ISSUES IN THE IDENTIFICATION AND MEASUREMENT OF CREDIT SUBSIDIES

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The Federal Government provides a substantial portion of the credit extended in the United States. Over 86 billion dollars of Federal or Federally-assisted lending occured in 1983. This figure represents over 17 percent of the funds advanced in U.S. credit markets during that year (O.M.B., 1984a).

Financing is often made available by the Federal Government on more favorable terms than private lenders would otherwise offer. These favorable terms, by definition, result in a subsidy to the borrower. The subsidies associated with the direct loans made by the Federal Government in 1983 have been estimated at more than 8.3 billion dollars (O.M.B., 1984a). Over 70 percent of the value of the subsidies was provided through the loan programs of the Department of Agriculture.

In recognition of the high cost of Federal credit program subsidies, the Office of Management and Budget (OMB) has recently provided revised policies and guidelines for Federal credit programs (1984b). The new guidelines for review and evaluation require an explicit statement of the subsidies provided by Government direct and guaranteed loan programs. A methodology for estimating the subsidies has been provided by OMB.

The objective of this paper is threefold. First, the concept of a credit subsidy is explored and the particular forms of credit subsidies are outlined. Second, the measurement of credit subsidies is discussed, with emphasis on identifying important credit program factors and evaluating methods proposed for measurement. Finally, the nature and value of the information provided by alternative estimation techniques is discussed.

This paper raises some important questions regarding the identification and measurement of subsidies. The choice of an appropriate technique involves the recognition of the components of credit subsidies and the selection of the components that are to be measured. As credit programs are reviewed and proposals are evaluated, a well-prepared subsidy estimates should be of great value.

Subsidies

A general definition of a subsidy is provided by the Joint Economic Committee of the U.S. Congress. Their definition is of "any one-way governmentally controlled income transfer to private sector decisionmaking

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units that is designed to encourage particular market behavior" (J.E.C., 1972, p. 7).

Several objectives may be achieved through the use of subsidies. Among them are goals of income redistribution, economic growth, and price stability. A variety of subsidy forms include tax subsidies, direct cash payments, regulatory subsidies, and credit subsidies.

Credit Subsidies

Credit subsidies can be established by a variety of programs. Each form of credit assistance has different implications for governmental cost, the distribution of benefits, effectiveness, and the efficiency of achieving stated objectives. Six major forms of credit subsidies have been identified (J.E.C., 1972; Weidenbaum, 1972).

Direct cash payments or interest reduction payments may be granted to the lender or borrower. This form of assistance establishes a subsidy through the direct reduction of the cost of servicing debt for the borrower.

A second form of assistance is provided when the Government makes a direct loan with more favorable repayment terms than those which the borrower could obtain from a private lender. Lower interest rates, longer repayment periods, and other forms of debt servicing assistance are often provided with these loans. Substantial subsidies may be provided by these programs.

A similar form of assistance is direct Government lending to borrowers who would otherwise be unable to obtain credit from private sources. Borrowers may be in this position due to their low prospects for debt repayment or other factors. Often referred to as "soft credit", the loans may result in substantial losses for the Government.

Loan guarantees are granted by the Government to enable private lenders to extend credit to those borrowers who would otherwise not be acceptable to the lenders or whose loans would carry terms which are too demanding. In effect, the loan guarantee reduces any risk premium which the borrower would be charged, and thereby provides a subsidy.

A government provision of insurance against default is similar to a loan guarantee with the exception that contributions to a fund are made by either or both the lender and borrower when participating in an insurance program. If the insurance fund does not cover the defaulted loans, then coverage is provided directly by the Government and a subsidy is established. When the funds are adequate, but the premiums charged by the Government are less than a private insurer would charge, then there is an implicit subsidy. The Government's ability to pool risks on a larger scale could lead to lower premiums (J.E.C., 1972, p. 33).

A final major form of credit subsidy is provided through privileges that are granted by the Government to certain lending institutions. These institutions, such as the Farm Credit System, enjoy tax advantages and the ability to raise funds at reduced rates due to a number of other advantages which taken as a whole give the perception of a Federal guarantee of their bonds. A credit subsidy is established in these situations.

Measurement of Credit Subsidies

The measurement of credit subsidies may be conducted to capture one of several components. Each component presents a different valuation of the subsidy. Two primary components are the cost and the benefit of the subsidy. A number of methodological questions also arise regarding the manner in which the various forms of credit subsidies are measured. In addition, consideration should be given to whether the components being measured will yield the most useful information to those who will be basing their decisions upon it. In addition, some costs are overlooked -- social costs of activities being funded may be inefficient in use of resources or may impose negative externalities. These are issues for further study.

Costs Versus Benefits

The cost of credit subsidies can be viewed as the net loss of revenues associated with the Government's provision of credit assistance. A general description of the technique, as provided by the Joint Economic Committee, refers to the measurement of the "value of the stream of payments the Government must make to offset what the credit recipient himself has not paid, over the life of the loan" (1972, p. 34).

The value of at least three elements must be determined to measure the cost of credit subsidies (Comptroller General of the U.S., 1979, p. 13). An estimate of the cost of funds to the Government is required for calculating the cost of any interest subsidy. Administrative expenses incurred in providing credit assistance must also be recorded. Finally, the loss of revenues due to loan defaults and collection procedures must be estimated. All of these expenses would be subtracted from any payments the Government receives to arrive at a net cost.

A second approach to the measurement of credit subsidies entails the use of the benefit concept. With this method, the benefit of the credit assistance to the borrower is valued and identified as the subsidy. Since it is a valuation of the difference in payments between a loan from a strictly private source and the more attractive subsidized loan, it also represents the opportunity cost to the Government of providing the subsidized loan.

An additional question regards whether the measure of the subsidy should be valued and reported on an annual basis or be capitalized over the entire period of assistance to provide a present value of the costs or benefits. The annual basis has the advantage of reporting

actual costs or benefits which have occurred during the year. A capitalized measure requires a more extensive set of assumptions regarding the cash flows associated with the loan, but provides an estimate of total costs or benefits expected to occur during the entire period of credit assistance.

Applications

An examination of a model with a cost approach and one with a benefit approach will faciliate the discussion of several questions which arise when estimating credit subsidies. Estimates of subsidies provided by each model will also be presented. A comparison of the estimates will include a discussion of their usefulness for policy assessment. The intent here is to point out the nature of each model's estimates rather than making the case that one model is superior to the other for all applications.

Cost Model

In 1979 the Comptroller General of the U.S. released a report which provided long-term cost implications of Farmers Home Administration (FmHA) direct and guaranteed loan programs. The model used in the study was one which relied upon actual budget expenses for cost estimates.

There are two sources of funds for FmHA's loan program activities. Administrative expenses, such as personnel, rent, and travel, are covered by funds appropriated to the agency in the respective year. Loan funds are gathered from several sources, but are not a cost. Interest subsidies and capital losses are costs which are charged to one of three revolving funds, depending upon the program area. In the case of FmHA's farm loan programs, the Agricultural Credit Insurance Fund is the revolving fund to which interest subsidy and capital loss costs are charged. Annual authorizations and appropriations are requested from Congress to restore the fund.

The interest subsidy is defined as the costs due to the difference between the interest rate that FmHA pays for borrowed funds and the interest rate at which it makes loans. The value of the interest subsidy is directly related to the rate at which loans are graduated to other lenders and to the declining volume of remaining loan principal.

Assumptions regarding the rate of graduation and the value of administrative costs are developed from FmHA and private industry data. Default costs are estimated, but the effects of delinquent payments have been neglected in the cost estimates.

The estimates are prepared for loans made in fiscal year 1978. The costs of the loan programs are estimated for each year through the loan portfolio's maturity. Total costs and the elements of these are presented.

Two of the direct farm loan programs analyzed in the report were farm ownership loans and farm operating loans. After 20 years, the total cost of the farm ownership loan program was about 55 percent of the initial loan value. Over 90 percent of this cost was due to the interest subsidy which was more than 50 percent of the initial loan value. The farm operating loan program's cost after seven years was just over four percent of the initial loan value. No interest subsidy occurred in this program since the interest rates for FmHA borrowing and lending were determined to be equivalent.

Benefit Model

The Office of Management and Budget (OMB) recently provided a methodology for the assessment of credit programs that is based upon the benefit approach or, as mentioned earlier, an opportunity cost approach. With this model, the "subsidy should measure the difference in cost to the borrower between the Federal direct loan or guaranteed loan and alternative private financing available to the same or similar borrower for a similar purpose" (O.M.B., 1984b, p. 11).

The technique is based upon developing cash flows for the Government loan and the alternative privately financed loan. These cash flows are to be developed with consideration given to all factors which influence the timing and value of principal and interest payments and disbursements. The primary factors which OMB cites are interest rates, fees, grace periods, maturities, and disbursement and payment schedules.

An internal rate of return is calculated for the private sector loan. This rate of return is then applied as discount rate to the cash flow of the Government loan program's portfolio. A present value of the subsidy provided by the Government to the borrower is thereby estimated. When negative, this is a benefit to the borrower and a loss, in the sense of an opportunity cost, to the Government.

Unofficial estimates of the FmHA's 1977 farm ownership and farm operating loan program subsidies have been developed with this model. A subsidy equal to 28.6 percent of the farm ownership loan program's initial loan value was calculated. The subsidy provided by the farm operating loan program was about 3 percent of the initial loan value.

Discussion

Two models have been presented which estimate subsidies provided by Federal credit programs. One model utilizes a cost approach which details budget expenditures, including interest subsidies, associated with credit assistance. The second model is based on a benefit approach which estimates the value to the borrower of obtaining the credit assistance.

Several considerations in the use of the models deserve mention since they influence the estimates which are provided and involve choices which can only be made with some uncertainty. Both models

require that assumptions be made regarding all factors which influence the cash flow projections of the loan portfolios. An estimate of the rate at which capital losses occur due to defaults is required. The rate at which borrowers graduate to private lenders, especially for FmHA's loan programs, must also be estimated. In addition, the impacts of delinquent payments and grants of deferred payments can be substantial and should be incorporated in the cash flow projections. Assumptions regarding these factors should be clearly stated since they will not be completely accurate and they influence the models' estimates.

The model with a benefit approach presents an additional difficulty. A benchmark private loan must be selected with which to compare the terms of the subsidized Government loan. In some cases this will be fairly straightforward, as with farm ownership loans made to borrowers who are not classified as having limited resources. A particularly difficult case lies with finding a benchmark for a loan made to a high-risk borrower who is unable to obtain credit from conventional sources. As OMB notes in its methodology," in these cases...(the estimation) should use the benchmark financial instrument of the closest credit equivalent and add an appropriate percentage premium" (p. 5, 1984b). This risk premium is difficult figure to estimate.

A final question surrounds the type of information which is provided by each approach used to estimate subsidies in Federal credit programs. Which type of information, estimates of the cost or benefit of credit sibsidies, will be of the greatest use for policy assessment?

Examining how each model treats the interest subsidy helps to illustrate the distinct nature of the information provided by each model. The cost model measures the interest subsidy as the difference between the cost of funds for the lending agency and the rate charged to the borrower in the agency's loan program. With the agency charging an amount equal to what it pays, the interest subsidy would be zero. The benefit model measures the interest subsidy as the difference between the rate charged by a private lender and the rate charged by the agency. Even if the agency charges a rate equal to its costs of funds, under the benefit approach there will be a significant interest subsidy if the benchmark interest rate is greater than the cost of agency funds, which is a likely situation.

Different information is embodied in the estimates of models based on a cost approach and those based on a benefit approach to estimating credit subsidies. We should avoid construing the estimates from a benefit approach as actual outlays for a Federal credit program. The model with a benefit approach, however, does provide an estimate of the opportunity cost to the Government of providing loans with terms which are more attractive than those given in the private lending industry.

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