



Report to the Ranking Member,
Subcommittee on Financial Services
and General Government, Committee
on Appropriations, U.S. Senate

July 2016

CREDIT PROGRAMS

Key Agencies Should Better Document Procedures for Estimating Subsidy Costs

GAO Highlights

Highlights of [GAO-16-269](#), a report to the Ranking Member, Subcommittee on Financial Services and General Government, Committee on Appropriations, U.S. Senate

Why GAO Did This Study

Federal direct loans and loan guarantees outstanding have doubled from \$1.5 trillion as of September 30, 2008, to \$3.0 trillion as of September 30, 2015, as reported in the financial reports of the U.S. government. In light of the growing portfolio of outstanding direct loans and loan guarantees, questions have been raised about how agencies estimate the subsidy cost of credit programs.

GAO was asked to review the process federal agencies use to develop subsidy cost estimates for credit programs. This report examines (1) the key elements federal agencies should consider when developing subsidy cost estimates and (2) the extent to which certain agencies addressed these key elements when estimating the subsidy costs for selected federal credit programs. GAO analyzed budgeting and accounting guidance to identify a list of key elements agencies should consider when estimating subsidy costs and assessed the subsidy cost estimation processes used for three credit programs against these key elements. The three programs were selected based on average loan amounts and/or loan volume.

What GAO Recommends

GAO recommends that HUD and Education develop and document additional procedures related to the subsidy cost estimation process. HUD and Education concurred with GAO's recommendations and described ongoing and planned actions to address them.

View [GAO-16-269](#). For more information, contact Cheryl E. Clark at (202) 512-9377 or clarkce@gao.gov.

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Key Agencies Should Better Document Procedures for Estimating Subsidy Costs

What GAO Found

The Federal Credit Reform Act of 1990 requires agencies to estimate the cost to the government of extending or guaranteeing credit. This cost, referred to as subsidy cost, equals the net present value of estimated cash flows from the government (e.g., loan disbursements and claim payments to lenders) minus estimated cash flows to the government (e.g., loan repayments, interest payments, fees, and recoveries on defaulted loans) over the life of the loan, excluding administrative costs. Agencies use established methods and data to estimate the future costs of a program based on what is known today. Based on budgeting and accounting guidance, GAO determined that agencies' estimation processes should include various key elements to help ensure that estimates are supported, reliable, and reasonable. For example, agency management should compare estimated and actual cash flows to identify potential trends. The figure below lists the key elements GAO identified based on relevance to creating credible cost estimates.

To assess how agencies addressed these key elements in their subsidy cost estimation processes, GAO assessed (1) the Department of Agriculture's (USDA) Export Credit Guarantee (GSM-102) Program, (2) the Department of Housing and Urban Development's (HUD) Mutual Mortgage Insurance Fund, and (3) the Department of Education's (Education) William D. Ford Federal Direct Loan Program (Direct Student Loan Program). GAO found that these agencies varied in their implementation of these key elements, as shown below.

Key Elements of the Subsidy Cost Estimation Process

Key elements	Export Credit Guarantee Program (Department of Agriculture)	Mutual Mortgage Insurance Fund (Department of Housing and Urban Development)	Direct Student Loan Program (Department of Education)
Historical data	✓	✓	✓
Informed opinion	✓	✓	✗
Cash flow assumption documentation	✓	✓	✓
Cash flow model documentation	✓	✓	✓
Program design	✓	✓	✗
Analysis of estimated cash flows	✓	✓	✓
Sensitivity analysis	✓	✗	✓
Policies and procedures for estimating subsidy costs	✓	✗	✗
	✓ Agency designed and documented procedures to consider this key element	✓ Agency considered this key element, but documentation was incomplete	✗ Agency was unable to provide documentation to address this key element

Source: GAO analysis of the agencies' consideration of key elements of the estimation process for the programs we reviewed. | GAO-16-269

While USDA documented the key elements of the estimation process for the GSM-102 program, HUD and Education lacked policies and procedures and adequate documentation for certain other key elements. Until these key elements are fully addressed, HUD and Education have increased the risk that institutional knowledge used in the estimation process may be lost and estimates may not be supported, reliable, and reasonable.

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Abbreviations

AAPC	Accounting and Auditing Policy Committee
CCC	Commodity Credit Corporation
Education	Department of Education
FASAB	Federal Accounting Standards Advisory Board
FCRA	Federal Credit Reform Act of 1990
FHA	Federal Housing Administration
GSM-102	Export Credit Guarantee Program
HUD	Department of Housing and Urban Development
ICRAS	Interagency Country Risk Assessment System
MMI	Mutual Mortgage Insurance
NSLDS	National Student Loan Data System
OMB	Office of Management and Budget
SFFAS	Statement of Federal Financial Accounting Standards
SBA	Small Business Administration
USDA	Department of Agriculture
VA	Department of Veterans Affairs

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July 13, 2016

The Honorable Christopher A. Coons
Ranking Member
Subcommittee on Financial Services and General Government
Committee on Appropriations
United States Senate

Dear Senator Coons:

The federal government uses credit programs that provide direct loans and loan guarantees as tools to support specific social and public policy objectives, such as those for housing, education, and small businesses. The amount of federal credit outstanding has doubled from approximately \$1.5 trillion as of September 30, 2008, to approximately \$3.0 trillion as of September 30, 2015.¹ Federal agencies that provide credit are generally required to annually estimate the net long-term cost to the government of extending or guaranteeing credit—referred to as subsidy cost—for each credit program.² These estimated subsidy costs are reported in agencies' annual budgets and financial statements. Agencies use established methods and data to estimate the future costs of a program based on what is known today. The management of a cost estimate involves updating the estimate with actual data as they become available, revising the estimate to reflect program changes, and analyzing differences between estimated and actual costs to identify any needed revisions to the estimation process. Reliable cost estimates are needed for the management and budgeting of credit programs and to support congressional oversight.

In light of the growing portfolio of outstanding direct loans and loan guarantees, you asked us to examine the budgetary treatment of the cost

¹These amounts were reported in the fiscal years 2008 and 2015 *Financial Report of the U.S. Government*. See GAO, *Financial Audit: U.S. Government's Fiscal Years 2015 and 2014 Consolidated Financial Statements*, [GAO-16-357R](#) (Washington, D.C.: Feb. 25, 2016). Also see Department of the Treasury, *2008 Financial Report of the U.S. Government* (Washington, D.C.: December 2008).

²This net long-term cost is calculated on a present value basis and excludes administrative costs.

of federal credit programs and how federal agencies estimate subsidy costs for credit programs. We have addressed these issues in two reports. In January 2016, we issued a report that (1) analyzed government-wide subsidy cost reestimates for direct loans and loan guarantees approved from fiscal years 2001 through 2014 and (2) explained implications of estimating credit program costs for the budget under the fair value approach³ rather than the current method under the Federal Credit Reform Act of 1990 (FCRA)⁴ for calculating subsidy costs.⁵ This report (1) describes the key elements federal agencies should consider when developing subsidy cost estimates based on relevant guidance and (2) evaluates the extent to which certain agencies addressed these key elements when estimating subsidy costs for selected federal credit programs.

For this report, we reviewed budgeting guidance, accounting standards and principles, and publications of best practices to identify a list of key elements that federal agencies should consider when developing and managing subsidy cost estimates. We determined the key elements based on their relevance to creating credible cost estimates. We used this list of key elements to assess the extent to which (1) the Department of Agriculture's (USDA) Commodity Credit Corporation (CCC) Export Credit Guarantee (GSM-102) Program, (2) the Department of Housing and Urban Development's (HUD) Federal Housing Administration's (FHA) Mutual Mortgage Insurance (MMI) Fund,⁶ and (3) the Department of

³The proposed fair value approach centers around the debate that beyond the cash flows associated with a direct loan or loan guarantee, which are recognized under the Federal Credit Reform Act of 1990, costs are imposed on taxpayers who would, in a similarly risky private market transaction, require compensation for bearing the aggregate risk associated with making the loan.

⁴Pub. L. No. 101-508, § 13201(a), 104 Stat. 1388, 1388-609 (Nov. 5, 1990), *classified, as amended*, at 2 U.S.C. §§ 661-661f.

⁵GAO, *Credit Reform: Current Method to Estimate Credit Subsidy Costs Is More Appropriate for Budget Estimates Than a Fair Value Approach*, [GAO-16-41](#) (Washington, D.C.: Jan. 29, 2016).

⁶FHA offers mortgage insurance through its MMI Fund. Mortgage insurance or guarantees are available to eligible home buyers. They protect the lender or other mortgage holder, because the federal government commits to pay part or all of a loan's outstanding principal and interest to a lender or other mortgage holder if the borrower defaults. Because "insurance" and "guarantee" have the same meaning in the context of our review, we use guarantee throughout this report when referring to the MMI Fund.

Education's (Education) William D. Ford Federal Direct Loan Program (Direct Student Loan Program) addressed these elements in estimating the subsidy costs for the selected credit programs. We selected the Direct Student Loan Program and the MMI Fund because these programs represent the largest federal direct loan and loan guarantee programs, respectively. These two programs can be characterized as having a high volume of loans with relatively lower average loan amounts compared to other federal credit programs. To include a different type of credit program in our evaluation, we also selected the GSM-102 program, which can be characterized as having a lower volume of loans and larger average loan amounts. For these three programs, we evaluated the processes used by CCC, FHA, and Education to develop subsidy cost estimates and compared those processes to our list of key elements agencies should consider. We did not evaluate the reasonableness of subsidy cost estimates, reestimates, or the data and assumptions used to calculate them. See appendix I for additional details on our scope and methodology.

We conducted this performance audit from June 2014 to July 2016 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

Federal credit programs provide assistance to borrowers through two principal methods: direct loans and loan guarantees. Direct loans are a disbursement of funds by the government to a nonfederal borrower under a contract that requires the repayment of such funds with or without interest. Loan guarantees are any guarantees, insurance, or other pledges with respect to the payment of all or a part of the principal or

interest on any debt obligation of a nonfederal borrower to a nonfederal lender.⁷

As of September 30, 2015, 21 federal agencies reported that they had direct loans or loan guarantees outstanding. As shown in figure 1, Education (largely through its Direct Student Loan Program) and HUD (largely through its single-family mortgage guarantee program or the MMI Fund) held the largest share of federal direct loans and loan guarantees outstanding, respectively.

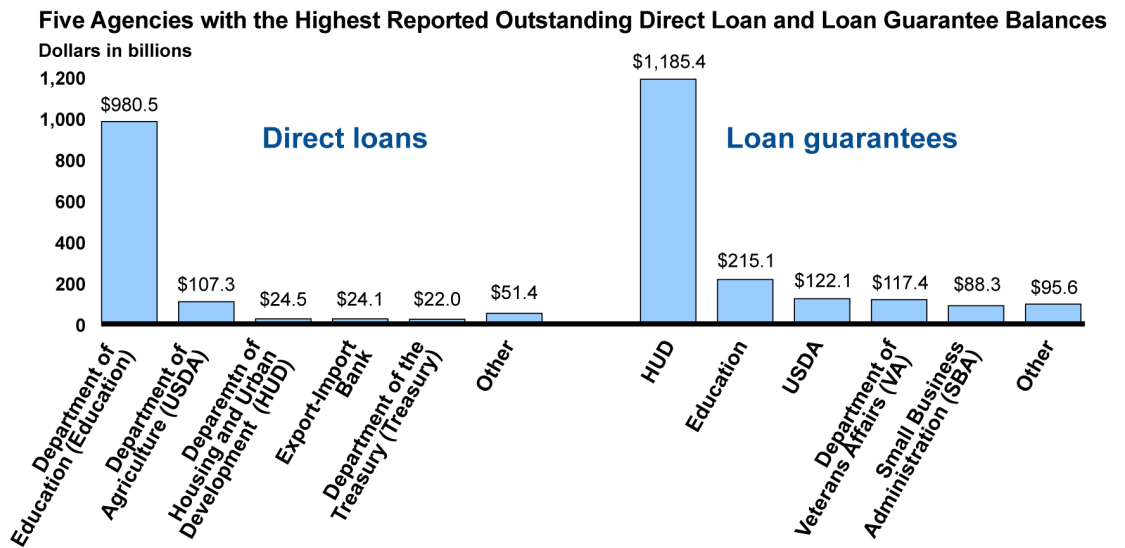
⁷Loan guarantees do not include the insurance of deposits, shares, or other withdrawable accounts in financial institutions. Further, the credit and insurance activities of the Federal Deposit Insurance Corporation, National Credit Union Administration, Pension Benefit Guaranty Corporation, National Flood Insurance, National Insurance Development Fund, Crop Insurance, and Tennessee Valley Authority are statutorily exempted from FCRA and are therefore not considered “credit programs” for budgetary purposes. 2 U.S.C. § 661e(a).

Figure 1: Agencies with the Highest Direct Loans and Loan Guarantees Outstanding as of September 30, 2015, and Types of Credit Programs

The federal government uses credit programs to achieve policy objectives such as assistance for housing, farming, education, small businesses, and U.S. exports. Federal credit programs consist of both direct loans and loan guarantees.

The total reported value of direct loans outstanding was **\$1,210 billion**.

The total reported value of loan guarantees outstanding was **\$1,824 billion**.



Credit programs can be broadly classified into the following categories:

Category	Objective	Examples
Housing	Promotes homeownership and housing among low- and moderate-income people, veterans, rural residents, and others	Rural Housing Service (USDA), Mutual Mortgage Insurance Fund (HUD), VA Home Loan Program (VA)
Education	Provides financing to assist students in obtaining vocational, undergraduate, and graduate schooling	William D. Ford Federal Direct Loan Program (Education)
Energy, transportation, and infrastructure	Promotes clean energy and infrastructure development through various credit programs	Title 17 Loan Guarantees (Department of Energy), Water and Waste Disposal Loans (USDA), Rural Utilities Service programs (USDA)
Small business and agriculture	Provides direct loans and loan guarantees to small businesses and farmers, who may have difficulty obtaining credit elsewhere	7(a) Loan Guarantee Program (SBA), Farm Operating Program (USDA)
International	Promotes programs intended to assist U.S. exporters, stabilize international financial markets, and promote sustainable development	Export-Import Bank programs, Export Credit Guarantee (GSM-102) Program (USDA)
Other	Includes credit programs that do not fall into one of the above categories	Troubled Asset Relief Program (Treasury), Disaster Assistance Loans (SBA)

Source: GAO analysis of data from the Office of Management and Budget and the Department of the Treasury. | GAO-16-269

The Federal Credit Reform Act of 1990

Twenty-five years ago, the enactment of FCRA changed the method used to budget for the cost of federal credit programs. Before fiscal year 1992, when FCRA took effect, the cost of credit programs was recorded in the budget on a cash basis (the expected amount of cash paid out minus the cash received in a given year). As a result, the budget cost associated with a loan guarantee was not recorded until a default occurred, which may have been many years after the guarantee was made. Further, direct loans appeared to cost the same as grants because the total amount of a loan was recorded as a cost when the loan was made and loan repayments were not recorded until the year received. Both were inaccurate and provided policymakers with distorted information for comparing credit programs to noncredit programs and to each other. This also created a bias in favor of loan guarantees over direct loans because loan guarantees appeared to be less expensive than direct loans, regardless of the actual lifetime cost to the government.

FCRA was enacted with the intent of improving the accuracy of the cost of federal credit programs reported in the budget by requiring agencies to measure the government's net long-term cost of federal credit programs to permit better cost comparisons both among credit programs and between credit and noncredit programs. The policies enacted under FCRA, sometimes referred to simply as credit reform, recognized that the actual cost of a direct loan or loan guarantee is not captured by its cash flows in any one year, but rather is the net present value—worth in terms of money paid immediately—of its cash flows over the life of the loan.⁸ Therefore, FCRA specified an approach using estimates of expected cash flows, including future loan repayments and defaults as elements of the cost to be recorded in the budget.

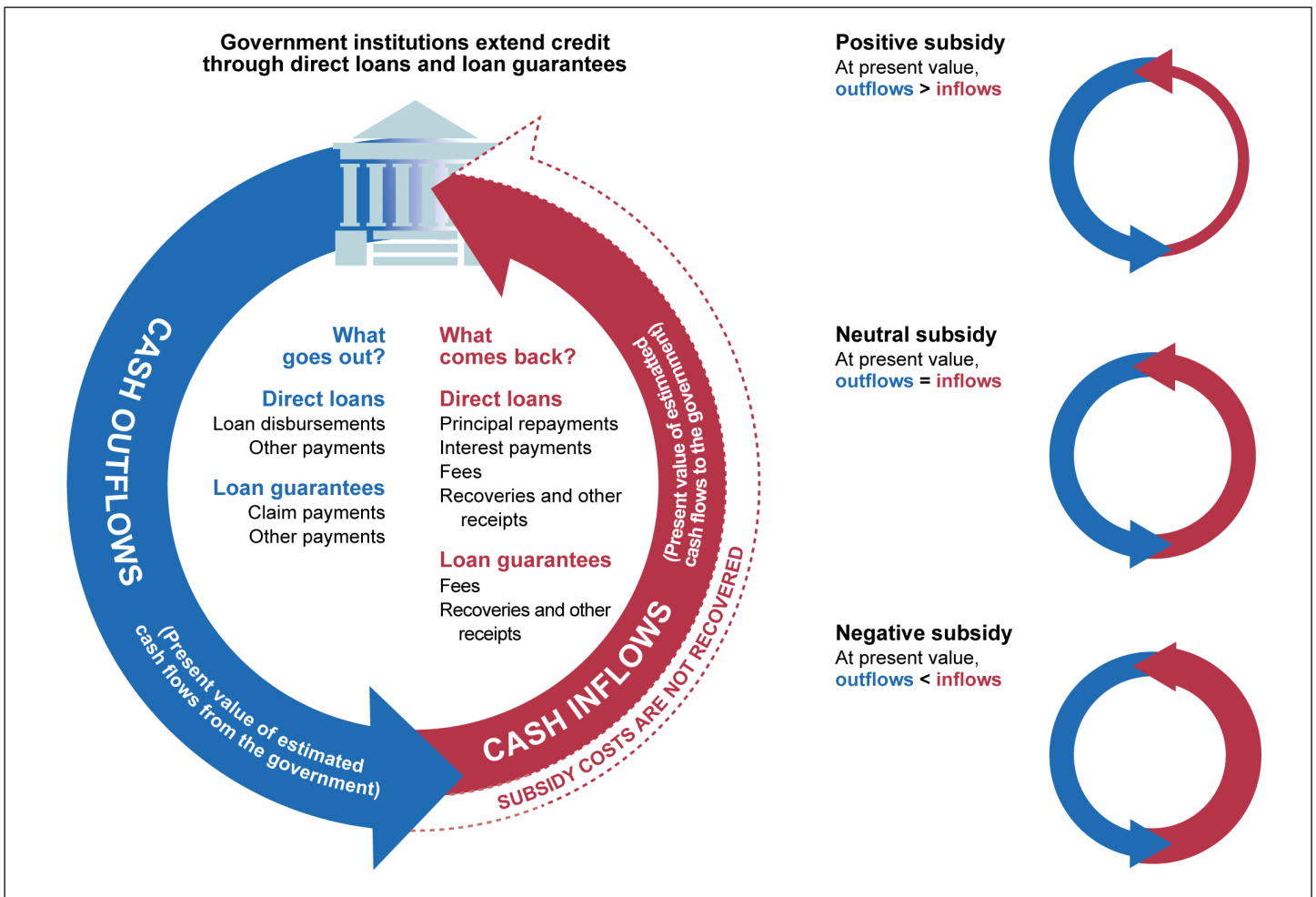
Subsidy Cost Estimates and Reestimates

FCRA requires agencies to estimate the net long-term cost to the government of extending or guaranteeing credit. This cost, referred to as subsidy cost, equals the net present value of estimated cash flows from the government minus estimated cash flows to the government, over the life of the loan and excluding administrative costs. This approach puts

⁸The present value of a stream of future returns or costs is its worth in terms of money paid immediately. In calculating present value under FCRA, prevailing interest rates on U.S. Treasury securities provide the basis for converting future amounts into their "money now" equivalents.

direct loans and loan guarantees on an equal footing in terms of cost in the federal budget and permits the costs of credit programs to be compared with each other and with the costs of noncredit programs. Figure 2 illustrates the types of cash flows that affect the subsidy costs for direct loans and loan guarantees. If the present value of estimated cash outflows exceeds cash inflows, there is a subsidy cost. If the present value of estimated cash inflows exceeds cash outflows, there is a negative subsidy cost, referred to as subsidy income.

Figure 2: Calculation of Subsidy Costs for Direct Loans and Loan Guarantees



Source: GAO. | GAO-16-269

The subsidy cost represents the net present value cost of making or guaranteeing new loans and is included in the President's Budget for the year the direct loan or loan guarantee is made. FCRA requires that agencies have budget authority to cover a program's subsidy cost to the government in advance—before new direct loan obligations are incurred and new loan guarantee commitments are made. The data used for budgetary subsidy cost estimates are generally updated—or reestimated—annually after the end of the fiscal year to reflect actual loan performance and to incorporate any changes in assumptions about future loan performance. Reestimates that increase subsidy costs are referred to as upward reestimates (an agency would need additional funds), while reestimates that decrease subsidy costs are referred to as downward reestimates (an agency would return funds). Agencies do not need to request additional appropriations to cover upward reestimates because FCRA provides permanent indefinite budget authority for this purpose.⁹

Agencies Use Cash Flow Models to Estimate Subsidy Costs

To implement FCRA and calculate subsidy costs, agencies estimate the expected cash outflows and inflows over the life of the loans for each cohort of direct loans obligated or loan guarantees committed in the cohort year.¹⁰ The efforts to make reasonable subsidy cost estimates begin with establishing and using reliable records of historical credit performance data and taking into consideration current and forecasted economic conditions. Agency management is responsible for accumulating relevant, sufficient, and reliable data on which to base the estimates. Further, according to the primary accounting standard for direct loans and loan guarantees, subsidy cost estimates should be based on a systematic methodology to project expected cash flows into the future.¹¹ To accomplish this task, an agency develops a cash flow model, which is a mathematical model that generally uses historical information and various assumptions related to future loan performance,

⁹Permanent indefinite budget authority is available for obligation and expenditure without fiscal year limitation and is not limited to a specified amount or ceiling.

¹⁰Cohort refers to the fiscal year of obligation for direct loan obligations or loan guarantee commitments of a program.

¹¹The primary accounting standard for federal credit programs is Statement of Federal Financial Accounting Standards No. 2, *Accounting for Direct Loans and Loan Guarantees*, which became effective in fiscal year 1994.

including loan repayments, prepayments, defaults, recoveries, and the timing of these events. Such a cash flow model, which is based on sound economic, financial, and statistical theory, identifies factors that affect loan performance. In addition to using historical data, other relevant factors may be considered by agencies when estimating future loan performance. These factors may include (1) economic conditions that may affect loan performance, (2) financial and other relevant characteristics of borrowers, (3) the value of the collateral to loan balance, (4) changes in recoverable value of collateral, and (5) newly developed events that would affect loan performance. In addition, 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, as well as informed opinion.¹² Various budgeting and accounting guidance related to estimating subsidy costs requires agencies to establish internal controls over the calculations, including establishing and documenting policies and procedures and maintaining supporting documentation for subsidy cost estimates.

Key Elements Agencies Should Consider When Preparing Subsidy Cost Estimates

Agencies develop subsidy cost estimates based on relevant budgeting and accounting guidance. FCRA assigned to the Office of Management and Budget (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 OMB's written guidelines. These guidelines are primarily contained in OMB Circular No. A-11, *Preparation, Submission, and Execution of the Budget*. Further, the Federal Accounting Standards Advisory Board (FASAB) developed the primary accounting standard for federal credit programs, Statement of Federal Financial Accounting Standards (SFFAS) No. 2, *Accounting for Direct Loans and Loan Guarantees*, which became effective in fiscal year 1994. This standard established financial accounting guidance consistent with FCRA for estimating the cost of direct loan and loan guarantee programs, and for recording direct loans receivable and the liability for loan guarantees for financial reporting purposes.

¹²Informed opinion refers to the judgment of agency staff or others who make subsidy cost estimates based on their programmatic knowledge, experience, or both without using a fully satisfactory database of historical data.

While OMB Circular No. A-11 and SFFAS No. 2 provide general guidance for agencies to develop subsidy cost estimates, detailed guidance on the preparation of subsidy cost estimates is contained in FASAB's Accounting and Auditing Policy Committee's Technical Release 6 *Preparing Estimates for Direct Loan and Loan Guarantee Subsidies under the Federal Credit Reform Act*.¹³ This technical release provides detailed guidance and specific practices that if fully implemented by federal agencies, should enhance their ability to reasonably estimate credit program costs. In addition, GAO's *Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs* provides detailed guidance on developing cost estimates.¹⁴ We identified the following practices discussed in Technical Release 6 and the cost estimating guide as the key elements of the subsidy cost estimation process based on relevance to creating credible cost estimates:¹⁵

- **Historical data validation:** Management should accumulate sufficient, relevant, and reliable supporting data on which to base cash flow projections, such as data on prepayments, defaults, and recoveries. Subsidy cost estimates should be based on the best available data at the time the estimates are made.
- **Informed opinion documentation:** In certain limited instances, when relevant historical data, modeling capabilities, or both are not available, informed opinion may be used to support cash flow projections. When informed opinion is used, management should document the expert's qualifications. In addition, the basis for the stated opinion must be articulated and documented in detail, including

¹³The Accounting and Auditing Policy Committee (AAPC) was organized in May 1997 by the Department of the Treasury, OMB, GAO, the Chief Financial Officers' Council, and the President's Council on Integrity and Efficiency, as a body to research accounting and auditing issues requiring guidance. The AAPC serves as a permanent committee sponsored by FASAB. The mission of the AAPC is to assist the federal government in improving financial reporting through the timely identification, discussion, and recommendation of solutions to accounting and auditing issues as they relate to the specific application of existing authoritative literature.

¹⁴GAO, *Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, [GAO-09-3SP](#) (Washington, D.C.: March 2009).

¹⁵Technical Release 6 contains other practices of a technical nature that we did not include in this discussion.

an explanation for why the particular projection is appropriate for the program.

- **Cash flow assumption documentation:** Documentation must be developed to support the assumptions used by agencies in the subsidy cost calculations, including the data sources and calculation methods. Assumptions should also be coordinated between program and accounting offices.
- **Cash flow model documentation:** Management should ensure that its cash flow models used to estimate subsidy cost estimates are well organized; documented; and, to reduce the chance of errors, require minimal manual data entry. Documentation should include the rationale for using the specific model; the mechanics of the model, including how to use and update the model and formulas and other mathematical functions within the model; and sources of supporting data. Management should also document the controls over the model, including management review and approval of the model. Often, because of the complexity of cash flow models, management will hire a private firm to conduct an independent verification and validation of the model, which entails ensuring that the model's calculations are accurate and consistent with the model documentation.
- **Program design comparison:** Based on the laws and regulations that govern the credit program, management should document a comparison of the cash flow model and assumptions to relevant program design factors, such as fees, grace periods, and maximum loan amounts. This documentation will help management ensure that credit subsidy estimates are prepared consistent with the terms and conditions of the program.
- **Analysis of estimated cash flows:** Management should conduct periodic comparisons of estimated loan performance to actual cash flows in the accounting system. This comparison allows agencies to identify and research significant differences and determine whether the cash flow model or assumptions related to expected future loan performance need to be revised. Further, if management identifies consistent trends in under- or overestimates of subsidy costs, such trends should be investigated and explained.
- **Sensitivity analysis:** Management should perform sensitivity analyses to identify which cash flow assumptions—such as defaults, recoveries, or prepayments—have the greatest impact on the cost of the credit program. Knowledge of these key assumptions provides management with the ability to monitor the economic trends that most affect the program's performance. These analyses also allow

agencies to more efficiently focus their efforts on documenting the support for the key assumptions.

- **Policies and procedures for estimating subsidy costs:** Management should establish and document policies and procedures for calculating subsidy cost estimates, including required supporting documentation and a formal review and approval process. In addition, preparing reliable and timely direct loan and loan guarantee subsidy cost estimates must be a joint effort between the budget, accounting, and program offices at each agency. These offices should work together to ensure that the procedures and internal controls are implemented and operating as designed. Further, documented policies and procedures are important internal controls that are designed to help ensure continuity when there is employee turnover and to calculate reliable, reasonable, and well-supported cost estimates.

In addition, *Standards for Internal Control in the Federal Government* requires controls and transactions to be clearly documented and documentation to be readily available for examination.¹⁶ Documentation is necessary and required to demonstrate the design, implementation, and operating effectiveness of an entity's internal control system. Documentation also provides a means to retain organizational knowledge and mitigate the risk of having knowledge limited to a few personnel, as well as a means to communicate as needed to external parties, such as external auditors. Further, in implementing internal controls, management is responsible for developing the detailed policies, procedures, and practices to fit their agency's operations and to ensure that they are built into and an integral part of operations.

¹⁶GAO, *Standards for Internal Control in the Federal Government*, [GAO/AIMD-00-21.3.1](#) (Washington, D.C.: November 1999), contains the internal control standards to be followed by executive agencies in establishing and maintaining systems of internal control as required by 31 U.S.C. § 3512 (c), (d) (commonly referred to as the Federal Managers' Financial Integrity Act). The *Standards for Internal Control in the Federal Government* was revised in September 2014 and the controls are effective beginning with fiscal year 2016. Our report addresses subsidy cost estimation processes in place at the agencies we reviewed prior to fiscal year 2016; therefore, we reference the November 1999 version of the *Standards for Internal Control in the Federal Government* throughout our report.

**Agencies Addressed
Several Key
Elements in Their
Subsidy Cost
Estimation
Processes, but FHA
and Education
Lacked Adequate
Documentation
Supporting Certain
Processes**

Based on our review of the subsidy cost estimation processes for USDA's Credit Commodity Corporation's (CCC) Export Credit Guarantee (GSM-102) Program, HUD's Federal Housing Administration's (FHA) Mutual Mortgage Insurance (MMI) Fund, and Education's William D. Ford Federal Direct Loan Program (Direct Student Loan Program), we determined that while CCC addressed all key elements of the estimation process, FHA and Education lacked comprehensive documented policies and procedures for determining subsidy cost estimates and did not maintain adequate documentation supporting their implementation of other key elements of the estimation process. Figure 3 illustrates the key elements of the estimation process and the extent to which agencies addressed these key elements for the programs we reviewed.

Figure 3: Key Elements of the Credit Subsidy Estimation Process for Selected Programs

Key elements	Export Credit Guarantee Program (Department of Agriculture)	Mutual Mortgage Insurance Fund (Department of Housing and Urban Development)	Direct Student Loan Program (Department of Education)
Historical data validation	✓	✓	⋯
Informed opinion documentation	✓	✓	✗
Cash flow assumption documentation	✓	✓	⋯
Cash flow model documentation	✓	✓	⋯
Program design comparison	✓	⋯	✗
Analysis of estimated cash flows	✓	✓	⋯
Sensitivity analysis	✓	✗	⋯
Policies and procedures for estimating subsidy costs	✓	✗	✗

✓ Agency designed and documented procedures to address this key element
 ⋯ Agency addressed this key element, but documentation was incomplete
 ✗ Agency was unable to provide documentation to address this key element

Source: GAO analysis of the agencies' consideration of key elements of the estimation process for the programs GAO reviewed. | GAO-16-269

CCC Documented the Key Elements in Preparing Subsidy Cost Estimates for the GSM-102 Program

Department of Agriculture (USDA), Commodity Credit Corporation (CCC), Export Credit Guarantee (GSM-102) Program

The CCC GSM-102 program was developed to expand market opportunities for U.S. agricultural exporters and to assist long-term market development for U.S. agricultural commodity exports. Through the use of export credit guarantees, CCC encourages U.S. private sector financing of foreign purchases of U.S. agricultural commodities on credit terms. The export credit guarantee issued under the GSM-102 program is an agreement by CCC to pay the exporter or the U.S. financial institution specified amounts of principal and interest in case of default by the foreign financial institution for the export sale covered by the export credit guarantee. Under the GSM-102 program, maximum repayment terms may vary based on risk of default, as determined by CCC. The program operates in a manner intended not to interfere with markets for cash sales and is targeted toward those countries that have sufficient financial strength so that foreign exchange will be available for scheduled payments.

Source: USDA. | GAO-16-269

CCC designed and documented procedures for each of the key elements in its subsidy cost estimation process for the GSM-102 program. The GSM-102 program is intended to promote exports of U.S. agricultural commodities by providing export credit guarantees. As of fiscal year 2015, CCC's GSM-102 program had approximately \$2.9 billion in outstanding loan guarantees. In the event that CCC pays a claim under the loan guarantee program, CCC assumes the debt and treats it as a loan receivable for accounting and collection purposes. As of fiscal year 2015, the GSM-102 program had approximately \$682 million of outstanding loans receivable.

To estimate the subsidy cost of the GSM-102 program, CCC developed an econometric cash flow model that utilizes foreign economic indicators that influence loan performance, including commitment amounts, upfront fees, claim payments, write-offs, recoveries, and rescheduling. Most of the key elements of the subsidy cost estimation process for the GSM-102 program were documented by CCC in one of three documents: (1) standard operating procedures, (2) cash flow model documentation, and (3) a cash flow model user guide. Table 1 describes the design and documentation of the subsidy cost estimation process for CCC's GSM-102 program in relation to the key elements we identified.

Table 1: Assessment of CCC's GSM-102 Program Subsidy Cost Estimation Process against Key Elements

Key element	Designed procedures
Historical data validation	The Commodity Credit Corporation (CCC) documented its standard operating procedures for the Export Credit Guarantee (GSM-102) Program's credit subsidy estimation process that call for acquiring and validating source data, including importing reliable historical data from its general ledger. Historical data used in the credit subsidy estimation process include loan performance data starting with the 1992 cohort year.
Informed opinion documentation	CCC's credit subsidy estimation process relies partly on the expert knowledge of a contractor for model development and changes. This contractor also helped develop the GSM-102 cash flow model documentation. The GSM-102 documentation for the subsidy cost estimation process states that the Department of Agriculture's Economic Research Service provides historical and forecasted data related to borrower country exchange rate growth and gross domestic product that are used in the GSM-102 cash flow model.

Cash flow assumption documentation	The significant cash flow assumptions used in the GSM-102 cash flow model are default rate; recovery rate; exchange rate growth; gross domestic product; and Interagency Country Risk Assessment System ratings, or ICRAS, which is an interagency process through which the credit risk associated with U.S. credit assistance to foreign countries is assessed periodically. The data source and design for each of these assumptions was documented and approved by management.
Cash flow model documentation	CCC's cash flow model documentation includes procedures related to the methodology for forecasting defaults and recoveries, as well as other estimated cash flows associated with the GSM-102 program. CCC also developed a user's guide for the GSM-102 cash flow model, which includes guides for executing the cash flow model, detailed technical requirements for updating the cash flow model, and updating model inputs. CCC also has documented procedures to perform an independent verification and validation of the model whenever significant changes occur.
Program design comparison	CCC's documented procedures call for the GSM-102 cash flow model to be revised when changes are required, including those driven by changes in program regulations. These procedures help ensure that the rationale for cash flow model changes will be documented, reviewed, appropriately implemented, and approved.
Analysis of estimated cash flows	CCC's documented procedures state that if the GSM-102 program's reestimates exceed a certain threshold, further research, such as trend analysis, is required to be performed and explained.
Sensitivity analysis	CCC documented its procedures to conduct sensitivity analysis on assumptions in the GSM-102 cash flow model. The procedures were developed to assist in identifying the assumptions that have the greatest impact on the subsidy cost. CCC's sensitivity analysis includes an assessment of the default rate, recovery rate, exchange rate growth, gross domestic product, and ICRAS ratings.
Policies and procedures for estimating subsidy costs	CCC developed standard operating procedures, cash flow model documentation, and a cash flow model user guide for subsidy cost estimates for the GSM-102 program. These procedures document steps for, among other things, preparing reestimates, acquiring and validating source data, running the cash flow model, formatting and validating cash flow outputs, review and approval of results, and analysis of the GSM-102 cash flow model outputs.

Source: GAO analysis of CCC documentation. | GAO-16-269

We reviewed the supporting documentation that CCC provided related to the key elements of the subsidy cost estimation process and found that CCC adequately addressed the key elements. Adequately addressing the key elements helps an agency ensure that subsidy cost estimates are supported, reliable, and reasonable.

FHA Addressed Several Key Elements in Preparing Subsidy Cost Estimates for the MMI Fund; However, Documentation Was Incomplete

Department of Housing and Urban Development (HUD), Federal Housing Administration (FHA), Mutual Mortgage Insurance (MMI) Fund

FHA has played a particularly large role among minority, lower-income, and first-time homebuyers and promotes stability in the market by providing mortgage insurance in areas that may be underserved by the private sector or are experiencing economic downturns. Homebuyers may obtain FHA-insured mortgages from FHA-approved lenders to purchase new or existing properties with one to four housing units (including condominium units) with low down payments or to refinance existing debt on such properties. HUD insures loans made by private financial institutions. By insuring lenders against loss, FHA encourages them to invest capital in the home mortgage market. In addition to these typical loans, FHA also insures single-family reverse mortgages. Reverse mortgages permit persons 62 years and older the ability to convert some of the equity in their primary residences into monthly streams of income or lines of credit.

Source: HUD. | GAO-16-269

FHA addressed several key elements of the subsidy cost estimation process for the MMI Fund, evidenced by documentation of its cash flow model and assumptions. However, it lacked documented policies and procedures over the subsidy cost estimation process and documentation of other key elements of the process. FHA through the MMI Fund insures private lenders against losses from defaults on single-family forward mortgages that meet FHA criteria.¹⁷ As of September 30, 2015, FHA had approximately \$1.1 trillion in forward mortgage loan guarantees outstanding.

To estimate the subsidy cost of the MMI Fund, the federal government's largest loan guarantee program, FHA developed an econometric cash flow model that is sensitive to, among other things, house price appreciation and unemployment rates, which affect estimates associated with borrower repayments or default. The cash flow model has four modules that forecast (1) the size of future loan cohorts, (2) loan performance, (3) the impact of loss mitigation efforts, and (4) the severity of losses for loans that are expected to result in insurance claims.¹⁸ As its final output, the cash flow model produces the expected nominal future cash flows, including insurance premiums, refunds, claim payments, and recoveries using inputs from the four modules. Table 2 describes the design and documentation of the subsidy cost estimation process for FHA's MMI Fund in relation to the key elements we identified.

¹⁷For this report, we are focusing on the process used to estimate the subsidy cost of the MMI-insured single-family forward mortgages. With forward mortgages, the borrower's monthly loan payments to the lender add to the borrower's home equity and decrease the loan balance. FHA also insures reverse mortgages that permit persons 62 years and older to convert their home equity into cash advances.

¹⁸When home buyers fall behind on their mortgage obligations, FHA instructs mortgage servicers (typically large financial institutions) to assist the home buyers in bringing their mortgage payments current because foreclosure proceedings can impose high costs on financial institutions and homeowners. These efforts are referred to as loss mitigation.

Table 2: Assessment of FHA’s MMI Fund Subsidy Cost Estimation Process against Key Elements

Key element	Designed procedures
Historical data validation	The Federal Housing Administration’s (FHA) documentation explains that the Mutual Mortgage Insurance (MMI) Fund subsidy cost estimation process includes the use of historical loan-level data, dating back to 1975, from FHA for approximately 29 million loans. The historical data from FHA include underwriting information, origination dates, losses, and the current status of insured loans. Historical economic data include information on house price appreciation, unemployment rates, and interest rates. FHA also uses historical data related to overall mortgage market volume as reported by the Mortgage Bankers Association.
Informed opinion documentation	FHA’s subsidy cost estimation process relies partly on the expert knowledge of a contractor for model development and changes. This contractor also developed the MMI Fund’s cash flow model documentation. FHA’s cash flow model documentation describes several economic assumptions used in the MMI Fund subsidy cost estimation process that are provided by outside parties. For example, FHA uses home price appreciation information provided by the Federal Housing Finance Agency and regional home price information from a vendor.
Cash flow assumption documentation	Documentation of FHA’s cash flow assumptions includes information on data sources and calculation methods. Assumptions are calculated based on loan-level data for borrower characteristics (such as credit score), underwriting characteristics (such as loan purpose, first-time home buyer status, and loan-to-value ratio), and performance characteristics (such as delinquency and termination status). Forecasts of economic assumptions used in the cash flow model include house price indexes, interest rates, and fixed-rate mortgage commitment rates, which are obtained from the President’s economic assumptions.
Cash flow model documentation	FHA’s cash flow model documentation includes detailed descriptions of the model’s four modules related to (1) volume demand, (2) loan performance, (3) loss mitigation, and (4) loss severity, as well as the process to compile the final output of overall expected cash flows. For each module, the documentation includes procedures for executing, mathematical calculations, and assumptions or data used. The documentation also includes numerous comparisons, validations, and calculations to illustrate the validity of the cash flow model’s estimates.
Program design comparison	FHA’s cash flow model documentation includes references to a number of program rules that affect projected cash flows, such as premium rates; however, management was unable to provide documentation of its method to help ensure that subsidy cost estimates of the MMI Fund are developed consistent with the terms and conditions of the program.
Analysis of estimated cash flows	FHA’s cash flow model documentation includes multiple comparisons of estimated to actual to cash flows. These comparisons are provided to support the analysis of various assumptions, including refinance market share, non-claim terminations, 90-day delinquencies, and persistently delinquent loans.
Sensitivity analysis	FHA officials were unable to provide documentation of sensitivity analysis to identify the key cash flow assumptions that significantly affect the estimated cost of insuring loans under the MMI Fund.
Policies and procedures for estimating subsidy costs	FHA officials were unable to provide documentation of overall policies and procedures or internal controls over the subsidy cost estimation process.

Source: GAO analysis of FHA documentation. | GAO-16-269

We reviewed the supporting documentation that FHA provided related to its subsidy cost estimates for the MMI Fund and found that while FHA addressed several key elements of the subsidy cost estimation process, it lacked documentation for three key elements that would help ensure proper implementation of its processes. Specifically, as noted in table 2, we found that FHA did not have comprehensive, documented, and approved policies and procedures over the subsidy cost estimation process. We also found that FHA did not (1) fully document procedures to help ensure that its subsidy cost estimates are consistent with the terms and conditions of the MMI Fund or (2) document procedures to require a sensitivity analysis that identifies key cash flow assumptions. FHA explained that in February 2016, it awarded a new contract that includes preparing estimates of subsidy costs and also requires documentation of policies and procedures over the subsidy cost estimation process for FHA. In addition, FHA officials indicated that they are in the process of developing a solicitation to have a contractor perform an independent verification and validation of its cash flow model to help ensure that the model's calculations are accurate and consistent with the model documentation. Completing this documentation of the key elements of the subsidy cost estimation process will help management oversee the program as required by internal control standards and help FHA support its subsidy cost estimates.

Education Addressed Some Key Elements in Preparing Subsidy Cost Estimates for Its Direct Student Loan Program; However, Documentation Was Incomplete

Department of Education (Education), William D. Ford Federal Direct Loan Program (Direct Student Loan Program)

Education's Direct Student Loan Program provides students and their parents loans to obtain postsecondary education. Loan origination is done through postsecondary institutions, but loan servicing is handled by Education through private sector contractors. The Direct Student Loan program features four types of loans: (1) Stafford Loans, which are subsidized, low-interest loans based on financial need and are only available to undergraduate students; (2) Unsubsidized Stafford Loans, which have a fixed interest rate for undergraduate borrowers and a different fixed interest rate for graduate and professional borrowers; (3) Parent Loans for Undergraduate Students Loans, which are available to parents of dependent undergraduate students and to graduate and professional students; and (4) Consolidation Loans, which allow borrowers with multiple student loans who meet certain criteria to combine their loans and extend their repayment schedules. Under the Direct Student Loan Program, interest rates are determined based on statute, there are several repayment plans available to borrowers, and loan terms may extend up to 30 years.

Source: Education. | GAO-16-269

While Education addressed some of the key elements of the subsidy cost estimation process for the Direct Student Loan Program, it did not provide adequate documentation of (1) the process to validate historical data used in subsidy cost estimates, (2) cash flow assumptions and the cash flow model used to estimate subsidy costs, (3) its process to analyze estimated cash flows for reasonableness, and (4) the process to perform sensitivity analysis. Further, Education was unable to provide documentation of (1) overall policies and procedures for estimating subsidy costs, (2) the method used to document informed opinion used in the subsidy cost estimation process, and (3) the process to help ensure that estimated cash flows are consistent with the design of the program. Education, through its Direct Student Loan Program, provides qualified students and their parents with loans to obtain postsecondary education. As of September 30, 2015, Education's Direct Student Loan Program had approximately \$845.1 billion in outstanding loans.

To estimate the subsidy costs of the Direct Student Loan Program, the federal government's largest direct loan program, Education estimates cash flows based on a variety of loan characteristics. For example, the cash flow model estimates cash flows based on the loan type (i.e., subsidized or unsubsidized), the repayment plan (i.e., standard, extended, graduated, and income-driven repayments),¹⁹ and the type of school the student attends (i.e., trade school, community college, or 4-year university). Each of these factors influences loan performance and complicates the subsidy cost estimation process for the program. Table 3 describes how the subsidy cost estimation process for Education's Direct Student Loan Program compares to the key elements we identified.

¹⁹Income-driven repayment plans are designed to make student loan debt more manageable for the borrower by reducing the monthly payment amount.

Table 3: Assessment of Education’s Direct Student Loan Program Subsidy Cost Estimation Process against Key Elements

Key element	Designed procedures
Historical data validation	<p>The Department of Education (Education) provided a flowchart indicating the sources of data used in the subsidy cost estimation process, including data from the National Student Loan Data System (NSLDS), which is the national database of information about loans and grants awarded to students. NSLDS includes data for student loans’ complete life cycle, from aid approval through disbursement, repayment, deferment, delinquency, and closure. The subsidy cost estimates for the William D. Ford Federal Direct Loan Program (Direct Student Loan Program) are based on a statistical sample of loan performance from the NSLDS database. Education officials stated that they have a process to validate actual data used in the subsidy cost estimation process; however, documentation that described the validation process was not provided for our review.</p>
Informed opinion documentation	<p>Education officials explained that occasionally the institutional knowledge of its employees is used when making changes to its cash flow model and assumptions. Education officials explained that when changes are made to the cash flow model or assumptions, they are assessed based on whether the outcomes seemed reasonable based on expected outcomes. However, Education was unable to provide documentation of the rationale for its conclusions based on these assessments, which when prepared could be provided to management for review and approval.</p>
Cash flow assumption documentation	<p>Education provided a list of 19 assumptions used in its cash flow model, such as interest rates, loan maturity, repayment terms, and default rates. According to Education officials, these assumptions are not all updated annually. The extent of the assumption documentation differed between the various assumptions. For example, the default rate documentation included a description of how the assumption was calculated, the data sources, and how the assumption affected the results, whereas the collection rate documentation lacked information on how the assumption affected the results but included the specific formulas used to calculate actual collection rates. Overall, the assumption documentation lacked the detailed methodology or formulas used to calculate assumptions.</p>
Cash flow model documentation	<p>Education officials provided documentation that explained how to run the cash flow model. Education also provided a document that listed data element calculations used within the model. However, Education’s model documentation was incomplete. For example, the document stated that simple formulas should be self-explanatory; however, a thorough document would include all formulas and not assume that users will interpret the variable correctly without the formulas. In addition, the documentation was missing key inputs to the subsidy cost estimation process, such as income-driven repayment calculations. It appeared to be in draft form because it included edits and the section of the document that summarized model revisions was updated only through 2009. One method that agency management can use to review a complicated cash flow model is an independent verification and validation. However, without complete and updated model documentation, such a review would be difficult.</p>
Program design comparison	<p>Education officials stated that they regularly followed and analyzed legislation that could potentially affect the department’s calculations of subsidy costs and the cash flow model; however, documentation of that analysis or the process used to analyze legislation and incorporate changes into the estimation process was not provided. While not a documented process, Education officials indicated that if estimated cash flows are not tracking with actual loan performance data, the group that develops the subsidy cost estimates will consult with the program office to determine if something in the estimation process should be updated.</p>
Analysis of estimated cash flows	<p>Education officials provided an example of a comparison of estimates to actual cash flows, which was performed on an overall fiscal year level for the program and included a narrative assessment of the comparison. However, Education did not provide procedures for how this comparison was conducted, how trends could be identified, or how it was reviewed and approved.</p>

Sensitivity analysis

Education officials stated that they have a process in place to prepare a sensitivity analysis of certain assumptions based on requests from their financial statement auditor. Officials provided a sensitivity analysis for three assumptions that were tested (interest rates, default rates, and collection rates). However the documentation provided did not include the rationale for only testing these three assumptions, procedures used to perform a sensitivity analysis, the frequency of the analysis, or the preparer or approver of the analysis.

Policies and procedures for estimating subsidy costs

Education officials provided a high-level flowchart that described the process used to estimate subsidy costs, as well as a document that is used to support management approval of cash flow model assumption updates, but confirmed that they did not have documented policies and procedures for the department's process.

Source: GAO analysis of Education documentation. | GAO-16-269

We reviewed supporting documentation and interviewed Education officials responsible for preparing and reviewing subsidy cost estimates and found that while Education addressed some of the key elements in its subsidy cost estimation process, it lacked adequate documentation of these key elements that would help to ensure proper implementation. Further, as noted in table 3, we found that Education did not have documented and approved policies and procedures for its Direct Student Loan Program subsidy cost estimation process. Officials stated that while it might be helpful to document the roles and responsibilities of those involved in the subsidy cost estimation process, they believed that the process was too complicated to be documented in policies and procedures. Without documented policies and procedures for the overall subsidy cost estimation process, the other key elements of the process might not be performed consistently or at all or may not be adequately documented, as evidenced by Education being unable to provide adequate documentation for several of the other key elements of the process that we requested.

In addition, by not having thoroughly documented procedures for the subsidy cost estimation process, Education is at increased risk of potential errors in its cash flow calculations. For example, during our review Education officials stated that they were aware of challenges in the Direct Student Loan Program's calculated subsidy cost estimates and therefore had to manually adjust the estimated cash flows before submitting reestimates for the 2016 President's Budget. Officials also stated that in part because of these challenges, Education has entered into an interagency agreement with the Department of the Treasury to improve the Direct Student Loan Program's cash flow model with a more comprehensive loan-level model. Education officials stated that the subsidy cost estimation process involves a balance between limited staff resources and the effective use of those resources when determining the

extent of supporting documentation to be prepared. However, without a full set of management-approved procedures for the estimation processes, the institutional knowledge that Education relies on to estimate the subsidy cost for the Direct Student Loan Program could be at risk of loss. Completing this documentation of the key elements of the subsidy cost estimation process will help management oversee the program as required by internal control standards and help Education support its subsidy cost estimates.

Conclusions

While CCC adequately documented the key elements of the subsidy cost estimation process for the GSM-102 program, FHA and Education lacked overall policies and procedures over the subsidy cost estimation process that address management reviews and approvals and did not maintain adequate supporting documentation for certain other key elements of the subsidy cost estimation process for the MMI Fund and Direct Student Loan Program, respectively. Without policies and procedures and thorough documentation of the other key elements of the subsidy cost estimation process, FHA and Education have increased the risk that their institutional knowledge may be lost; that subsidy cost estimates might not be consistently prepared or documented; and that the resulting estimates may not be supported, reliable, and reasonable. Further, if certain key elements are not being performed, FHA and Education could miss opportunities to validate or improve their subsidy cost estimates, which in turn could provide less reliable information to external parties, such as Congress or auditors.

Recommendations for Executive Action

To help ensure that subsidy cost estimates for the MMI Fund are supported, reliable, and reasonable, we recommend that the Secretary of Housing and Urban Development direct the Principal Deputy Assistant Secretary for the Office of Housing to take the following action:

- Develop detailed policies and procedures over the subsidy cost estimation process that address, at a minimum, the documentation that should be prepared and maintained to support subsidy cost estimates and the process to document management review and approval of subsidy costs estimates.

To help ensure that subsidy cost estimates for the Direct Student Loan Program are supported, reliable, and reasonable, we recommend that the Secretary of Education direct the Assistant Secretary for the Office of

Planning, Evaluation and Policy Development to take the following three actions:

- Develop detailed policies and procedures over the subsidy cost estimation process that address, at a minimum, the documentation that should be prepared and maintained to support subsidy cost estimates and the process to document management review and approval of subsidy cost estimates.
- Develop detailed documentation of the cash flow model used to estimate subsidy costs, including the rationale for model calculations, all formulas and assumptions used in the model, data sources, the process to update and document changes to the model, and the process to document management review and approval of the model, which may be based on an independent verification and validation of the model to ensure that calculations are accurate and consistent with the model documentation.
- Document the procedures and results of such procedures used to develop or support key elements of the subsidy cost estimation process, addressing at a minimum (1) the reliability of historical data, (2) the rationale for informed opinion when applicable, (3) the methods used to calculate cash flow assumptions, (4) the process to ensure that subsidy cost estimates are consistent with the terms and conditions of the program, (5) the process to assess estimated cash flows for reasonableness, and (6) the process used to perform sensitivity analysis.

Agency Comments and Our Evaluation

We provided a draft of this report to USDA, HUD, and Education for their review and comment. Our report did not include recommendations to USDA, and USDA did not have any comments. In written comments from HUD and Education, which are summarized below and reprinted in appendixes II and III, respectively, both agencies concurred with our recommendations and provided information on their actions planned or under way to address them. HUD also provided technical comments which we incorporated as appropriate.

In response to our recommendation to HUD that it develop detailed policies and procedures over the subsidy cost estimation process, HUD said that a new contract was issued that will address documentation of the MMI cash flow model and the subsidy cost estimation process. HUD also said that it was in the process of developing a solicitation for a contractor to perform an independent verification and validation of the MMI cash flow model. HUD stated that completing this documentation of

the subsidy cost estimation process will help management oversee the program as required by internal control standards and help support its subsidy cost estimates.

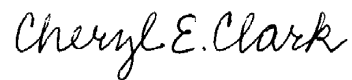
In response to our recommendations to Education, the department said that it is committed to ensuring that its subsidy cost estimates are adequately documented. Regarding our first recommendation that Education develop detailed policies and procedures over the subsidy cost estimation process, Education said that it has begun drafting more detailed policies and procedures and hopes to complete this documentation in a matter of months. Regarding our second recommendation that Education develop detailed documentation of its cash flow model used to estimate subsidy costs, Education said that it will update its model documentation and has invested staff and resources into developing a new cash flow model to estimate subsidy costs. Education also said that detailed documentation of this new cash flow model will be prepared before the model becomes operational. Regarding our third recommendation that Education document the procedures and results of such procedures used to develop or support key elements of the subsidy cost estimation process, Education said that the detailed policies and procedures developed in response to our first recommendation will address these key elements.

These HUD and Education actions, if implemented effectively, would address our recommendations.

We are sending copies of this report to the Secretary of Agriculture, the Secretary of Housing and Urban Development, the Secretary of Education, and other interested parties. In addition, the report is available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-9377 or clarkce@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff members who made key contributions to this report are listed in appendix IV.

Sincerely yours,

A handwritten signature in black ink that reads "Cheryl E. Clark". The signature is written in a cursive, flowing style.

Cheryl E. Clark
Director, Financial Management and Assurance

Appendix I: Objectives, Scope, and Methodology

To identify a list of key elements federal agencies should consider when developing subsidy cost estimates, we reviewed existing guidance and best practices related to budgeting and accounting for subsidy cost estimates. This guidance included the Office of Management and Budget's (OMB) Circular No. A-11, *Preparation, Submission, and Execution of the Budget*; OMB Circular No. A-129, *Policies for Federal Credit Programs and Non-Tax Receivables*; the Federal Accounting Standards Advisory Board's (FASAB) Statement of Federal Financial Accounting Standards No. 2, *Accounting for Direct Loans and Loan Guarantees*; the Credit Reform Task Force's issue paper *Model Credit Program Methods and Documentation for Estimating Subsidy Rates and the Model Information Store*;¹ FASAB's Accounting and Auditing Policy Committee's Technical Release 6 *Preparing Estimates for Direct Loan and Loan Guarantee Subsidies under the Federal Credit Reform Act*; and our *Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*.² Based on our review of the guidance and best practices, we developed a list of key elements that agencies should consider when preparing subsidy cost estimates.

To assess the extent to which certain federal agencies addressed the key elements when estimating the subsidy cost of federal credit programs, we selected three federal credit programs: (1) the Department of Agriculture's Commodity Credit Corporation (CCC) Export Credit Guarantee (GSM-102) Program, (2) the Department of Housing and Urban Development's Federal Housing Administration's (FHA) Mutual Mortgage Insurance (MMI) Fund, and (3) the Department of Education's (Education) William D. Ford Federal Direct Loan Program (Direct Student Loan Program). We selected the Direct Student Loan Program and the MMI Fund because these programs represented the largest federal direct loan and loan guarantee programs, respectively. These two programs can be characterized as a high volume of loans with relatively lower average loan amounts compared to other federal credit programs. To include a different type of credit program in our evaluation, we also selected the GSM-102

¹The issue paper published by the Credit Reform Task Force under FASAB's Accounting and Auditing Policy Committee, provides guidance on the type of historical information agencies need to reasonably estimate the cost of credit programs.

²GAO, *Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, [GAO-09-3SP](#) (Washington, D.C.: March 2009).

program, which can be characterized as a low volume of loans and significantly larger average loan amounts.

We met with CCC, FHA, and Education officials responsible for preparing and approving subsidy cost estimates to discuss the subsidy cost estimation process for the programs we selected. We requested and reviewed supporting documentation related to the key elements of the subsidy cost estimation process. We also reviewed the fiscal year 2015 annual financial statements and related budget information for CCC, FHA, and Education to obtain background information related to the programs included in our review. We did not evaluate the reasonableness of subsidy cost estimates, reestimates, or the data and assumptions used to calculate them.

We conducted this performance audit from June 2014 to July 2016 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Comments from the Department of Housing and Urban Development



OFFICE OF HOUSING

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-8000

Ms. Cheryl Clark
Director
Financial Management and Assurance
Government Accountability Office
441 G Street, NW
Washington, DC 20548-0001

Dear Ms. Clark:

Thank you for the opportunity to respond to the Draft Report GAO-16-269 entitled "Credit Programs - Agencies Should Better Document Procedures for Estimating Subsidy Costs" received on June 15, 2016. This letter is in response to the Recommendation for Executive Action in the draft. Technical comments on the draft are also included.

Recommendation:

To help ensure that subsidy cost estimates for the Mutual Mortgage Insurance (MMI) Fund are supported, reliable, and reasonable, we recommend that the Secretary of Housing and Urban Development direct the Principal Deputy Assistant Secretary for Housing to take the following action:

- Develop detailed policies and procedures over the subsidy cost estimation process that address at a minimum, the documentation that should be prepared and maintained to support subsidy cost estimates and the process to document management review and approval of subsidy costs estimates.

HUD Response:

Federal Housing Administration (FHA) agrees with the GAO recommendation to better document procedures for estimating subsidy costs. FHA has procured a new contract that will address documentation of the MMI cash flow model and estimation process. In addition, FHA is in the process of developing a solicitation to have a contractor perform an independent verification and validation of its cash flow model to help ensure that the model's calculations are accurate and consistent with the model documentation. Completing this documentation of the key elements of the subsidy cost estimation process will help management oversee the program as required by internal control standards and help FHA support its subsidy cost estimates.

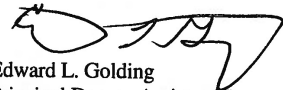
www.hud.gov

espanol.hud.gov

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We appreciate the efforts of the GAO to review our work and progress to strengthen the credit programs of MMI Fund, and welcome future recommendations that will support those efforts.

Sincerely,



Edward L. Golding
Principal Deputy Assistant Secretary

Appendix III: Comments from the Department of Education



UNITED STATES DEPARTMENT OF EDUCATION

WASHINGTON, DC 20202

June 17, 2016

Ms. Melissa Emrey-Arras
Director, Education, Workforce, and
Income Security Issues
Government Accountability Office
Washington, DC 20548

Dear Ms. Emrey-Arras:

Thank you for providing the U.S. Department of Education (Department) with an opportunity to review and respond to the draft of the Government Accountability Office (GAO) report, CREDIT PROGRAMS: Key Agencies Should Better Document Procedures for Estimating Subsidy Costs (GAO-16-269). The Department appreciates the work of the GAO team that prepared the report and the number of documents reviewed.

The Department concurs with the recommendations. The Department is committed to ensuring that we adequately document our subsidy cost estimates. While there are areas where our documentation can be improved, we remain confident our estimates for the Direct Student Loan Program are supported, reliable, and reasonable.

With regard to the report's three recommendations, the Department's response to each of the recommendations follows:

Recommendation 1: Develop detailed policies and procedures over the subsidy cost estimation process that address at a minimum, the documentation that should be prepared and maintained to support subsidy cost estimates and the process to document management review and approval of subsidy cost estimates.

Response: The Department has detailed procedures for developing and validating subsidy cost estimates. These procedures include, but are not limited to: establishing a baseline scenario, documenting each assumption individually, comparing estimates to actual data, management review and sign-off. As recommended, we have begun drafting a more detailed document that will describe our policies and procedures. We hope to complete this document in a matter of months.

Recommendation 2: Develop detailed documentation of the cash flow model used to estimate subsidy costs, including the rationale for model calculations, all formulas and assumptions used in the model, data sources, the process to update and document changes to the model, and the process to document management review and approval of the model, which may be based on an independent verification and validation of the model to ensure that calculations are accurate and consistent with the model documentation.

www.ed.gov

The Department of Education's mission is to promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access.

Response: The Department is committed to continuous improvements in our Student Loan Model (SLM) and how it is documented. The SLM includes inputs of modeled data, referred to as assumptions, together with program-determined static values such as interest rates and fees. As recommended, we will update our detailed documentation of the SLM. As the report mentions, we are also currently investing staff and resources in a new model. Detailed documentation of the new model will be prepared before the model becomes operational.

Recommendation 3: Document the procedures and results of such procedures used to develop or support key elements of the subsidy cost estimation process, addressing at a minimum (1) the reliability of historical data, (2) the rationale for informed opinion when applicable, (3) the methods used to calculate cash flow assumptions, (4) the process to ensure that subsidy cost estimates are consistent with the terms and conditions of the program, (5) the process to assess estimated cash flows for reasonableness, and (6) the process used to perform sensitivity analysis.

Response: The policies and procedures document referenced in the response to Recommendation 1 will address all of these key elements.

Thank you again for the opportunity to review and comment on the draft GAO report.

Sincerely,



Amy McIntosh
Deputy Assistant Secretary Delegated Duties of Assistant Secretary
Office of Planning, Evaluation and Policy Development

Appendix IV: GAO Contact and Staff Acknowledgments

GAO Contact

Cheryl E. Clark, (202) 512-9377 or clarkce@gao.gov

Staff Acknowledgments

In addition to the contact named above, Marcia Carlsen (Assistant Director), Steven Westley (Assistant Director), Natasha Guerra, Cole Haase, Karen Jarzynka-Hernandez, Jason Kelly, Jason Kirwan, Rebecca Perkins, and Monasha Thompson made key contributions to this report.

Related GAO Products

Credit Reform: Current Method to Estimate Credit Subsidy Costs Is More Appropriate for Budget Estimates Than a Fair Value Approach. [GAO-16-41](#). Washington, D.C.: January 29, 2016.

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