates for the program, review and analyze actual versus estimated financial performance, and address factors or circumstances that can significantly affect Education's ability to develop realistic estimates of program costs. Specifically you asked us to address nine questions.

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1. How much financing has been provided to Education for the direct loan program through borrowing from Treasury and appropriations received?

2. Have cash inflows (excluding borrowings from Treasury and borrower principal repayments) exceeded cash outflows (excluding repayments to Treasury and loan disbursements)?

3. In Education's calculation of its subsidy cost estimates for the Federal Direct Loan Program, what are the key cash flow assumptions, how sensitive are Education's subsidy costs to changes in these assumptions, and what data are used to support these assumptions?

4. How closely do Education's subsidy cost estimates and their underlying assumptions compare to actual loan performance for each loan and to what extent does Education track differences between its subsidy cost estimates and actual loan performance for each loan cohort?

5. What effects have reduced loan origination fees had on subsidy costs, and how has Education taken account of these changes in its subsidy cost estimates and reestimates?

6. What effects have increased consolidations had on subsidy costs, and how has Education taken account of these changes in its subsidy cost estimates and reestimates?

7. What effect have declining interest rates had on subsidy costs, and how has Education taken account of these changes in its subsidy cost estimates and reestimates?

8. What are the future prospects for the continued negative subsidy for the Federal Direct Loan Program?

9. What data did Education use to project an estimated savings of $4 for every $100 of direct student loans, as it reported in November 1999?

To respond to your request, we reviewed Education's audited financial statements and examined the workpapers of Education's independent auditors for fiscal years 1995 through 1999. We interviewed knowledgeable personnel from Education's Budget Service and obtained information relevant to your questions. We compared Education's practices to (1) federal budgeting and accounting standards—such as Statement of Federal Financial Accounting Standards (SFFAS) No. 2, *Accounting for Direct Loans and Loan Guarantees,* as amended, and Office of Management and Budget (OMB) Circular A-11, *Preparation and Submission of Budget Estimates*—and (2) the guidance contained in the Federal Financial Accounting and Auditing Technical Release 3, *Preparing and Auditing Direct Loan and Loan Guarantee Subsidies Under the Federal Credit Reform Act.*[1] Our audit work was conducted in Washington, D.C., from May 2000 through November 2000 in accordance with generally accepted government auditing standards. Appendix II describes our objectives, scope, and methodology in detail. We provided the Department of Education copies of a draft of this report for review and comment. On December 7, 2000, we met with cognizant Education officials and obtained oral comments on a draft of this report.

Because of the number and diverse nature of the questions, we are responding in a question-and-answer format. The next section provides an overview of some of the key points from our review.

Overview

Several circumstances make it difficult to make the best possible determination of FDLP's financial performance at this time. First, because FDLP is a relatively new program, it has a short history of repayment activity and little historical data are available. Second, because Education lacks historical FDLP data, Education relies heavily on data from the guaranteed loan program to develop estimates for most key cash flow assumptions in its FDLP cash flow model, which is used to estimate the subsidy cost of the program. While this is appropriate for the interim,

[1]The Credit Reform Task Force of the Accounting and Auditing Policy Committee was formed in order to address key issues surrounding the implementation of the Federal Credit Reform Act of 1990 and the related federal accounting standard. This task force developed Technical Release 3, which is expected to be formally issued by OMB during fiscal year 2001. The purpose of Technical Release 3 is to provide implementation guidance for agencies and auditors to prepare, utilize, and report on credit subsidy estimates. Technical Release 3 does not take precedence over existing accounting standards and budget guidance.

guaranteed loans may perform differently from FDLP loans and therefore, Education ultimately will need to use FDLP data. Education plans to phase out the use of guaranteed loan data as FDLP data become available.

Our ability to answer some of your specific questions was limited because the needed data were not readily available. For example, Education's cash flow model and financial systems do not readily provide comparable information on estimated and actual defaults. Also, Education did not have readily available performance data by "cohort," which refers to all the loans of a particular loan type for which a subsidy appropriation is provided for a given fiscal year. For this reason, Education was not able to give us a comparison of estimated to actual cash flows at the cohort level during the time frames of this review. Comparisons of estimates and actuals at the cohort level are key to identifying the causes of disparities, which, in turn, is key to improving future subsidy cost estimates. Furthermore, there is little information on the effects of loan consolidations on FDLP subsidy costs. This is significant because Consolidation loan volume has been rapidly increasing. Education is taking or plans to take steps to address these limitations in the future.

Because Education has not documented its previous sensitivity analyses, we asked Education to perform a limited sensitivity analysis[2] of FDLP subsidy costs and found that the subsidy calculation is most sensitive to changes in interest rates. Specifically, the interest rates involved were the discount rate—generally the rate at which Education borrows money from the Department of the Treasury to finance its loans—and the borrower rate. The difference, or spread, between the borrower rate and discount rate determines the magnitude the change in interest rates has on the FDLP subsidy cost. Because these rates cannot be readily predicted from year to year, estimating the subsidy cost of FDLP is very difficult. Therefore, wide fluctuations in subsidy costs can be expected depending on the extent of interest rate changes.

Because FDLP is a direct loan program that allows its borrowers to defer payment until after the borrower leaves school, several years would typically pass between the time the borrower receives the loan and begins making repayments. This deferment of principal and interest payments from borrowers has contributed to the negative cash flow FDLP

[2]Sensitivity analysis is a process used to identify which cash flow assumptions, when adjusted, have the greatest impact on the estimated subsidy costs.

experienced that totaled about $2 billion as of September 30, 1999. Although more cash will be received by Education when more borrowers enter repayment, Education is unable to determine when FDLP will have a positive cash flow primarily because of uncertainty related to the key cash flow assumptions. Further, because Education lacks key data on loan consolidations and default data is not readily available, Education's ability to predict future cash flows is limited. This further impedes Education's ability to estimate when and how much of this negative cash flow will be recovered.

We are making several recommendations to address the limitations identified during our review.

Background

Education is the primary agency overseeing federal investments in support of educational programs for U.S. citizens and eligible noncitizens. In fiscal year 1999, more than 8.1 million students received over $53 billion in federal student financial aid, including loans and grants, through programs administered by Education.

FDLP offers four different loan types.

- The Federal Direct Stafford Subsidized/Ford Loan Program (Stafford Subsidized), available only to students with a demonstrated financial need, provides loans to undergraduate, graduate, and professional students. Interest is subsidized by the federal government while the student is in school, and during the grace,[3] or deferment[4] period. A loan origination fee is charged to obtain these loans. The borrower rate is variable and based on the 91-day Treasury bill rate plus an add-on amount that has ranged from 1.7 percent to 3.1 percent, with a maximum borrower rate of 8.25 percent. Education reported that the outstanding balance of this loan type was $19.7 billion as of September 30, 1999.

[3]A grace period is a 6-month period that begins on the day after a FDLP borrower ceases to be enrolled as at least a half-time student at an eligible institution and ends on the day before the repayment period begins.

[4]Deferment periods are periods during which the payment of the principal is postponed. Reasons for deferment include in school status, unemployment, and economic hardship.

- The Federal Direct Unsubsidized Stafford/Ford Loan Program (Stafford Unsubsidized) provides loans to undergraduate, graduate, and professional students regardless of financial need. The borrower is responsible for interest that accrues during any period. Interest that accrues while the student is in school or during the grace period or deferment period is added to the loan balance. A loan origination fee is charged to obtain these loans. The borrower rates on these loans are the same as the borrower rates on Stafford Subsidized loans. Education reported that the outstanding balance of this loan type was $11.9 billion as of September 30, 1999.
- The Federal Direct PLUS Program provides loans to parents of dependent students. The borrower is responsible for interest that accrues during any period. A loan origination fee is charged to obtain these loans. The borrower rate is variable and currently based on the 91-day Treasury bill rate plus an add-on amount of 3.1 percent, with a maximum borrower rate of 9 percent. Education reported that the outstanding balance of this loan type was $2.8 billion as of September 30, 1999.
- The Federal Direct Consolidation Loan Program (Consolidation loans) allows borrowers to combine their loans from different federal student loan programs into a single loan with one monthly payment.[5] After the promissory note has been signed for the new Consolidation loan, the underlying loan(s) are paid off. The Higher Education Act Amendments of 1998 (P.L. 105-244) provided that for all Direct Consolidation Loan applications received from February 1, 1999, through June 30, 2003, the borrower rate is a fixed rate for the life of the loan. The rate is the lesser of the weighted average of the interest rates on the loans being consolidated, or 8.25 percent, the current maximum allowable rate. Borrower rates on previously disbursed Consolidation loans are variable rates, similar to the other FDLP loan types. Education reported that the outstanding balance of this loan type was $12.1 billion as of September 30, 1999.

[5]Some of the federal student loans that are permitted in an FDLP consolidation include FDLP, FFELP, and Perkins loans as well as health professional loans, such as Health Education Assistance and Nursing Student loans.

Borrowers most commonly repay their FDLP loans using one of four repayment plans: standard, extended, graduated, or income contingent.[6] These four options differ by the amount of time allowed to repay loans and the flexibility of the repayment schedule. With standard repayment, borrowers make fixed payments of at least $50 a month for up to 10 years. With extended repayment, they make fixed payments of at least $50 a month over a period generally ranging from 12 to 30 years, depending on the total amount borrowed. With graduated repayment, borrowers' payments start out low and then increase, usually every 2 years; the repayment period generally ranges from 12 to 30 years, depending on the total amount borrowed. The income contingent repayment plan is the most flexible, allowing borrowers to make monthly payments that are based on adjusted gross income, family size, and the total amount of their outstanding loans.

The Federal Credit Reform Act of 1990 (FCRA) was enacted to require agencies to more accurately measure the government's cost of federal loan programs and to permit better cost comparisons both among credit programs and between credit and noncredit programs. Prior to the implementation of FCRA, credit programs were reported in the budget on a cash basis. Thus, loan guarantees appeared to be free in the budget year, while direct loans appeared to be as expensive as grants. As a result, costs were distorted and credit programs could not be compared meaningfully with other programs and with each other. FCRA and the related accounting standards and budgetary guidance, together known as credit reform, were established to more accurately measure the government's costs of federal credit programs and to permit better comparisons both among credit programs and between credit and noncredit programs. As part of implementing credit reform, agencies are required to estimate the net cost of extending credit over the life of a loan, generally referred to as the subsidy cost, based on the present value[7] of estimated net cash flows, excluding administrative costs.

[6]A fifth type of repayment plan that is rarely used–alternative repayment–is also available to FDLP borrowers. Also, the income contingent repayment plan is not available to borrowers of PLUS or Consolidation PLUS loans.

[7]Present value is the worth of the future stream of returns or costs in terms of money paid immediately. In calculating present value, prevailing interest rates provide the basis for converting future amounts into their "money now" equivalents.

Budgeting guidance requires agencies to maintain supporting documentation for subsidy cost estimates. Further, auditing standards related to estimates indicate that agency management is responsible for accumulating sufficient relevant and reliable data on which to base the estimated cash flows. SFFAS No. 2 states that each credit program should use a systematic methodology to project expected cash flows into the future. To accomplish this task, agencies develop cash flow models. A cash flow model is a computer program that generally uses historical information and various assumptions including defaults, prepayments, recoveries, and the timing of these events to estimate future loan performance. Those assumptions that have the greatest impact on the estimated subsidy cost are often referred to as the key assumptions. These cash flow models, which should be based on sound economic, financial, and statistical theory, identify key factors that affect loan performance. Agencies use this information to make more informed predictions of future credit performance. Generally, the data used for these estimates are updated or reestimated after the fiscal year end to reflect any changes in actual loan performance since the estimates were prepared, as well as any expected changes in assumptions related to future loan performance. Appendix I provides a detailed discussion of estimating credit program costs under credit reform. The glossary at the end of this report provides a list of commonly used terms related to credit program budgeting and accounting.

Questions and Answers

Question 1

How much financing has been provided to Education for the direct loan program through borrowing from Treasury and appropriations received?

Amounts borrowed from Treasury are amounts that Education expects to be repaid by borrowers in the future. Amounts appropriated are amounts that Education has estimated it will lose as a cost of extending credit through FDLP. For fiscal years 1995 through 1999, Education's FDLP has borrowed $59.4 billion from Treasury to finance the program, repaying $7.8 billion of that amount. Table 1 provides an annual accounting of this information. Over the same period, considering reestimates, Education has received $688 million in appropriations (see table 2).

Table 1: Amounts Borrowed From Treasury to Finance FDLP

(Dollars in millions)

Fiscal year	Opening balance	Borrowings from Treasury	Repayments to Treasury	Outstanding balance at year-end
1995	$433	$4,868	$235	$5,067
1996	5,067	7,957	669	12,355
1997	12,355	11,333	975	22,713
1998	22,713	13,669	1,284	35,098
1999	35,098	21,571	4,599	52,070
Total		**$59,398**	**$7,762**	

Source: Department of Education.

Education finances FDLP through a combination of appropriations and borrowing from Treasury as required by FCRA. For loan programs subject to the act, agencies are required to estimate the cost of extending or guaranteeing credit, called the subsidy cost. The subsidy cost is the present value of disbursements from the government (loan disbursements and other payments) minus estimated payments to the government (repayments of principal, interest receipts, fees, and other recoveries or payments) over the life of the loan. The subsidy cost is generally the amount that Education estimates will not be repaid by borrowers. This estimate is financed with appropriated funds and is generally "reestimated" or updated annually. The portion of Education's direct loans that Education predicts will ultimately be repaid by borrowers is financed by borrowing from Treasury and is not considered a cost to the government because it is expected to be returned to the government in future years. If the present value of the estimated cash outflows from the government exceeds the present value of the estimated cash inflows, there is a positive subsidy or cost to the government. However, if the present value of the estimated cash inflows to the government exceeds the present value of the estimated cash outflows, there is a negative subsidy.

When there is a negative subsidy, a higher level of borrowing from Treasury occurs than when there is a positive subsidy because Education must borrow an amount greater than the dollar amount of loans disbursed. This additional borrowing occurs because Education does not receive any appropriated funds and therefore experiences a temporary shortfall because, in addition to disbursing the full loan amount, Education pays the negative subsidy to its program account.[8] This additional amount of borrowing as well as the amount of loans disbursed is expected to be repaid by the borrower, primarily through principal and interest payments, over the life of the loan.

For example, if a hypothetical FDLP loan of $100 had a negative subsidy of $5, the amount of borrowing required would be $5 more than the face value of the loan. Accordingly, Education would borrow a total of $105 from Treasury. If, however, FDLP had a positive subsidy, required borrowing from Treasury would be less. For example, if a hypothetical FDLP loan of $100 had a positive subsidy cost of $5, the subsidy cost of $5 would be financed with appropriated funds, and the remaining $95 would be financed by Treasury borrowings (the amount Education expects to be repaid).

Additionally, Education is required to periodically update or "reestimate" loan program costs for differences between (1) estimated loan performance and related cost and (2) the actual program costs recorded in the accounting records as well as expected changes in future economic performance. When program costs are reestimated for loans disbursed in prior years, the revised estimate can either increase or decrease the original subsidy estimate. These reestimates can also affect the level of borrowing and appropriations. Generally, downward reestimates are considered offsetting receipts, which are netted against the subsequent year's appropriations, and upward reestimates require additional appropriations.[9]

[8]For mandatory programs such as FDLP, amounts from negative subsidies and downward reestimates may be credited directly to the program account, which is a budget account that receives appropriations to cover the subsidy cost of a direct loan or loan guarantee and disburses the subsidy cost to the financing account. The financing account is explained in the glossary at the end of this report.

[9]A permanent indefinite appropriation is available for upward reestimates.

Table 2 shows FDLP's original subsidy estimates and reestimates for the 1995 through 1999 cohorts. For example, the 1997 cohort column in table 2 shows that this group of loans was originally estimated to have a positive subsidy of $336 million. Since then, Education has reestimated the cost of the 1997 cohort twice, increasing its cost by $80 million in fiscal year 1998 and decreasing its cost by $69 million in fiscal year 1999. Therefore, as of fiscal year 1999, the estimated net cost of the 1997 cohort was a positive subsidy of $347 million. In contrast, the fiscal year 1999 column shows that the 1999 cohort was the first cohort originally estimated to have a negative subsidy. For fiscal years 1995 through 1999, Education's FDLP estimates and reestimates for all cohorts show a total positive subsidy of $688 million, and therefore Education has received net appropriations totaling this amount.

Table 2: Appropriations Received to Finance FDLP

(Dollars in millions)

	Cohort					
	1995	**1996**	**1997**	**1998**	**1999**	**Total**
Original subsidy estimate	$490	$237	$336	$213	$(378)	$898
Reestimate 1	(6)	128	80	(129)		
Reestimate 2	(157)	153	(69)			
Reestimate 3	(58)	(71)				
Reestimate 4	(81)					
Net appropriations	**$188**	**$447**	**$347**	**$84**	**$(378)**	**$688**

Note: The figures for reestimates indicate the amount of increase or decrease to the original subsidy estimate.

Source: Department of Education.

Because FDLP is a relatively new program, there is limited historical data to predict future borrower behavior. Additionally, the future estimated cost of this program, as explained in questions 3 and 7, is especially sensitive to changes in interest rates. Therefore, fluctuations such as those shown in table 2 are not unexpected and are likely to continue in the future.

Question 2

Have cash inflows (excluding borrowings from Treasury and borrower principal repayments) exceeded cash outflows (excluding repayments to Treasury and loan disbursements)?

Loan origination fees and interest receipts from borrowers are the primary sources of cash inflows for FDLP. Net interest payments to Treasury on borrowed funds to finance the loans disbursed are the primary source of cash outflows.[10] As shown in table 3, for fiscal years 1995 through 1999, total cash outflows exceeded total cash inflows by about $2 billion because the interest receipts from borrowers and origination fees were less than the amount of interest Education had to pay to Treasury. Inflows exceeded outflows only in fiscal years 1995 and 1996.

Table 3: Cash Inflows and Outflows by Fiscal Year

(Dollars in millions)

Description	1995	1996	1997	1998	1999	Total
Loan origination fees	$85	$318	$352	$382	$387	**$1,524**
Interest receipts from borrowers	14	113	300	606	1,067	**2,100**
Net interest payment on Treasury borrowings	(86)	(348)	(1,180)	(1,686)	(2,395)	**(5,695)**
Net cash inflows/(outflows)	$13	$83	$(528)	$(698)	$(941)	**$(2,071)**

Source: Department of Education.

The $2 billion negative cash flow for FDLP is at least partially due to a timing difference in the cash flows. Education is required to make interest payments to Treasury, even if the borrower is not currently making interest payments to Education. As of September 30, 1999, 46 percent of the loan portfolio was in a grace or deferment status. As a result, Education subsidizes or generally accrues this interest. However, Education must repay the interest on borrowings from Treasury even though it does not expect to receive interest payments from borrowers until sometime in the future. This accrued interest can be substantial—$2.3 billion as of September 30, 1999.

Education is unable to determine when FDLP will have a positive cash flow primarily because of uncertainty related to the key cash flow assumptions. As discussed in question 3, the estimated cost of FDLP is sensitive to changes in interest rates and other factors that will affect the program's cash flows. In addition, reductions in origination fees, as occurred in fiscal

[10]Cash inflows and outflows discussed in this answer are defined as stated in the question.

year 1999, discussed in question 5, will also have an impact on whether FDLP has an overall negative or positive cash flow in the future. Further, cash flows for FDLP can be affected by changes in macroeconomic conditions, such as unemployment rates and inflation.

Question 3

In Education's calculation of its subsidy cost estimates for the Federal Direct Loan Program, what are the key cash flow assumptions, how sensitive are Education's subsidy costs to changes in these assumptions, and what data are used to support these assumptions?

An effective approach to identifying key cash flow assumptions is to perform a detailed analysis of all cash flow assumptions—called a sensitivity analysis[11]—in order to determine which assumptions have the greatest impact on the estimated cost of FDLP. Education told us that it performs informal analyses of the cash flow assumptions that result in about 90 percent of the change in subsidy costs each year. However, Education did not provide any supporting documentation for this analysis. Further, Education told us that it has not performed a sensitivity analysis of all cash flow assumptions in its model. As this type of analysis would be extremely time-consuming, we requested that Education perform and document a limited sensitivity analysis as a basis on which to answer this question. Based on this limited sensitivity analysis, there were seven key cash flow assumptions that when adjusted, had a significant impact on the estimated cost of the loan program. These assumptions were discount rates, borrower rates, loan maturity, collections on previously defaulted loans, defaults, origination fees, and when repayments begin.[12] The analysis showed that FDLP's subsidy cost was most sensitive to changes in the discount rate and borrower rate. While some of the data supporting these key assumptions are provided by other agencies or specified by law, Education supported other assumptions by using a combination of guaranteed loan program and economic data, a reasonable approach, since the direct loan program is relatively new and limited historical data are available.

[11]Currently, there is no accounting or budgeting guidance that requires agencies to perform a sensitivity analysis. However, Technical Release 3 encourages agencies to perform this analysis.

[12]Additional key cash flow assumptions may be identified once Education performs a more thorough sensitivity analysis.

Key Cash Flow Assumptions

To ensure that all key assumptions have been identified, and to determine how sensitive Education's subsidy cost estimates are to changes in key assumptions, Education would have to conduct a thorough sensitivity analysis. According to Technical Release 3, one approach to perform such an analysis is to individually adjust each assumption by a fixed proportion (e.g., increased and decreased by 10 percent) and run the revised cash flows through the OMB Credit Subsidy Calculator[13] to determine the assumption's effect on the estimated subsidy cost. Timing assumptions for when defaults and collections occur and when repayments begin should also be adjusted in a systematic manner. Those assumptions that when adjusted, caused the largest change in the subsidy cost are determined to be the key cash flow assumptions.

Education budget staff told us that they perform analyses of the cash flow assumptions that result in about 90 percent of the change in subsidy cost each year when they prepare budget estimates and reestimates. However, they do not maintain documentation of these analyses. Education has also done sensitivity analysis on the larger guaranteed loan program, which Education uses to help identify the key assumptions for the FDLP. However, because Education's cash flow model has a large number[14] of assumptions, there is no assurance that all key assumptions have been identified through the informal analyses that Education performed for FDLP. Because a formal analysis of all cash flow assumptions would take a significant amount of time, we asked Education to perform and document a limited sensitivity analysis of the assumptions it believed to be key and added two other assumptions related to the largest loan types, risk groups, and repayment options that we felt might also be key.

[13]To provide a consistent, common approach to calculate the present value of credit program costs, OMB developed the Credit Subsidy Calculator, formerly known as the OMB Credit Subsidy Model, a computer software program that calculates a subsidy rate based on agency-generated estimates of cash flows to and from the government. It also calculates the portions of the subsidy cost attributable to defaults, interest, fees, and other cash flows.

[14]Education told us that its cash flow model has over 1,900 assumptions because it models cash flows for all 56 loan profiles—the type of loan, the type of school the student attends, and in some cases the year of schooling for the student and the repayment option selected—separately. Therefore, in the cash flow model, each loan profile has its own set of assumptions. Although the type of assumptions is generally the same for each loan profile, the value of these assumptions often differ.

Based on the results of the limited sensitivity analysis, we determined that seven of the nine cash flow assumptions tested were key.[15] These assumptions follow.

- Discount rate – this rate is used to calculate the present value of the expected future cash flows of the loan program and the interest portion of the subsidy cost.[16] This rate is generally the same rate at which agencies borrow funds from Treasury.
- Borrower rate – the interest rate borrowers pay Education for their loans. This rate is based on the 91-day Treasury bill plus various add-on amounts that range from 1.7 percent to 3.1 percent with a maximum borrower rate of 8.25 percent or 9.0 percent depending on loan type.
- Loan maturity – the time it takes for a loan to be paid in full. Loan maturity varies depending on loan amount and repayment option selected by the borrower. Generally, borrowers have from 10 to 30 years to repay their loans.[17]
- Collection rate – the percentage of defaulted loan amounts subsequently recovered through Education's collection process.
- Default rate – the percentage of principal that will not be paid because of borrower defaults.
- Origination fee – the fee borrowers pay to Education to obtain a loan.
- Beginning repayment – the percentage of loans beginning to make principal and interest repayments each quarter.[18]

As a result of the limited sensitivity analysis, two of the additional assumptions that we requested be included in the analysis were identified as key assumptions—loan maturity and origination fees. Loan maturity is important because it sets the amount of time borrowers are expected to take to repay their loans and, accordingly, the number of years Education estimates that it will receive interest payments from borrowers. The origination fee assumption is important because it determines the amount of fee receipts Education will receive. There could also be other key assumptions that will not be identified until Education completes a

[15]Each of the assumptions identified as key produced a change of at least 2 percent and $13 million in the estimated cost of any single loan profile tested.

[16]The subsidy cost is calculated based on four portions attributed to interest, defaults, fees, and other cash flows.

[17]Repayment begins at the conclusion of any deferment period.

[18]Education's cash flow model estimates cash flows by fiscal year quarter.

thorough sensitivity analysis. Identification of key assumptions is important to ensure proper monitoring of those assumptions and to adjust future subsidy estimates for changes in assumptions.

Sensitivity of Subsidy to Changes in Key Assumptions

Tables 4 and 5 summarize the results of the sensitivity analysis for seven of the nine cash flow assumptions tested, which entailed adjusting each assumption by a set amount to determine the impact on the subsidy cost. For borrower and discount rates, loan maturity, loan origination fee, and default and collection rates, this adjustment involved increasing and decreasing by 10 percent the values currently in the cash flow model. For the assumption related to timing—the beginning repayment assumption—the adjustment involved was an annual acceleration of 5 percent to the amount of loans beginning repayment in the first 5 years of the loan term. While the tables show the impact of decreasing the assumptions, similar results were obtained by increasing the assumptions. Because changes in two of the nine cash flow assumptions tested had very little impact on the overall subsidy cost, they were not determined to be key and were excluded from the table.[19] Table 4 presents the results of the analysis in terms of the percentage change in the subsidy cost of each loan profile, which encompasses the type of loan, the type of school the student attends, and in some cases the year of schooling for the student and the repayment option selected.[20] Generally, the higher the percentage, regardless of whether it was positive or negative, the more sensitive the subsidy cost was to change in this assumption. The loan profiles are as follows.

- Loan Profile 1 – Represents loans to freshmen and sophomore students attending 4-year schools who have obtained Stafford Subsidized loans and chose the standard repayment option.
- Loan Profile 2 – Represents loans to junior and senior students attending 4-year schools who have obtained Stafford Unsubsidized loans and chose the standard repayment option.
- Loan Profile 3 – Represents loans to junior and senior students attending 4-year schools who have obtained Stafford Unsubsidized loans and chose the graduated repayment option.

[19]The two assumptions that were determined not to be key assumptions were the timing of defaults and collections.

[20]The sensitivity analysis that Education performed was based on Education's fiscal year 2001 mid-session review cash flow model and assumptions.

- Loan Profile 4 – Represents PLUS loans to parents of freshmen and sophomore students attending 4-year schools who chose the standard repayment option.
- Loan Profile 5 – Represents Consolidation loans to borrowers who chose the extended repayment option.
- Loan Profile 6 – Represents Consolidation loans to borrowers who chose the income contingent repayment option.

Table 4: Percentage Impact of Changes in Key Assumptions on Subsidy Costs by Loan Profile

Assumption	Loan profile 1	Loan profile 2	Loan profile 3	Loan profile 4	Loan profile 5	Loan profile 6
Discount rate	-23.0%	-33.6%	-37.2%	-36.4%	-101.9%	-21.4%
Borrower rate	10.5%	28.7%	29.6%	25.8%	80.1%	20.9%
Loan maturity	3.4%	5.8%	5.0%	13.9%	19.5%	Not applicable[a]
Collection rate	5.4%	5.2%	3.1%	4.0%	18.6%	Not applicable[b]
Default rate	-4.6%	-2.8%	-1.9%	-5.8%	-18.0%	Not applicable[c]
Origination fee	2.1%	2.2%	1.2%	3.9%	Not applicable[d]	Not applicable[d]
Beginning repayment	-4.3%	-.4%	-.5%	-8.7%	Not applicable[e]	Not applicable[e]

[a]According to Education, the income contingent repayment option does not have a specific loan maturity assumption due to the nature of the income contingent repayment option.

[b]According to Education, no collections are estimated to be received on defaulted loan amounts because borrower defaults are estimated to be insignificant.

[c]The default rate assumption for loan profile 6 was not tested as part of the sensitivity analysis because, according to Education, defaults are an insignificant portion of the subsidy cost compared to the other subsidy components. This is because borrower repayments are based on borrowers' financial ability to repay loans.

[d]Consolidation loans do not charge an origination fee.

[e]Repayments for Consolidation loans are considered to begin in the first year.

Source: Department of Education.

Table 5 presents the estimated dollar impact on the subsidy cost of each loan profile for the fiscal years 1995 through 1999 cohorts based on the results of the sensitivity analysis. These loan profiles represent $16.7 billion of FDLP loans disbursed during that time.

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Table 5: GAO Estimates of Dollar Impact of Changes in Key Assumptions on Subsidy Costs by Loan Profile

(Dollars in millions)

Assumption	Loan profile 1	Loan profile 2	Loan profile 3	Loan profile 4	Loan profile 5	Loan profile 6
Discount rate	$(149.6)	$(159.3)	$(103.1)	$(65.7)	$(150.0)	$(153.2)
Borrower rate	68.4	136.0	81.9	46.5	118.0	150.0
Loan maturity	22.1	27.5	13.8	25.0	28.7	Not applicable[a]
Collection rate	35.4	24.4	8.6	7.2	27.4	Not applicable[b]
Default rate	(30.2)	(13.2)	(5.3)	(10.4)	(26.5)	Not applicable[c]
Origination fee	13.7	10.5	3.2	7.0	Not applicable[d]	Not applicable[d]
Beginning repayment	(27.8)	(1.7)	(1.4)	(15.8)	Not applicable[e]	Not applicable[e]

[a]According to Education, the income contingent repayment option does not have a specific loan maturity assumption due to the nature of the income contingent repayment option.

[b]According to Education, no collections are estimated to be received on defaulted loan amounts because borrower defaults are estimated to be insignificant.

[c]The default rate assumption for loan profile 6 was not tested as part of the sensitivity analysis because, according to Education, defaults are an insignificant portion of the subsidy cost compared to the other subsidy components. This is because borrower repayments are based on borrowers' financial ability to repay loans.

[d]Consolidation loans do not charge an origination fee.

[e]Repayments for Consolidation loans are considered to begin in the first year.

Based on results of the analysis in tables 4 and 5, the estimated cost of FDLP was clearly most sensitive to changes in the discount rate and the borrower rate. Loan maturity also showed a relatively high level of sensitivity for all six loan profile costs. Tables 4 and 5 further demonstrate that the impact of changing these assumptions differs among loan profiles. For example, the subsidy costs of all six loan profiles showed a large degree of sensitivity to changes in the discount rate and the borrower rate, indicating that changes in these assumptions would significantly affect the estimated cost of FDLP, with the largest effect on a percentage basis for loan profile 5–Consolidation loans with the extended repayment option. This would likely be the case because these loans begin repayment in the first year and generally have longer repayment periods, thus magnifying the impact of interest changes. It is especially important to monitor assumptions displaying this high level of sensitivity because even a small

change in them can have a significant impact on the estimated cost of the loan program.

Data Supporting Key Cash Flow Assumptions

Table 6 summarizes the sources of data Education used to support the seven key cash flow assumptions identified in the sensitivity analysis.

Table 6: Summary of Key Assumptions and Sources of Data

Assumption	Source of information
Discount rate	This rate is provided by OMB each year for use governmentwide.[a] The discount rate used for each cohort is fixed and determined by the interest rates prevailing during the period that the cohort's loans were disbursed.
Borrower rate	The actual borrower rate is primarily based on the 91-day Treasury bill from the last Treasury Marketable Securities Auction in May of each year. Projections of future borrower rates needed in the cash flow model to estimate FDLP subsidy costs are based on OMB economic assumptions related to 91-day Treasury bill rates.
Loan maturity	The maximum allowable loan maturity is set by statute and varies depending on loan amount and repayment option. For estimating FDLP subsidy costs, the maximum allowable loan maturity is decreased based on data from FFELP to reflect the average length of time it historically took borrowers to fully repay their loans. This decrease is calculated to account for prepayments or consolidations that fully pay off a loan balance.
Origination fee	The fee amount is specified by statute but has been adjusted by the Secretary.
Default rate Collection rate Beginning repayment	A contractor prepared study that includes (1) historical data for FFELP, (2) the limited FDLP historical data that were available, and (3) economic data related to inflation and unemployment.[b]

[a]OMB prepares various economic forecasts that agencies use when preparing their budget estimates. Generally, these data include estimates of various short and long-term interest rates, unemployment rates, and inflation rates.

[b]This January 1999 study proposes an approach to modeling, among other things, loan repayments, defaults, and collections on defaulted loans using data from Education's National Student Loan Data System (NSLDS), which primarily contains data from FFELP. In this study, the contractors also considered OMB's economic forecasts.

As shown in table 6, for two of the seven key cash flow assumptions, data sources are provided by other agencies. Specifically, the borrower rate and discount rate are generally provided by OMB and updated based on actual Treasury interest rates, or set by the 91-day Treasury Bill rate from the last auction in May conducted by Treasury. These rates, the most significant of

the key assumptions, are determined externally and are outside of Education's control.

For most of the key cash flow assumptions in our analysis, Education used FFELP data because they were the best available data.[21] SFFAS No. 2 states that agencies should use the historical experience of the loan program when estimating future loan performance. However, since FDLP has only existed since 1994, and Education estimates that average loan maturities range from 9 to 27 years, Education lacks adequate historical data to estimate future performance of the loan program. According to Technical Release 3, agencies may use the experience of other federal or private sector loan programs when estimating the cost of new loan programs that lack adequate historical data. These data, often referred to as proxy data, should be an interim step to gathering the appropriate historical data upon which to base future estimates of loan performance. Education officials told us that Education is currently accumulating the actual cash flow data for the direct loan program and plans to continue phasing out the use of proxy data in the future.

Without performing a more thorough sensitivity analysis, Education may not identify all key assumptions in its FDLP cash flow model. Knowledge of these key assumptions would provide management with the ability to more efficiently monitor the economic trends and cash flow assumptions that most affect the loan program's financial performance and, accordingly, to prepare reasonable estimates of the program's cost. While some of the changes in assumptions–particularly those related to interest rates–occur outside Education's control, understanding the impact that changes in assumptions have on program costs also would provide management with a tool to help predict the impact of certain policy changes on the cost of the program.

Question 4

How closely do Education's subsidy cost estimates and their underlying assumptions compare to actual loan performance for each loan and to what extent does Education track differences between its subsidy cost estimates and actual loan performance for each loan cohort?

[21]These assumptions were reviewed by Education's independent public accountant as part of the fiscal year 1999 financial statement audit and found to be reasonable in all material respects.

Prior to this request, Education had not done a formal documented analysis comparing estimated subsidy costs to actual loan performance for FDLP. Typically, such an analysis would entail comparing estimated cash flows included in the cash flow model to actual cash flows recorded in the agency's financial systems. However, as discussed below, actual cash flow data from Education's financial systems were not totally comparable to the data used in the cash flow model. While we were able to determine differences between estimated and actual cash flows for certain of the key assumptions, sufficient detailed information was not available to assess the reasons for most of the differences. Based on our analysis, some significant differences between the estimated and actual cash flows were noted. Although Education could not identify the specific reasons for some of these fluctuations, Education updates its assumptions for actual interest rates and loan performance when calculating reestimates.

Comparing Estimated to Actual Cash Flows

Education's analysis of estimated and actual loan performance for FDLP, prepared at our request, compared estimated to actual cash flows related to five of the seven key cash flow assumptions identified in question 3—the borrower rate, loan maturity, beginning repayment assumption,[22] origination fees, and collections on defaulted loans.[23] The comparison did not include any analysis of defaults because Education was unable to readily provide comparable data on either estimated or actual defaults. Due to the nature of direct loan programs, Education's FDLP cash flow model estimates principal and interest payments that will be missed in a given fiscal year as a result of a default, while Education's financial systems do not specifically recognize this "absence of cash flow." Rather, the financial systems report defaults as entire loan amounts that are written off in a given fiscal year. Further, the overall analysis was limited by the fact that readily available data in the financial systems were not totally comparable to the data available in the cash flow model. Specifically, Education's financial systems lacked readily available data at the cohort and loan profile level. Education therefore used fiscal year totals from the financial systems in its analysis. Appropriately performing an analysis of estimated to actual cash flows would require having readily available actual data as

[22]In order to produce the estimated cash flows for interest and principal receipts, Education considers the borrower rate, loan maturity, and beginning repayment assumptions.

[23]The discount rate assumption was not included because it does not directly affect borrower-related cash flows. Rather, this assumption is used to calculate the present value of the cash flows and the financing component of the subsidy cost.

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captured in the cash flow model–by cohort, key cash flow assumption, and loan profile.

Although agencies are not required to compare estimated cash flows to actual cash flows on a cohort basis, such an approach would provide a more meaningful analysis than comparing fiscal year totals. According to Education, its approach is consistent with standard credit reform practice in which costs for all loan cohorts are reestimated each year using the latest cash flow model and assumptions. However, Education's budget officials have acknowledged that their analysis has certain limitations. For example, the difference between estimated and actual loan performance could be understated because of offsetting differences among different cohorts. Further, because Education's analysis compared loan performance in total, variances in loan performance within individual cohorts may become minimized. These variances may indicate anomalies or trends that were not expected when the credit subsidy estimate was originally calculated.

Because we were unable to analyze specific cohorts included in Education's analysis, we were unable to determine whether, over time, estimated cash flows became more predictive of actual cash flows. Education officials told us that they are currently working to obtain a subsidiary ledger that will provide readily available data that are comparable to data in the cash flow model to allow for a comparison of estimated cash flows to actual cash flows on a cohort level.

Even though cohort-level data were not available, we were able to analyze estimated cash flows and actual cash flows on an overall basis for certain key cash flow assumptions. As shown in table 7, and figures 1 through 4, some of Education's estimated cash flows varied significantly from actual cash flows in total and by fiscal year.

Table 7: Total Estimated and Actual Key Cash Flows for Fiscal Years 1995 Through 1999

(Dollars in millions)

Key cash flows	Actual cash flows	Estimated cash flows	Difference in dollars	Percentage difference
Interest receipts	$2,100	$3,660	$(1,560)	(74.3)%
Principal receipts	3,068	2,676	392	12.8%
Origination fees	1,524	1,611	(87)	(5.7)%
Default collections	81	136	(55)	(67.9)%
Total	**$6,773**	**$8,083**	**$(1,310)**	**(19.3)%**

Source: Department of Education.

For three of the four key cash flows—interest receipts, origination fees and default collections—included in this comparison, actual cash flows were less than the amount Education estimated. As shown in table 7, from fiscal years 1995 through 1999, the largest variance occurred between Education's estimated and actual interest receipts. In total, Education received about $1.6 billion less than expected during this 5-year period. In contrast, Education received about $392 million more principal receipts during the same period. Of the four key cash flows included in table 7, Education's estimated origination fees had the least amount of a percentage variance. From fiscal years 1995 through 1999, actual origination fees were $87 million, nearly 6 percent less than estimated.

In addition to significant variances in total, some of Education's estimated to actual cash flows varied significantly within individual fiscal years. For example, as shown by figures 1 and 4, significant variances occurred between the estimated and actual amounts of both interest receipts and collections on defaulted loans in fiscal years 1998 and 1999. In contrast, as shown in figure 3, with the exception of those in fiscal year 1995, Education's estimates of origination fees were relatively close to the actual amounts received in all fiscal years. During fiscal years 1996 through 1999, differences between estimated and actual origination fees varied from about 1 percent to about 6 percent.

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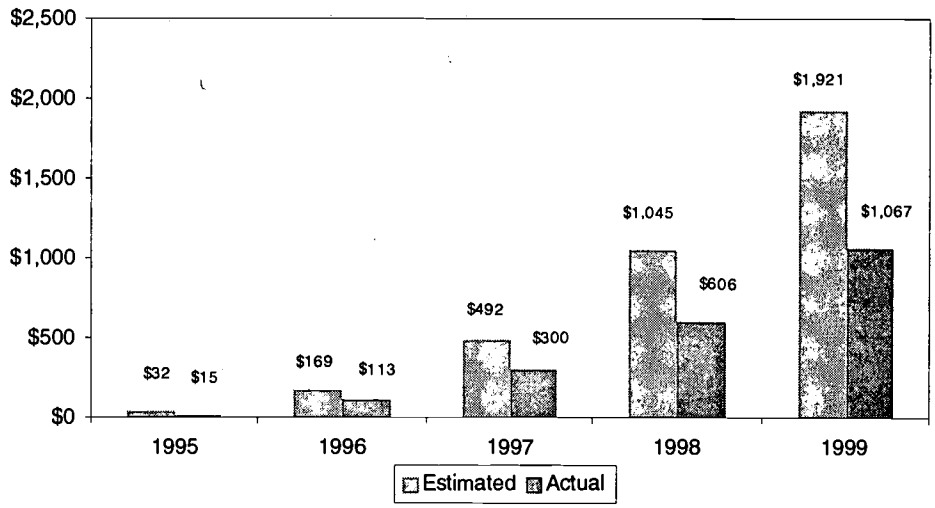
Figure 1: Estimated and Actual Interest Receipts
(Dollars in millions)

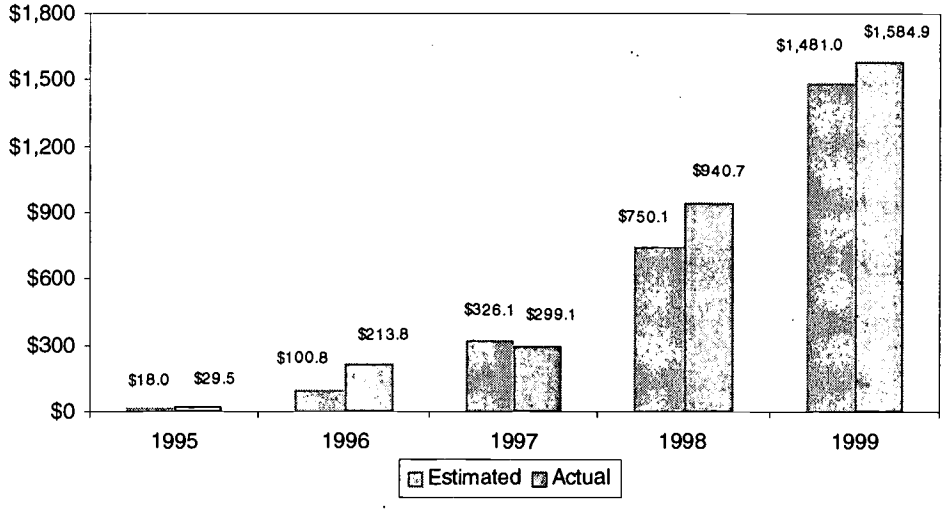


Source: Department of Education.

According to Education, the main reason for the significant difference between estimated and actual interest receipts is the way its cash flow model handles loan consolidations. Typically, the original loans that are consolidated into a new loan would be treated as prepayments, and estimated future cash flows from these underlying loans should be eliminated in the cash flow model. However, Education's cash flow model does not adjust for prepayments. Education currently compensates for this by shortening the loan maturity in an attempt to reflect the consolidation or prepayment of the original underlying loans. However, this approach may misstate the timing and characterization of cash flows reported annually. For example, when borrowers consolidate their loans, accrued interest on the original loans is added to the principal balance for some loan types, while the borrower is in school and in other deferment situations. When borrowers repay their loans, some of the payment for accrued interest is shown in the accounting records as payments of principal. According to Education, this helps explain the differences depicted in figure 2 where more principal was received than estimated for 4 of the 5 years included in our review. However, because Education was unable to provide the supporting data for this explanation, we were unable to verify whether the way consolidations are modeled is (1) truly the primary cause of the

significant difference between the estimated and actual interest receipts from borrowers and (2) a key factor in differences in principal receipts.

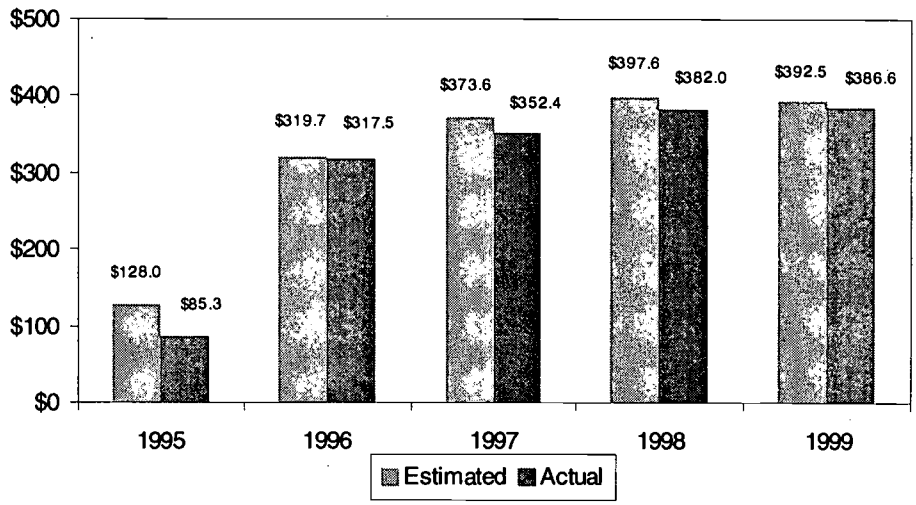
Figure 2: Estimated and Actual Principal Receipts
(Dollars in millions)



Source: Department of Education.

According to Education's budget staff, they are analyzing the method used to allocate borrower repayments between principal and interest, and they acknowledged that they are not totally comfortable with the current split. In addition, as discussed in question 6, Education has been working to improve its modeling of consolidations and plans to develop a different cash flow model that will allow Education to model and track cash flows at the individual loan level. Education's budget staff told us that they believe this new cash flow model will address most of the problems they face in modeling consolidations.

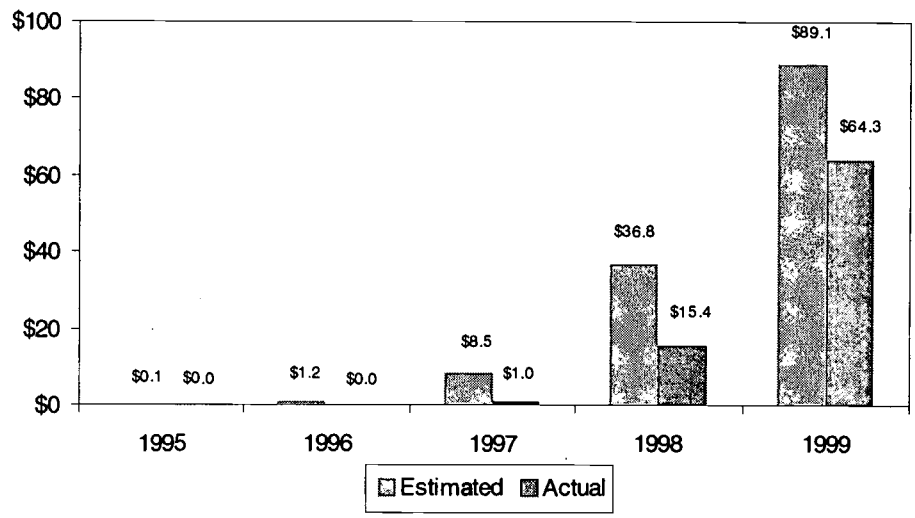
Figure 3: Estimated and Actual Origination Fees
(Dollars in millions)



Source: Department of Education.

The largest difference between estimated and actual origination fees occurred in fiscal year 1995. According to an Education budget official, this difference was due to a reporting anomaly that caused Education to underreport the amount of actual origination fee data. Because Education was unable to provide any supporting documentation for this explanation, we were unable to verify whether this was the actual cause of the difference.

Figure 4: Estimated and Actual Collections on Defaults
(Dollars in millions)



Source: Department of Education.

Figure 4 shows that Education's actual collections on defaulted loans were less than estimated collections. However, because Education's cash flow model estimates collections as a percentage of the amount of loans that default, and we did not receive any information on defaults, neither we nor Education are able to determine the underlying cause of the difference. According to SFFAS No. 2, for credit program managers, information on estimated default losses and related liabilities, when recognized promptly, can be an important tool in evaluating credit program performance. This information can help determine a credit program's overall financial condition and identify its financing needs.

Tracking Differences Between Actuals and Estimates

Education prepared reestimates that accounted for, in aggregate, the differences between estimated and actual loan performance. However, because it lacked data captured by loan profile, cohort, and key assumption, Education was limited in its ability to identify the underlying causes of amounts reestimated. See question 1 for a discussion of reestimates for fiscal years 1995 through 1999.

Prior to this review, most of Education's analysis of estimated to actual loan performance had been performed for FFELP, rather than for FDLP,

because the guaranteed program is significantly larger than the direct loan program and historical data supporting the direct loan program estimates was limited. In using FFELP data, Education officials believed that the two loan programs' performance would be similar. However, up until 1993, FFELP only offered borrowers the standard repayment option and currently only two of FFELP's three repayment plans are similar to those offered under FDLP. Therefore, FFELP historical data may not prove very predictive of FDLP, which offers primarily four repayment options. These repayment options would likely affect the timing and amount of cash flows; however, under existing guidance, Education may use FFELP data as a proxy for actual historical data to support some of the key cash flow assumptions for FDLP, as discussed in question 3. Without a separate analysis specific to FDLP, Education has limited information about how well its estimates for FDLP track with actual cash flows.

Based on the information provided by Education for fiscal years 1995 through 1999, total actual cash inflows were less than estimates for three of the four key cash flows. Most notably, a significant difference exists between the estimated and actual amount of interest receipts Education receives from borrowers. While Education officials provided an explanation, supporting evidence was not provided to corroborate their explanation. Even though differences between estimated and actual cash flows are expected, and the reestimation process allows Education an opportunity to adjust its estimates of future cash flows based on actual experience, better understanding the causes of significant variances would help Education more effectively estimate FDLP costs. However, without the cohort, loan type, and cash flow assumption-level data, Education's ability to assess whether its cash flow model is reasonably predicting borrower behavior is limited. As a result, Education lacks critical information necessary to update future cash flow models. In addition, Education's inability to provide an analysis of defaults, one of the key cash flow assumptions, further impedes Education's ability to effectively predict future cash flows.

Question 5

What effect have reduced loan origination fees had on subsidy costs, and how has Education taken account of these changes in its subsidy cost estimates and reestimates?

In August 1999, Education reduced its origination fees for FDLP student loans from 4 percent to 3 percent.[24] According to Education, this reduction was done in order to ensure that both FDLP and FFELP borrowers receive the same terms, conditions, and benefits. As a result of the fee reduction, Education's subsidy cost estimates for the fiscal year 2001[25] cohort show an increase of approximately $93 million, or 23 percent, compared to what would have been estimated with the 4 percent fee. However, Education officials reported[26] that they believed that the overall effect would be cost neutral when considered in light of the higher subsidy costs associated with guaranteeing loans under FFELP.

Since the fee reduction occurred late in the fiscal year, and thus applied to a limited amount of the fiscal year 1999 loan volume, Education did not take account of the fee reduction in its reestimates prepared in December 1999. However, in the President's Budget for fiscal year 2001, subsidy estimates reflect the fee reduction, and Education plans to continue accounting for the change in origination fees, in accordance with applicable guidance for federal credit agencies.

Effect of Loan Origination Fee Reduction

Education reduced the student loan origination fee from 4 percent to 3 percent for the Stafford Subsidized and Stafford Unsubsidized loan types in August 1999, which resulted in increased subsidy costs for these loan types of approximately $55 million and $38 million, or 13 percent and 6 percent, respectively, in the fiscal year 2001 cohort estimate. This amounted to a $93 million, or a 23 percent, increase in the overall FDLP subsidy cost estimate for the fiscal year 2001 cohort, compared to what it would have

[24]GAO issued an opinion (B-283717, September 29, 1999) regarding the Secretary's authority to enact regulations authorizing origination fee reductions in FDLP. Education asserted that it was authorized to reduce loan origination fees in FDLP commensurate with those provided in FFELP. Education relied upon the Higher Education Act of 1965, as amended, which requires that both FDLP borrowers and FFELP borrowers receive the same terms, conditions, and benefits on their loans, unless otherwise specified. GAO concluded that the regulations conflict with a statutory requirement that Education charge a 4 percent origination fee. Several of the Secretary's actions, including reducing loan origination fees in FDLP, have been challenged in a lawsuit filed by lenders participating in FFELP. *Student Loan Finance Corp. et. al v. Riley, C.A. 00-2660,* (U.S. District Court for the District of Columbia filed November 3, 2000). This report is not intended to nor does it express an opinion on the issues in the lawsuit.

[25]This estimate was prepared in December 1999 for the fiscal year 2001 President's Budget.

[26]*Cost of the 1999 Reduction in Direct Loan Fees,* Budget Service, U.S. Department of Education, October 7, 1999.

been assuming the same loan volumes. The fee reduction did not apply to the PLUS loan type's origination fee, which remained at 4 percent, or the Consolidation loan type, which does not charge an origination fee to borrowers.

Since the overall FDLP subsidy cost is a weighted average determined by the subsidy costs of the four FDLP loan types and their loan volumes, the increase in the overall FDLP subsidy cost depends on the loan amounts made for each loan type–known as the mix of loans. Table 8 summarizes the increases to FDLP subsidy cost estimates for each loan type due to the fee reduction, as well as the estimated mix of loans in fiscal year 2001.

Table 8: Effect of Fee Reduction on Subsidy Costs

	Increase in subsidy costs per $100 in direct loans	Increase in subsidy costs based on fiscal year 2001 loan mix	Estimated fiscal year 2001 loan mix
Stafford subsidized	$1.04	$55 million	35%
Stafford unsubsidized	0.94	38 million	26%
PLUS	0.00	-	8%
Consolidation	0.00	-	31%
Overall FDLP	**$0.60**	**$93 million**	**100%**

Source: Department of Education.

In their report, *Cost of the 1999 Reduction in Direct Loan Fees,* Education officials recognized that the fee reduction would increase the cost for FDLP. However, they believed that the increase would be offset by the ability to attract borrowers to FDLP who might otherwise obtain loans from the more costly FFELP whose lenders, according to Education officials, were offering interest and fee discounts to attract borrowers. For the fiscal year 2001 cohorts, FDLP's cost was a net inflow of about $3 per $100 in loans versus FFELP's cost of about $11 per $100 in loan guarantees.[27]

[27]Costs are based on estimates of the 2001 cohorts included in the *Federal Credit Supplement: Budget of the United States Government,* fiscal year 2001.

How Education Considered the Fee Reduction in Its Subsidy Costs

The first time the fee reduction could have been taken into account was in Education's subsidy cost estimates and reestimates prepared in December 1999. The fee reduction was factored into Education's subsidy cost estimates of the fiscal year 2000 and 2001 cohorts prepared in December 1999 for the fiscal year 2001 President's Budget. However, given that the fee reduction did not take effect until August 1999, Education did not factor the fee reduction into its fiscal year 1999 reestimates because it applied to only a small amount of the fiscal year 1999 loan volume. Education has stated that the fee reduction will be incorporated into the fiscal year 1999 cohort reestimate of subsidy costs prepared for the fiscal year 2002 President's Budget.

Question 6

What effects have increased consolidations had on subsidy costs, and how has Education taken account of these changes in its subsidy cost estimates and reestimates?

By obtaining an FDLP Consolidation loan, borrowers can combine their loans from different federal student loan programs into a new single loan and make one monthly payment. Consolidation loans accounted for 45 percent of new direct loan dollars disbursed in fiscal year 1999 and 26 percent of total FDLP direct loan dollars outstanding as of September 30, 1999. While it is clear that the volume of Consolidation loans is increasing, determining the effects of consolidations is difficult because many factors need to be considered, including loan maturity, prepayments, borrower rates, and discount rates. In order to properly consider all of these factors, an extensive loan-by-loan analysis of cash flows, applying scenarios with and without a consolidation, would be required. Since Education has not performed this type of detailed analysis, there is no way of knowing the impact of increased consolidations on subsidy costs for FDLP.

Education estimates and reestimates the subsidy cost of Consolidation loans similarly to the other FDLP loan types. For the original underlying loans, a consolidation is in essence a loan prepayment. Education factors both the consolidation of the underlying loans and prepayments into FDLP subsidy cost estimates and reestimates by shortening the loan maturity assumption, which affects the time estimated for loan repayments to be received. While adjusting for consolidations and other prepayments through the maturity assumption may at least partially take into account the cash flow changes over time, as discussed in question 4, it is likely to result in misstatements and mischaracterization of cash flows reported

annually. Education officials told us that they recognize the limitations of their current approach and are working to develop an approach to analyze the impacts of consolidations and other prepayments and how they can be appropriately factored into their cash flow model.

Question 7

What effect have declining interest rates had on subsidy costs, and how has Education taken account of these changes in its subsidy cost estimates and reestimates?

Interest rates can affect subsidy costs directly through borrower rates and discount rates and indirectly through borrower behavior. When the borrower rate is greater than the discount rate, Education will receive more interest from borrowers than it will pay in interest to Treasury to finance its loans. This has been the situation over the short life of FDLP. Because Education's cash flow model is continually being updated and previous versions of the cash flow model with original assumptions were not fully maintained, it was not possible to determine the precise effect on subsidy costs of changes in interest rate versus changes in other cash flow assumptions. However, it is clear that the decline in interest rates from 1995 through 1999 has had a greater impact on discount rates than borrower rates because of the borrower rate cap. This has resulted in an increased interest rate spread–the difference between the borrower rate and discount rate–that has contributed to FDLP's estimated negative subsidy for the fiscal year 1999 cohort. Education accounts for interest rate changes in total in its annual reestimates.

Declining Interest Rates' Effect on Subsidy Costs

The two types of interest rates that are used to estimate the subsidy costs of FDLP are the borrower rate and discount rate.

- The borrower rate determines the amount of interest charged to borrowers. The borrower rate for the Stafford Subsidized, Stafford Unsubsidized, and PLUS loan types is variable—adjusted annually—and is based on the 91-day Treasury bill[28] plus various add-on amounts that have ranged from 1.7 percent to 3.1 percent depending on the loan type and the borrower repayment status, with a maximum borrower rate of 8.25 percent or 9.0 percent depending on the loan type. The borrower

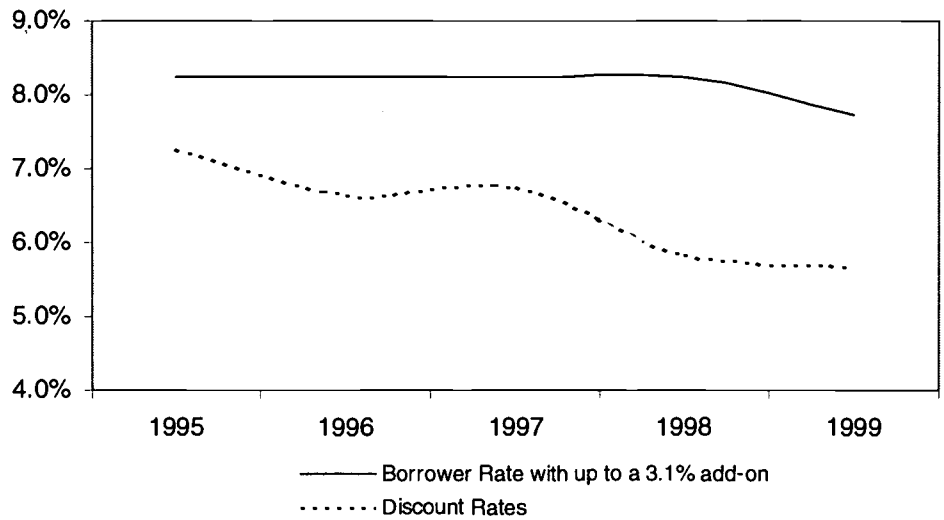
[28]The actual borrower rate is based on the 91-day Treasury bill rate from the last Treasury Marketable Securities Auction in May. Future borrower rates, needed in the cash flow model to estimate FDLP subsidy costs, are based on OMB projections of 91-day Treasury bill rates.

rate for Consolidation loans made after February 1, 1999, is fixed and calculated based on the weighted average of the borrower rates of the loans that were consolidated, with a maximum allowable rate of 8.25 percent. As the borrower rate declines, Education receives less interest from the borrower and, all else being equal, the subsidy cost of FDLP increases.

- The discount rate is the interest rate used to calculate the present value of the estimated future cash flows and is generally equal to the rate at which interest is paid by Education on the amounts borrowed from or held by Treasury. The discount rate used for each cohort is fixed and determined by the interest rates prevailing during the period that the cohort's loans were disbursed (normally such disbursement occurs within 2 years of loan origination for FDLP). Therefore, the discount rate can differ significantly among cohorts. This is important because cohorts with lower discount rates have a lower borrowing cost and, as a result, a lower subsidy cost compared to an otherwise identical cohort with a higher discount rate.

As discussed more fully in question 8, since 1995, FDLP borrower rates have been greater than the discount rates, which has resulted in a positive interest rate spread, as shown in figure 5. However, the spread was not significant enough in the early years of the program to cover other subsidy costs, such as defaults and interest subsidies. In fiscal year 1999, the spread became large enough to result in an estimated negative subsidy.

Figure 5: FDLP Borrower Rates and Discount Rates



Source: Department of Education.

Beyond the direct effect of changes in interest rates on borrower and discount rates, interest rates can also affect borrower behavior, which, in turn, can affect defaults and prepayments and ultimately, subsidy costs. Given all these variables and the fact that interest rate fluctuations are nearly impossible to predict with any certainty, continued changes in FDLP subsidy costs should be expected.

How Education Takes Account of Interest Rate Changes

In order to calculate its subsidy cost estimates, Education uses OMB economic assumptions[29] related to future interest rates for its borrower rate and discount rate assumptions. As part of the reestimate process, Education updates its borrower rate and discount rate assumptions based on actual interest rates and revised OMB economic assumptions. Education has not prepared separate interest rate reestimates, as required by OMB Circular A-11. However, Education told us that its method of reestimating FDLP subsidy costs has been accepted by OMB in the past. Specifically, Education accounted for changes in discount rates as part of its technical reestimate process.[30] As a result, Education is unable to readily provide a historical analysis of the impact on subsidy costs due to changes in discount rates. Education staff have stated that at the request of OMB, interest rate reestimates will be prepared as part of the reestimate process for the fiscal year 2002 President's Budget.

Question 8

What are the future prospects for the continued negative subsidy for the Federal Direct Loan Program?

Education's most recent estimates of the fiscal year 1999 through 2001 cohorts indicate a negative subsidy cost. However, we cannot predict with any certainty the future prospects for the continued estimated negative subsidy for FDLP because it is a relatively new program with limited historical data and is very sensitive to fluctuations in interest rates and other factors. Based on the results of the sensitivity analysis, discussed in question 3, and the effects of interest rate fluctuations on subsidy costs, the primary factor determining whether FDLP has a negative or positive subsidy is the difference, or spread, between the borrower rate and discount rate. When the borrower rate is greater than the discount rate, Education will receive more interest from borrowers than it will pay to Treasury for borrowing funds, which increases the likelihood of a negative subsidy. Conversely, when the borrower rate is less than the discount rate, Education will pay more in interest to Treasury than it will receive from borrowers, which decreases the likelihood of a negative subsidy. However, several other factors, including defaults and consolidations, could also affect whether the estimated subsidy continues to be negative. While some

[29]OMB issues certain economic assumptions for use governmentwide in order to prepare each year's President's Budget. These assumptions include projections of interest rates, unemployment rates, and inflation rates.

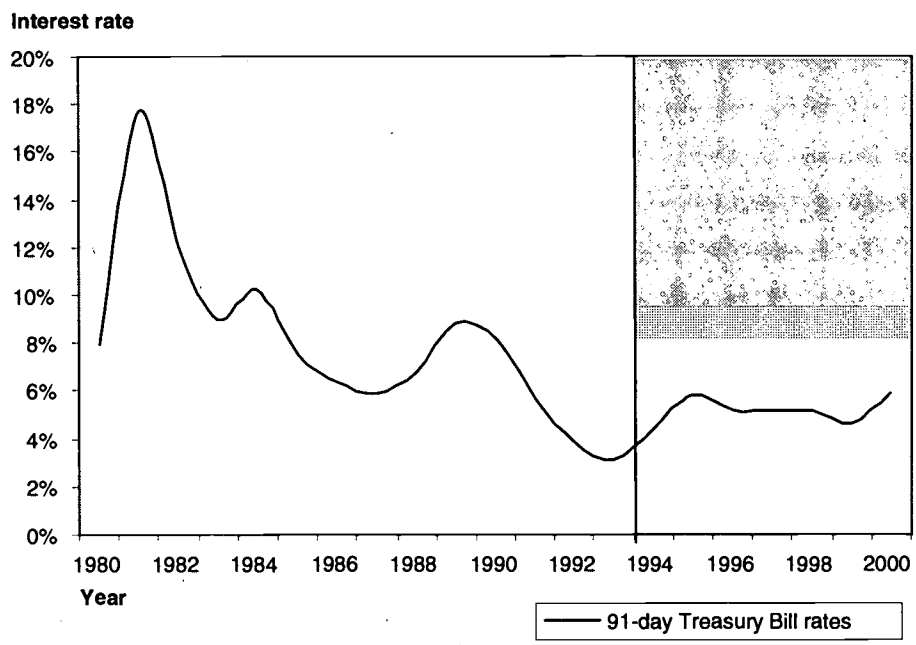
[30]See appendix I for a discussion of interest rate and technical reestimates.

conditions are more favorable than others for a continued estimated negative subsidy, whether and for how long a negative subsidy remains in effect is unclear at this time and greatly depends on future interest rates.

Interest Rates' Effect on the Possibility of a Negative Subsidy

While other factors do come into play, interest rates are the key factor in assessing the future cost of FDLP. In the limited history of FDLP, large fluctuations in interest rates have not been experienced. Figure 6 shows the trend of the 91-day Treasury bill rate, which is used to determine borrower rates, over the past 20 years. The shaded area shows the history of FDLP, a period during which interest rates have been relatively stable.

Figure 6: Historical 91-Day Treasury Bill Rates



Source: The Bureau of the Public Debt.

The difference between the borrower rate and discount rate, or spread, is a key driver of subsidy costs. This spread can be analyzed to help determine the likelihood of a negative subsidy. The greater the spread, the more likely a negative subsidy will result.

As discussed in question 7, the current estimated negative subsidy has primarily been a result of borrower rates being greater than discount rates, which will result in Education receiving more interest from borrowers than it will pay for funds borrowed from Treasury. This condition results in a positive spread. In the earlier years of FDLP, the spread did not offset other subsidy costs, such as defaults and interest subsidies. Fiscal year 1999 was the first year that the positive spread resulted in a negative subsidy. Education has estimated that this will continue through fiscal year 2001.

If the discount rate were higher than the borrower rate, a negative subsidy would be unlikely because the spread would no longer be positive. This could easily occur because interest rates can fluctuate significantly over time and the discount rate for a cohort of loans is fixed and determined by interest rates prevailing during the cohort's disbursement period, while borrower rates are variable for three of the four FDLP loan types and capped at a maximum allowable rate.

Other Factors That Affect Continued Negative Subsidy

Fiscal year 1995 was the first full fiscal year of existence for FDLP and as of September 30, 1999, only about 54 percent of FDLP outstanding loan amounts were in repayment status because of the deferred payment terms offered under this program. As a result, there is limited historical data related to loan repayments, defaults, and consolidations, among other things, to use as a basis for a prediction on the future behavior of borrowers and the impact this will have on subsidy costs.

While positive spreads increase the possibility of a continued negative subsidy for FDLP, other factors that increase costs or reduce cash inflows decrease the likelihood of a negative subsidy. For example, less favorable macroeconomic conditions, such as high unemployment, will likely result in increased defaults, or if there are further reductions in loan origination fees, the cost of the program increases and, thus, the likelihood of a negative subsidy decreases. The mix of loans among the four loan types could also have an impact on whether an overall negative subsidy continues, because not all loan types, which have separate subsidy cost estimates, have negative subsidies. For example, the Stafford Subsidized loan type subsidizes interest for students while they are in school. Because this is a significant cost of the Stafford Subsidized loan type, it may always have a positive subsidy cost regardless of the spread. Therefore, if the FDLP portfolio were to have a larger portion of Stafford Subsidized loans, this new mix of loans would reduce the likelihood of a negative subsidy. Further, as discussed in question 6, since the effect on subsidy costs due to consolidations is unknown at this time, and depends on future interest

rates and the future performance of these Consolidation loan borrowers, the increase in Consolidation loan volume could also have a significant impact on the future prospects for continued negative subsidies.

Question 9

What data did Education use to project an estimated savings of $4 for every $100 of direct student loans, as it reported in November 1999?

In projecting an estimated savings of $4 for every $100 of direct student loans, Education netted the estimated negative subsidy and the administrative costs per $100 of loans. To do this, Education used its subsidy cost estimate reported in the budget for the fiscal year 2000 mid-session review for the subsidy cost portion of the total cost. This estimate is based on the types of data described in the response to question 3. To estimate the federal administrative cost portion, Education used contract expenditure data as well as data from its accounting system, OMB's cost inflation factors, and historical data.[31] These estimated savings pertained only to the fiscal year 2000 cohort. Education chose the fiscal year 2000 cohort because (1) congressional interest in the federal student loan programs was future-oriented and (2) the data available for estimating costs for the fiscal year 2000 cohort were more accurate and complete than the data available for earlier cohorts. However, the projected savings will not necessarily occur with other cohorts and may not continue to occur for the fiscal year 2000 cohort, depending on future interest rate fluctuations.

Table 9 displays comparative cost estimates for the direct loan program for the fiscal year 2000 and fiscal year 2001 cohorts. These data show how changes in subsidy cost estimates can affect total cost estimates over a relatively short period. The first column shows the initial administrative, subsidy, and total cost estimates reported in Education's November 1999 cost study for the fiscal year 2000 cohort. As shown in the table, the total program cost could change from $4.11 in cost savings for every $100 in loans for the fiscal year 2000 cohort to 58 cents in costs for every $100 in loans for the fiscal year 2001 cohort.

[31] *Incorporating Federal Administrative Costs into FFEL and Direct Loan Program Cost Estimates,* U.S. Department of Education, November 1999. In this study, Education developed an approach to compare the total costs of the two programs by calculating both subsidy and federal administrative costs on a net present value basis. The study constituted a first step in developing baseline long-term unit cost estimates for use in future cost accounting and performance measurement systems within Education's Office of Student Financial Assistance.

Table 9: Comparative Direct Loan Program Estimates, Per $100 of Loans

(Dollars in millions)

	Fiscal year 2000 cohort (initial estimate)	Fiscal year 2001 cohort
Subsidy cost estimates	$(7.73)[a]	$(3.04)[b]
Federal administrative cost estimates[c]	3.62	3.62
Total	**$(4.11)**	**$0.58**

[a]Fiscal year 2000 mid-session review estimate.

[b]Based on Education's cost estimate presented in the *Federal Credit Supplement: Budget of the United States Government,* fiscal year 2001.

[c]Department of Education estimate presented in *Incorporating Federal Administrative Costs into FFELP and Direct Loan Program Cost Estimates,* U.S. Department of Education, November 1999.

Source: Department of Education.

For the fiscal year 2001 cohort, the negative subsidy declined from $7.73 to $3.04. An Education official explained that the increase in the subsidy cost for the fiscal year 2001 cohort is due to changes in the spread between the borrower rate and the discount rate. Education officials also believe that the underlying assumptions used to project the administrative cost will not change significantly from one cohort to the next since they are not highly sensitive to changes in loan volume. In a similar cost study, issued in March 1999, Education's Office of Inspector General concluded that in any given year, either FFELP's or FDLP's costs (e.g., subsidy and administrative) could be greater depending on how prevailing economic conditions affect subsidy costs.[32]

[32]*Study of Cost Issues: Federal Family Education Loan Program and the Federal Direct Loan Program,* U.S. Department of Education, Office of Inspector General, March 1999.

To develop and assign administrative costs to the direct loan program, Education used certain costs specified in OMB guidance as well as historical costs (such as costs in relevant contracts, salaries, rent, and travel).[33] These costs include any expenditure associated with program support activities such as processing applications, serving customers, and disbursing and collecting loans. Table 10 shows the types of data Education used to estimate the administrative cost of the direct loan program.

Table 10: Primary Types of Data Used in Education's 1999 Cost Study

Types of data	Purpose
Agency contract expenditure data[a]	To estimate cost of contracts (e.g., volume of applications processed each year, student loans originated and serviced, and defaulted student loan collections) and other related loan activity costs.
Education's accounting system data	To gather data on overhead costs (for example, personnel, training, travel, rent, and postage).
OMB cost inflation factors and historical expenditure data	To estimate the lifetime cost of direct loan activities.

[a]Contracts analyzed include those for the operation and support of the following information management systems: National Student Loan Data System, Direct Loan Origination, Direct Loan Servicing, Direct Loan Central Data System, Central Processing System, Stafford/Perkins Data Systems, Multiple Data Entry, the Postsecondary Education Participants System, Title IV Wide-Area Network, and the Public Inquiry Contract.

Education officials told us that some data on actual overhead costs were taken from Education's cost accounting system (for example, salaries, expenses, and rent) and Office of Student Financial Assistance (OSFA) records. Education projected the administrative costs over the expected life of all the loans in the fiscal year 2000 cohort using predetermined inflation factors that existed in many of the contracts, OMB inflation factors, or a combination of historical data and OMB inflation factors.

[33]OMB Circular A-11 defines administrative expenses as all costs directly related to credit program operations, including (1) all activities related to credit extension, loan servicing, write-off, and closeout, (2) all loan systems development and maintenance, including computer costs, (3) all monitoring of credit programs and private lenders for compliance with laws and regulations, (4) the cost of operating separate offices that make policy decisions for credit programs, (5) the cost of collecting delinquent loans, and (6) the proportion of administrative expenses shared with noncredit programs.

To develop the lifetime federal administrative cost estimates, Education first assigned costs to one of three categories—loan origination, servicing or account maintenance, or overhead. It then applied a three-step approach to calculate these costs, by cohort and type, for FDLP and FFELP. The approach included

- developing the annual spending levels for the two loan programs based on volume-driven costs that depend on the number of loans or similar activity measures, such as the number of loan applications, and on nonvolume-driven costs including personnel and fixed costs, such as rent and travel, that do not depend on the number of loans or similar activity measures;
- assigning annual spending for each loan program; and
- calculating the net present value of future administrative cost by cohort.

To assign administrative costs to each loan program, Education used designated funding sources, loan volume, and self-developed cost assumptions. Any costs involving both grants and loans, such as application processing, were allocated to the loan programs based on the proportion of loan recipients to grant recipients. Any cost for activities common to both loan programs was assigned based on annual projections of the number of borrowers in each program. Overhead costs were assigned to the two loan programs based on the source of funds. For example, overhead expenses funded using section 458 of the Higher Education Act were assumed by Education to be used for FDLP even though some of these funds are used for FFELP costs. In using this assumption, Education believes that it is overstating the portion of overhead costs attributable to the direct loan program.

Education projected administrative costs over 50 years—fiscal years 2000 through 2050. The 50-year period was used to reflect the maximum amount of time that all borrowers in a cohort could be in school, in a deferment or forbearance period, making loan repayments, or making payments on loan defaults. After consulting with Education, we concluded that performing this analysis over a shorter period—within the 9 to 27-year range Education uses in estimating subsidy costs—would not produce significantly different results.

Education chose not to include several cost items in its calculation of administrative cost for the loan programs. These included costs for information system upgrades and improvements that Education believes could reduce future per loan costs of delivering financial aid. Education

officials did not include these costs because the specific components of these system upgrades had not been determined at the time the study was issued, and they believe the initial cost will be offset by future savings. However, the study did not include a cost analysis to support this belief. To the extent that these costs are not offset by future savings in other cost categories, Education's administrative cost estimates will be understated. According to its budget proposal, Education plans to spend $48.5 million on information systems modernization for student aid programs in fiscal year 2001.

Education excluded loan origination costs for consolidation loans because provisions of FCRA—section 502(5)(B)(iii)—include fees as a subsidy cost. Additionally, Education chose not to include noncontract costs associated with offices outside OSFA since these costs only represented $3.2 million of a total $600 million and included no more than 32 personnel.

OSFA is currently developing a cost allocation model that will identify the total administrative cost for each of the major financial aid programs as well as the per unit cost of delivering each loan or grant award. OSFA plans to use this model to identify areas where it can reduce these per-unit delivery costs and to assess how well it is accomplishing these reductions. Unlike the November 1999 cost study, the OSFA model will include noncontract costs from other offices within Education that have a role in delivering student financial aid. It will use data primarily from Education's accounting system to determine total and per unit costs.

While this administrative cost information will be useful, changes in the subsidy costs from one cohort to the next are the primary drivers of total program costs. Subsidy costs, in turn, are primarily affected by interest rates and therefore cannot be predicted with any certainty.

Conclusions

Developing reasonable estimates of subsidy costs for loan programs is a complex task. Numerous assumptions must be taken into account and projections must be made for the estimated life of the loans, which could be up to 30 years. Because FDLP's subsidy costs are determined largely by interest rates—specifically the difference, or spread, between the borrower and discount rates—and since interest rate fluctuations cannot be predicted with any certainty, it is uncertain that the current trend in negative subsidy costs for FDLP will continue. A change in interest rates, for example, can cause a negative subsidy to become positive. Even with

improvements to Education's cash flow model, it is important to recognize that estimates of subsidy costs are sensitive to interest rate volatility.

That being said, there are also other factors that affect the subsidy cost of FDLP, such as origination fees paid by borrowers, defaults, subsequent collections on defaulted loans, and the timing of loan repayments. While Education is able to estimate origination fees close to the actual amounts in the financial systems, the other key cash flows varied significantly. These cash flows are primarily estimated based on looking at the history of how borrowers perform under the conditions provided by each loan type within FDLP. Because the program is relatively new, Education has primarily used the history of FFELP as a basis for its FDLP estimates. While this is reasonable given that it is the best historical data available, it may not be very predictive of FDLP borrower behavior because FDLP offers different repayment options than those reflected in most of the historical data related to FFELP.

Additionally, Education's current model for estimating FDLP subsidy costs does not directly take into account certain key factors, such as prepayments and consolidations. This limitation hinders Education's ability to determine the impacts of consolidation activities, which are increasing significantly. Also, Education was unable to provide actual data related to defaults, which are a key assumption. Finally, the fact that Education does not currently have the information readily available to make meaningful comparisons of estimated to actual cash flows, and, most important, to identify the reasons for differences, significantly impedes Education's ability to refine future estimates based on actual results. Therefore, the reliability of Education's subsidy cost estimates is negatively affected not only by the volatility of interest rates but also by limitations in the department's ability to monitor and adjust for other key factors in its subsidy cost estimation process. Education is aware of these limitations and has efforts underway to begin to address them.

Recommendations for Executive Action

To provide more meaningful cost estimation information that can be effectively used by Congress and program decisionmakers to make timely and well-informed judgments about FDLP, we recommend that the Secretary of the Department of Education charge the Budget Director, who has overall responsibility for preparing FDLP cost estimates, to take the following actions:

- Develop and implement a method to acquire actual cash flow data on the same basis as the cash flow model–by loan profile, cohort, and key assumption–to facilitate a detailed comparison of estimated to actual cash flows.
- Formalize and document the sensitivity analysis of assumptions included in the FDLP cash flow model to ensure that all key assumptions used in the cash flow model have been identified and to determine the sensitivity of FDLP subsidy costs to changes in these assumptions.
- Develop and implement a method of routinely comparing FDLP's estimated and actual cash flows, including
  - identifying significant differences in total and by cohort,
  - researching significant differences to determine the specific cause,
  - determining any revisions needed in the cash flow model to ensure that it reasonably predicts future borrower behavior, and
  - determining whether, over time, projected loan performance is reasonably predictive of actual loan performance.
- Perform an analysis of the effects of consolidations on FDLP subsidy costs and develop an approach to directly factor consolidations into the cash flow model.
- Develop and implement a plan to prepare interest rate reestimates to isolate the effects on subsidy costs of changes in interest rates versus changes in other assumptions.
- Refine the administrative cost modeling so that the costs of computer system upgrades are incorporated, as well as the cost savings that would result from these upgrades.

Agency Comments

We provided the Department of Education copies of a draft of this report for review and comment. On December 7, 2000, we met with cognizant Education officials and obtained oral comments on a draft of this report. Education officials generally agreed with our answers to the questions, findings, conclusions, and recommendations. Education is in the process of taking actions to address some of these recommendations. For example, Education officials told us that they are currently working to obtain a subsidiary ledger that will provide readily available data that are comparable to data in the cash flow model to allow for a comparison of estimated to actual cash flows on a cohort level. Further, Education is in the process of researching and modeling the effects of consolidations on subsidy cost estimates. Education also provided technical comments, which we have incorporated as appropriate.

We are sending copies to the Secretary of Education and other interested parties. Copies will also be made available to others upon request.

Please contact either Linda M. Calbom at (202) 512-9508 or Cornelia M. Ashby at (202) 512-8403, if you or your staffs have any questions concerning this report. Key contacts and major contributors to this report are listed in appendix III.

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ERIC

Estimating Credit Program Costs

The Federal Credit Reform Act of 1990 (FCRA) was enacted to require agencies to more accurately measure the government's cost of federal loan programs and to permit better cost comparisons both among credit programs and between credit and noncredit programs. FCRA assigned to OMB the responsibility for coordinating the cost estimates required by the act. OMB is authorized to delegate to lending agencies the authority to estimate costs, based on its own written guidelines. These guidelines are contained in OMB Circular A-11, sections 85.1 through 85.12, and supporting exhibits,[1] as well as other OMB guidance, including OMB Circular A-34, *Instructions on Budget Execution,* and other documents.

The Federal Accounting Standards Advisory Board (FASAB)[2] developed the accounting standard for credit programs, SFFAS No. 2, *Accounting for Direct Loans and Loan Guarantees,* which became effective in fiscal year 1994. This standard, which generally mirrors FCRA, established guidance for estimating the cost of direct and guaranteed loan programs as well as recording direct loans and the liability for loan guarantees for financial reporting purposes.

The actual and expected costs of federal credit programs should be fully recognized in both budgetary and financial reporting. To determine the expected cost of a credit program, agencies are required to predict or estimate the future performance of the program. This cost, known as the subsidy cost, is the present value[3] of disbursements—over the life of the loan—by the government (loan disbursements and other payments) minus estimated payments to the government (repayments of principal, payments of interest, other recoveries, and other payments). For loan guarantees, the subsidy cost is the present value of cash flows from estimated payments by

[1]The act requires OMB to coordinate with the Congressional Budget Office in developing estimation guidelines.

[2]FASAB was created by OMB, Treasury, and GAO to consider and recommend accounting principles for the federal government. These three agencies approved Statement of Federal Financial Accounting Standards (SFFAS) No. 2, *Accounting for Direct Loans and Loan Guarantees,* in July 1993 and SFFAS No. 18, *Amendments to Accounting Standards for Direct Loans and Loan Guarantees* in SFFAS No. 2 in May 2000.

[3]Present value is the worth of the future stream of returns or costs in terms of money paid immediately. In calculating present value, prevailing interest rates provide the basis for converting future amounts into their "money now" equivalents. For the period we reviewed, when calculating the present value of loan subsidy costs, agencies were required to use as the discount rate the average annual interest rate for marketable U.S. Treasury securities with similar maturities to the loan or guarantee.

the government (for defaults and delinquencies, interest rate subsidies, and other payments) minus estimated payments to the government (for loan origination and other fees, penalties, and recoveries).

To estimate the cost of loan programs, agencies first estimate the future performance of direct and guaranteed loans when preparing their annual budgets. The data used for these budgetary estimates should be reestimated to reflect any changes in loan performance since the budget was prepared. These reestimated data are then used in financial reporting when calculating the allowance for subsidy (the cost of direct loans), the liability for loan guarantees, and the cost of the program. In the financial statements, the actual and expected costs of loans disbursed as part of a credit program are recorded as a "Program Cost" on the agencies' Statement of Net Costs for loans disbursed.

In addition to recording the cost of a credit program, SFFAS No. 2 requires agencies to record direct loans on the balance sheet as assets at the present value of their estimated net cash inflows. The difference between the outstanding principal balance of the loans and the present value of their net cash inflows is recognized as a subsidy cost allowance—generally the cost of the direct loan program. For guaranteed loans, the present value of the estimated net cash outflows, such as defaults and recoveries, is recognized as a liability and generally equals the cost of the loan guarantee program.

In preparing SFFAS No. 2, FASAB indicated that the subsidy cost components—interest, defaults, fees, and other cash flows—would be valuable for making credit policy decisions, monitoring portfolio quality, and improving credit performance. Thus, agencies are required to recognize, and disclose in the financial statement footnotes, the four components of the credit subsidy—interest, net defaults, fees and other collections, and other subsidy costs—separately for the fiscal year during which direct or guaranteed loans are disbursed.

In addition, nonauthoritative guidance is contained in the previously discussed Technical Release of the Credit Reform Task Force of the Accounting and Auditing Policy Committee, entitled *Preparing and Auditing Direct Loan and Loan Guarantee Subsidies Under the Federal Credit Reform Act.* This Technical Release provides detailed implementation guidance for agency staff on how to prepare reasonable credit subsidies. Further, the Technical Release provides suggested procedures for auditing credit subsidy estimates.

Developing Cash Flow Assumptions and Models

In estimating cash flows, Education and other credit agencies are required to predict borrower behavior–how many borrowers will pay early, pay late, or default on their loans and at what point in time. Generally, the subsidy costs equal the amount of estimated losses to the federal government and are financed with appropriated funds. The portion of Education's direct loans that Education predicts will ultimately be collected is financed by borrowing from Treasury. For example, a hypothetical FDLP loan of $100 may have a subsidy cost of $20 (the amount Education expects to lose), which is financed with appropriated funds, and the remaining $80 is financed by Treasury borrowings (the amount Education expects to be repaid).

Budgeting guidance requires agencies to maintain supporting documentation for subsidy cost estimates. Further, auditing standards related to preparing estimates indicate that agency management is responsible for accumulating relevant, sufficient, and reliable data on which to base the estimates. SFFAS No. 2 indicates that each credit program should use a systematic methodology to project expected cash flows into the future. To accomplish this task, agencies should develop cash flow models. A cash flow model is a computer program that generally uses historical information and various assumptions, including defaults, prepayments, recoveries, and the timing of these events, to estimate future loan performance. These cash flow models, which should be based on sound economic, financial, and statistical theory, identify key factors that affect loan performance. Agencies use this information to make more informed predictions of future credit performance. The August 1994 *User's Guide to Version r.8 of the OMB Credit Subsidy Model* provides general guidance on creating cash flow models to estimate future delinquencies, defaults, recoveries, etc. This user's guide states that, "In every case, the agency or budget examiner must maintain current and complete documentation and justification for the estimation methods and assumptions used in determining the cash flow figures used for the OMB Subsidy Model" to calculate the credit subsidy.

According to SFFAS No. 2, to estimate the cost of loan programs and predict the future performance of credit programs, agencies should establish and use reliable records of historical credit performance. Since actual historical experience is a primary factor upon which estimates of credit performance are based, agencies should maintain a database, also known as an information store, at the individual loan level, of historical information on all key cash flow assumptions, such as defaults or

recoveries, used in calculating the credit subsidy cost. Additional nonauthoritative guidance on cash flow models may be found in the *Model Credit Program Methods and Documentation for Estimating Subsidy Rates and the Model Information Store* issue paper prepared by the Credit Reform Task Force of the Accounting and Auditing Policy Committee. This draft "Information Store" Task Force paper provides guidance on the type of historical information agencies need to reasonably estimate the cost of credit programs. The information store should provide three types of information. First, the information store should maintain key loan characteristics at the individual loan level, such as the loan terms and conditions. Second, it should track economic data that influence loan performance, such as property values for housing loans. Third, an information store should track historical cash flows on a loan-by-loan basis. The data elements in an information store should be selected to allow for more in-depth analyses of the most significant subsidy estimate assumptions.

In addition to using historical databases and the cash flow models, other relevant factors must be considered by agencies to estimate future loan performance. These relevant factors include

- economic conditions that may affect the performance of the loans,
- financial and other relevant characteristics of borrowers,
- the value of the collateral to loan balance,
- changes in recoverable value of collateral, and
- newly developed events that would affect loan performance.

When new programs are established or changes are made to existing programs, historical supporting documentation for cash flow assumptions may not exist. In the absence of valid, relevant historical experience, the agency may use relevant experience from other federal or private sector loan programs. These data, often called proxy data, should be temporarily used while the agency collects adequate historical data for the new or revised loan program.

Reestimating Credit Subsidies

Agencies prepare estimates of loan program costs as a part of their budget requests. Later, after the end of the fiscal year, agencies are required to update or "reestimate" loan costs for differences among estimated loan performance and related cost, the actual program costs recorded in the accounting records, and expected changes in future economic performance. The reestimate should include all aspects of the original cost

estimate, including prepayments, defaults, delinquencies, recoveries, and interest. Reestimates of the credit subsidy allow agency management to compare the original budget estimates with actual program results to identify variances from the original estimate, assess the quality of the original estimate, and adjust future program estimates as appropriate. Any increase or decrease in the estimated cost of the loan program is recognized as a subsidy expense or a reduction in subsidy expense for both budgetary and financial statement purposes.

The reestimate requirements for interest rate and technical assumptions (defaults, recoveries, prepayments, fees, and other cash flows) differ. For budget purposes, OMB Circular A-11 states that agencies must reestimate the interest portion of the estimate when a cohort is substantially disbursed or generally when at least 90 percent of the direct loans or guaranteed loans are disbursed. The technical reestimate, for budgetary purposes, generally must be done annually, after the close of each fiscal year as long as the loans are outstanding, unless OMB approves a different plan,[4] regardless of financial statement significance. For financial statement reporting purposes, both technical and interest rate reestimates are required annually, at the end of the fiscal year, whenever the reestimated amount is significant to the financial statements. If there is no significant change in the interest portion of the estimate prior to the loans being 90 percent disbursed, then the interest rate reestimate may be done once when the loans are at least 90 percent disbursed. In addition, SFFAS No. 18, which was effective beginning in fiscal year 2001, requires that reestimates be measured and reported in two separate components: interest rate reestimates and technical/default reestimates.

Interest rate reestimates are made to adjust the credit subsidy estimate for the difference between the discount rate originally estimated and the actual interest rates prevailing during the years the loan was disbursed. To calculate the size of this effect, all other assumptions (repayment rates, default rates, etc.) must be the same as those used to calculate the original subsidy estimate. Technical reestimates are made to adjust for all changes in assumptions other than interest rates. The purpose of the technical

[4]The OMB representative with primary budget authority may authorize agencies to calculate technical reestimates for budgetary purposes less frequently than every year when any one of four conditions are met: (1) based on periodic schedules established in coordination with OMB, (2) when a major change in actual versus projected activity is detected, (3) when a significant difference is detected through monitoring "triggers" developed in coordination with OMB, and (4) when a group of loans are being closed out.

reestimate is to adjust the subsidy estimate for differences between the original projection of cash flows and the amount and timing of expected cash flows based on actual experience, new forecasts of future economic conditions, and other events and improvements in the methods used to estimate future cash flows.

Objectives, Scope, and Methodology

This report responds to your request and that of the former Chairman of the House Committee on the Budget that we prepare a report on the financing of Education's William D. Ford Federal Direct Loan Program (FDLP). To respond to your request, for fiscal years 1995 through 1999 we reviewed Education's audited financial statements and examined the workpapers of Education's Independent Public Accountants. We interviewed knowledgeable personnel from Education's budget office and obtained information relevant to the questions we were asked to answer. We assessed Education's credit subsidy estimation practices against federal accounting and budget standards, including SFFAS No. 2, *Accounting for Direct Loans and Loan Guarantees;* OMB Circular A-11, *Preparation and Submission of Budget Estimates;* and guidance contained in the Federal Financial Accounting and Auditing Technical Release 3, *Preparing and Auditing Direct Loan and Loan Guarantee Subsidies Under the Federal Credit Reform Act.* The scope and methodology for responding to each of the nine questions you asked is discussed as follows.

Question 1

How much financing has been provided to Education for the direct loan program through borrowing from Treasury and appropriations received?

We obtained from Education schedules of borrowings from Treasury, repayments to Treasury, and appropriations received for fiscal years 1995 through 1999. We verified the schedules of Treasury borrowing to data contained in the workpapers of Education's Independent Public Accountant. We obtained schedules of original subsidy estimates and reestimates for fiscal years 1995 through 1999 cohorts. We verified the subsidy appropriations to Education's original documentation, SF132 reports on Apportionment and Reapportionment, and schedule 1151s to return negative subsidy to Treasury.

Question 2

Have cash inflows (excluding borrowings from Treasury and borrower principal repayments) exceeded cash outflows (excluding repayments to Treasury and loan disbursements)?

Data relating to loan origination fees, interest receipts from borrowers, and net interest payment on Treasury borrowings were obtained from the Appendix to the President's Budget for fiscal years 1997 through 2001, which contained actual data for the fiscal years 1995 through 1999. We also verified fiscal years 1995, 1996, and 1997 actual cash flows to Education's statement of cash flows in its financial statements. For fiscal years 1998

and 1999, we verified the actual data to cash collection amounts provided by Education's financial systems.

Question 3

In Education's calculation of its subsidy cost estimates for FDLP, what are the key cash flow assumptions, how sensitive are Education's subsidy costs to changes in these assumptions, and what data are used to support these assumptions?

To gain an understanding of Education's cash flow model, we reviewed Education's model documentation, the workpapers of Education's independent public accountant, and various reports. To identify which of the over 1,900 cash flow assumptions were key cash flow assumptions, we first discussed with Education budget staff what cash flow assumptions they believed were key cash flow assumptions for FDLP based on their prior analyses. Since much of the data used to estimate the cost of FDLP are proxy data from FFELP, we determined what cash flow assumptions were key cash flow assumptions for FFELP based on the independent public accountant's workpapers. Based on our experience with other federal credit programs, we identified other assumptions that we believed may also be key. We then conducted an analysis of FDLP to identify the most significant loan profiles, which includes the loan type, risk category, and repayment option.

To determine how sensitive FDLP's cost was to changes in these key assumptions, we requested that Education budget staff conduct a limited sensitivity analysis of the assumptions they thought might be key as well as the other assumptions we identified. In instructing Education on how to perform the sensitivity analysis, we generally followed the guidance contained in the Federal Financial Accounting and Auditing Technical Release 3, *Preparing and Auditing Direct Loan and Loan Guarantee Subsidies Under the Federal Credit Reform Act*[1] and requested that

[1]The Credit Reform Task Force of the Accounting and Auditing Policy Committee was formed in order to address key issues surrounding the implementation of FCRA and the related federal accounting standard. This task force developed Technical Release 3, which is expected to be formally issued by OMB during fiscal year 2001. The purpose of Technical Release 3 is to provide implementation guidance for agencies and auditors to prepare, utilize, and report on credit subsidy estimates. Technical Release 3 does not take precedence over existing accounting standards and budget guidance. Currently, these standards and guidance do not require agencies to perform a sensitivity analysis; however, Technical Release 3 encourages agencies to perform this analysis.

Education increase and decrease by 10 percent the value of each nontiming related assumption presumed to be key. Because timing assumptions are modeled differently, and should also be adjusted in a systematic manner, we requested that Education increase the amount of the loans in the beginning repayment assumption by 5 percent during the first 5 years to simulate a decrease in the time it took borrowers to repay their loans.

We analyzed the results of the limited sensitivity analysis and determined that any assumption that produced a change of at least 2 percent and $13 million in the estimated cost of any single loan profile tested was a key cash flow assumption. We then met with agency officials to identify the data sources for key cash flow assumptions.

Question 4

How closely do Education's subsidy cost estimates and their underlying assumptions compare to actual loan performance for each loan cohort and to what extent does Education track differences between its subsidy cost estimates and actual loan performance for each loan cohort?

We compared cash flows related to five of the seven key cash flow assumptions identified in question 3 (interest payments, principal payments, default rate, origination fees, and collections on defaulted loans) and obtained estimated and actual cash flow data for fiscal years 1995 through 1999. Due to the nature of direct loan programs, the comparison did not include any analysis of defaults because Education was unable to readily provide comparable data on estimated and actual defaults. The discount rate assumption was not included because it does not directly affect the amount or timing of cash flows. Rather, this assumption is used to estimate the present value of the cash flows. Because the actual cash flow data in Education's financial systems were not totally comparable to data available in the cash flow model (by cohort, key cash flow assumption, and loan profile), Education obtained actual cash flow data on fiscal year totals from its financial systems for its analysis.

For estimated cash flows, original cash flow models from fiscal years 1995 through 1999 were not fully maintained, thus, we used Education's analysis using its current cash flow model and assumptions for each fiscal year beginning with 1995. We verified that the actual cash flow data provided agreed to the amounts reported in Education's budget submissions. We also verified fiscal year 1995, 1996, and 1997 actual cash flows to Education's statement of cash flows in its financial statements. For fiscal years 1998 and 1999, we verified the actual data to cash collection amounts

provided by Education's financial systems. For total cash flows for fiscal years 1995 through 1999, we then compared estimated to actual cash flows to determine the amount of the difference. We met with Education budget staff to determine and request supporting documentation for the causes of these differences. Since supporting documentation was unavailable, we were unable to corroborate Education's explanations for these differences.

Question 5

What effect have reduced loan origination fees had on subsidy costs, and how has Education taken account of these changes in its subsidy cost estimates and reestimates?

To determine the impact of reduced loan origination fees on subsidy costs, we requested that Education calculate the credit subsidy costs for FDLP overall and each of the four loan types with the origination fee equal to 4 percent and 3 percent. We analyzed the results of the calculation and discussed with Education personnel how they accounted for the reduced loan origination fees in subsidy cost estimates and reestimates.

Question 6

What effects have increased consolidations had on subsidy costs, and how has Education taken account of these changes in its subsidy cost estimates and reestimates?

To assess the impact of increased consolidations, we discussed consolidations with Education personnel, including how they work, their history, and how consolidations are modeled in subsidy cost estimates and reestimates. We determined the various factors that could affect how consolidations effect FDLP subsidy costs. Because Education had not performed the detailed analysis necessary to determine the actual effect of consolidations, we were unable to determine the impact of increased consolidations on subsidy costs for FDLP.

Question 7

What effect have declining interest rates had on subsidy costs, and how has Education taken account of these changes in its subsidy cost estimates and reestimates?

Because Education's cash flow model is continually being updated and copies of the model with original assumptions were not fully maintained, it was not possible to determine the precise effect on subsidy costs of changes in interest rates versus other changes. In order to address this

question, we assessed the general impact of declining interest rates by analyzing the effect of declining borrower rates and discount rates. To determine the impact of declining borrower rates and discount rates, we requested that Education calculate subsidy costs for four scenarios. We analyzed the results of these calculations and discussed with Education personnel their procedures for accounting for changes in interest rates in the credit subsidy estimates and reestimates. We compared Education's procedures with the guidance provided in OMB Circular A-11.

Question 8

What are the future prospects for the continued negative subsidy for the Federal Direct Loan Program?

We analyzed the results from several of the other questions to determine what conditions increase or decrease the likelihood for continued negative subsidy of FDLP. We analyzed the effect of fee reductions and increased consolidations from question 6, the impact of interest rates on subsidy cost from question 7, and the result of the sensitivity analysis from question 3.

Question 9

What data did Education use to project an estimated saving of $4 on every $100 of direct student loans, as it reported in November 1999?

We analyzed Education's November 1999 cost study to get a general understanding of the methodology used to develop administrative and subsidy cost estimates for FFELP and FDLP. We interviewed Education personnel to obtain a more detailed understanding of the methodology and data sources used to assign, develop, and project the administrative and subsidy cost estimates. We also reviewed spreadsheets and other documentation prepared by Education to support its findings.

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Glossary

The following is a group of terms commonly used in credit budgeting and accounting. The definitions for many of these terms are equally applicable to loan guarantees. However, since FDLP is a direct loan program, references to loan guarantees have been omitted.

Administrative Expenses

All costs directly related to credit program operations, including: (1) activities related to credit extension, loan servicing, write-off, and closeout; (2) loan systems development and maintenance, including computer costs; (3) all monitoring of credit programs and private lenders for compliance with laws and regulations; (4) the cost of operating separate offices that make policy decisions for credit programs; (5) the cost of collecting delinquent loans; and (6) the proportion of administrative expenses shared with noncredit programs.

Assumptions

Basic beliefs about the future performance of a loan or group of loans. Types of assumptions include the following:

- Cash flow assumptions – all known and/or forecasted information about the characteristics and performance of a loan or group of loans. Examples include estimates of loan maturity, borrower rate, default/delinquency rate, and timing of cash flow events, such as defaults and collections on defaulted loans.
- Model assumptions – determinations of how cash flow assumptions are applied through the life of a cohort of loans. For example, determining whether the entire estimated amount of defaults should be applied in one year or allocated over several years.

Cash Flows

Payments or estimates of payments to or from the government over the life of a loan or group of loans. For direct loans, these may include: loan disbursements, repayments of principal, payments of interest, prepayments, fees, penalties, defaults and collections on defaulted loans.

Cohort

All loans of a program for which a subsidy appropriation is provided for a given fiscal year, even if disbursements occur in subsequent years.

Credit Program Account	A budget account into which an appropriation for the funds to finance a loan program is made and from which funds are disbursed to a financing account for the program.
Discount Rates	The collection of interest rates that are used to calculate the present value of the cash flows that are estimated over a period of years. For the period we reviewed, when calculating the present value of loan subsidy costs, agencies were required to use as the discount rate the average annual interest rate for marketable U.S. Treasury securities with similar maturities to the loan or guarantee.
Financing Account	A nonbudgetary account that collects the payments from a credit program account and borrowings from Treasury. It includes all cash flows to and from the government resulting from loan programs. At least one financing account is associated with each credit program account.
Key Assumptions	Assumptions that have been established, through sensitivity analysis or other means, to be the elements that have a large impact on estimates and thus are the most important factors in determining the cost of a loan or group of loans.
OMB Credit Subsidy Calculator	A computer software program that calculates a subsidy rate based on the present value of agency-generated estimates of cash flows to and from the government. It also calculates the portions of the subsidy cost attributable to defaults, interest, fees, and other subsidy components.
Present Value	The worth of the future stream of returns or costs in terms of money paid immediately. In calculating present value, prevailing interest rates provide the basis for converting future amounts into their "money now" equivalents.
Risk Category	A subdivision of a cohort of loans into groups of loans that are relatively homogeneous in cost, given the facts known at the time of obligation or commitment. Risk categories will group all loans obligated or committed

	for a program during the fiscal year that share characteristics predictive of defaults and other costs.
Reestimates	Revisions of the subsidy cost estimate of a cohort (or risk category) based on information about actual performance of a cohort of loans or estimated changes in future cash flows of the cohort.
Subsidy Cost	The estimated long-term cost to the government of a direct loan, calculated on a net present value basis, excluding administration costs.

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