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**MATHEMATICA**  
Policy Research, Inc.

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**THE COST EFFECTIVENESS OF THE  
INCOME AND ELIGIBILITY VERIFICATION  
SYSTEM IN ARIZONA AND MICHIGAN**

**FINAL REPORT**

**VOLUME I**

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**FINAL REPORT**

**VOLUME I**

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**Authors:**

**Nancy Fasciano  
Sheena McConnell**

**Submitted to:**

**U.S. Department of Agriculture  
Food and Consumer Service  
Office of Analysis and Evaluation  
3101 Park Center Drive, 2nd Floor  
Alexandria, VA 22303**

**Attention: Sharron Cristofar**

**Submitted by:**

**Mathematica Policy Research, Inc.  
600 Maryland Avenue, S.W.  
Suite 550  
Washington, DC 20024**

**Project Director: Harold Beebout**

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## **GLOSSARY OF ACRONYMS**

<b>ADP</b>	<b>Automated Data Processing (category of mainframe-computing costs)</b>
<b>AFDC</b>	<b>Aid to Families with Dependent Children</b>
<b>AHCCCS</b>	<b>Arizona Health Care Cost Containment System (department in Arizona that administers Medicaid)</b>
<b>ARS</b>	<b>Automated Recoupment System (computer system in Michigan that calculates recoupments)</b>
<b>BEER</b>	<b>Beneficiary Earnings Exchange Reports (annual earnings data)</b>
<b>BENDEX</b>	<b>Beneficiary Data Exchange (Title II benefits data)</b>
<b>CIS</b>	<b>Client Information System (client database in Michigan)</b>
<b>DES</b>	<b>Department of Economic Security, Michigan</b>
<b>DSP</b>	<b>Designated Staff Person (a caseworker in Michigan who specializes in dealing with overpayments)</b>
<b>DSS</b>	<b>Department of Social Services, Michigan</b>
<b>FAA</b>	<b>Family Assistance Administration, Department of Economic Security, Arizona</b>
<b>FCS</b>	<b>Food and Consumer Service, U.S. Department of Agriculture</b>
<b>FSP</b>	<b>Food Stamp Program</b>
<b>GAO</b>	<b>General Accounting Office</b>
<b>HHS</b>	<b>U.S. Department of Health and Human Services</b>
<b>IEVS</b>	<b>Income and Eligibility Verification System</b>
<b>IRS</b>	<b>Internal Revenue Service (also refers to the annual unearned income data maintained by the Internal Revenue Service)</b>
<b>MESC</b>	<b>Michigan Economic Security Commission (agency that maintains state earnings and Unemployment Insurance data)</b>
<b>MPR</b>	<b>Mathematica Policy Research, Inc.</b>
<b>OARC</b>	<b>Office of Accounts Receivable and Collections (office in Arizona's Department of Economic Security that processes claims)</b>

OIG	Office of Inspector General (office in Michigan's Department of Social Services that investigates fraud)
SDX	State Data Exchange (data on Supplemental Security Income)
SIPP	Survey of Income and Program Participation
SSA	Social Security Administration
SSI	Supplemental Security Income
SSN	Social Security Number
SWICA	State Wage Information Collection Agency (collects quarterly state earnings data and Unemployment Insurance data, also refers to the quarterly earnings data collected by the agency)
TPQY	Third-Party Query (a type of request for information from the Social Security Administration)
UI	Unemployment Insurance (also refers to the Unemployment Insurance data maintained by the state)
USDA	U.S. Department of Agriculture

## EXECUTIVE SUMMARY

The Income and Eligibility Verification System (IEVS) was established to verify income information reported by welfare program applicants and recipients. Misreported income can lead to errors in eligibility and benefit determination which can divert resources away from the truly needy and weaken public support for the programs. Minimizing such errors is therefore important.

In 1986, the Food Stamp Program regulations were amended to require states to implement IEVS. The IEVS regulations require state welfare agencies to compare income reported by applicants and recipients of food stamps, Aid to Families with Dependent Children (AFDC), and Medicaid with income reported on an external income database. For most IEVS matches, the state

In response to these concerns, interim regulations were published in 1988 permitting states to follow up only a subset of recipient matches. The process of selecting a subset of matches to follow up is known as *targeting*. The regulations prohibit targeting of applicants.

Despite these regulatory changes, some state agencies argue that, even with targeting, matching with some databases is not cost-effective. The agencies' concerns with IEVS are largely related to the external data: some are out-of-date, some are aggregated over too long a period, some duplicate other IEVS data, and some require third-party verification. Suggested changes to the IEVS regulations include allowing states to target applicants in addition to recipients and to conduct only matches they consider cost-effective.

To address the concerns of the state agencies, the Food and Consumer Service of the U.S. Department of Agriculture contracted with Mathematica Policy Research, Inc. to estimate the cost-effectiveness of IEVS matches in two demonstration states, Arizona and Michigan. The study estimates the cost-effectiveness of conducting IEVS matches using a targeting strategy compared to the situation in which the match is not conducted at all. All but one of the IEVS matches in the demonstration used a targeting strategy.

## **THE IEVS DEMONSTRATION**

The IEVS demonstration took place in 7 local food-stamp offices in Arizona and 16 local food-stamp offices in Michigan between July and October 1992. The research sample included only food-stamp recipients in Arizona and food-stamp applicants in Michigan. (Some of the applicants in Michigan began to receive benefits during our study.)

Prior to the demonstration, Arizona did not match recipients with the SWICA database or follow up any match with the BEER and IRS databases. This was because agency staff believed that these matches were not cost-effective. During the demonstration, Arizona reinstated the SWICA, BEER, and IRS matches and used a new targeting strategy for each match. In Arizona, we estimated the cost-effectiveness of the SWICA, BEER, and IRS recipient matches.

Prior to the demonstration, Michigan followed up information from all matches. Staff in Michigan were concerned that the SWICA and IRS applicant matches were not cost-effective. During the demonstration, Michigan introduced a new targeting strategy for the IRS match and continued to conduct the SWICA applicant match with no targeting. In Michigan, we estimated the cost-effectiveness of the SWICA, UI, BENDEX, SDX, and IRS applicant matches. All except the SWICA match were targeted during the demonstration.

## **SAVINGS AND COST MEASURES**

Cost-effectiveness is measured as the ratio of program savings from IEVS to the cost of matching, targeting, and follow up under IEVS. We measure the cost-effectiveness of IEVS from the perspective of the state and federal agencies that administer the Food Stamp and AFDC programs. Hence, we do not include savings or costs to the clients, employers and financial institutions that are required to verify income, or the agencies that maintain the external databases.

The savings from IEVS fall into four categories:

1. ***Avoided Benefit Payments.*** Benefits may be denied or reduced on the basis of follow-up information obtained through the IEVS process.
2. ***Avoided Administrative Costs.*** If an applicant is denied benefits or a case is closed because of the IEVS process, the agency will avoid the cost of administering that case.
3. ***Recovered Previous Benefit Overpayments.*** An IEVS follow up may result in the determination that a client has received incorrect benefits. The savings to the agency is the portion of the overpayment that is actually recovered from the client.
4. ***Unmeasured Savings.*** Savings from IEVS other than those discussed above may be important but to quantify them were beyond the scope of this study. The most obvious of these is savings to other programs, such as Medicaid. IEVS may also deter clients from misreporting income and improve caseworker morale.

The costs of IEVS fall into four categories:

1. ***Caseworker Follow-Up Costs.*** These involve primarily the cost of caseworkers' time in following up IEVS matches. They also include the cost of some supervisor and clerical staff time, materials and supplies, and overhead.
2. ***Costs of Claims Establishment and Collection.*** These include the costs of investigating fraud, establishing and collecting claims, and conducting hearings and prosecutions.
3. ***Data Processing Costs.*** These include payments to the agencies that maintain the external database, as well as the mainframe computer costs incurred from producing request tapes or matching extracts from the external databases against the caseload; processing response tapes and running targeting algorithms; and producing reports of the matches to be followed up.
4. ***Development Costs.*** These are the costs involved in developing and implementing the matching and targeting strategies. As they are one-time-only costs, they are not included in our measure of the cost-effectiveness of IEVS.

We were required to make many assumptions in measuring these savings and costs, . Whenever a range of equally reasonable options was presented, we selected the one that led to the highest estimate of costs and the lowest estimate of savings. The estimates of the savings-to-cost ratios presented in this report are therefore low estimates of the cost-effectiveness of IEVS.

## **ACTION, HIT, AND MATCH RATES**

The cost-effectiveness of a match depends on the *action rate*, the proportion of all follow ups that lead to a change in benefits, a change in eligibility, or the detection of a previous benefit overpayment. The central criticism of IEVS is that caseworkers conduct many follow ups that do not detect misreported income. Our findings support this criticism. The action rates during the demonstrations were low in both states: 12 percent in Arizona and 6 percent in Michigan. In both states, the action rate varied by database, from 7 percent for the SWICA match to 16 percent for the IRS match in Arizona, and from 4 percent for the UI match to 13 percent for the IRS match in Michigan.

The IEVS regulations require the state agencies to report both the match and hit rates for each database. The *match rate* is the number of social security numbers (SSNs) on which information is available from the external database as a proportion of all SSNs that could potentially be matched. The *hit rate* is the number of SSNs that are targeted for follow up as a proportion of all SSNs for which information is available from the external database. Few states actually do report these rates (Allin 1991). The IEVS demonstration revealed that it is difficult to calculate these rates because (1) the components of the match and hit rates are measured in different units (records, SSNs, and cases), and (2) it may not be possible to observe the number of SSNs that are matched because, for example, the matching and targeting steps are combined. We were able to estimate the match and hit rates only for the IRS database in Arizona and for the SWICA, UI, and IRS databases in Michigan.

Both the match and the hit rates were low. The match rates varied from 8 percent for the IRS match in Arizona to 44 percent for the UI applicant match in Michigan. The hit rate was only 2 percent for the IRS match in Michigan and exceeded 20 percent only for the SWICA applicant match in Michigan, which was not targeted. Thus, the targeting strategies used in the demonstration excluded from follow up many clients on whom information was found on the external database.

## **SAVINGS FROM IEVS**

When a follow up led to a change in benefits, a change in eligibility, or the detection of a previous overpayment, the resulting savings were large. For every follow up that led to an action, an average of over \$1,000 was saved in Arizona and an average of over \$900 was saved in Michigan.

Avoided benefit payments accounted for the largest portion of these savings in both states (52 percent in Arizona and 90 percent in Michigan). Recovered previous benefit overpayments accounted for 44 percent of all savings in Arizona, but only for 4 percent in Michigan. Overpayments were more important in Arizona because a recipient case is more likely to have had previous benefit overpayments than is a case applying for benefits. Avoided administrative costs accounted for only a small portion of savings in both states (4 percent in Arizona and 6 percent in Michigan).

Savings were larger if the follow up led to a change in benefits or eligibility for the AFDC program. When an error was detected in a joint food stamps/AFDC case, both avoided benefit payments and recovered benefit overpayments were, on average, higher for the AFDC program than for food stamps.

The average savings over all follow ups (including those not resulting in an action) was \$122 in Arizona and \$54 in Michigan. The average savings per follow up varied considerably by database. In Arizona, average savings per follow up were about \$62 for the SWICA match, \$123 for the BEER match, and \$146 for the IRS match. In Michigan, average savings per follow up were \$18 for the SDX match, \$63 for the SWICA match, \$81 for the UI match, \$86 for the BENDEX match, and \$1,129 for the IRS match.

## **COSTS INCURRED BY IEVS**

A follow up cost an average of \$40 in Arizona and \$16 in Michigan. Caseworker follow ups accounted for the largest portion of these costs: 80 percent in Arizona and 68 percent in Michigan. Costs incurred in establishing and collecting claims were also sizable, accounting for 18 percent of costs in Arizona and 31 percent of costs in Michigan. Data processing costs were small, accounting for less than 2 percent of costs in both states.

Caseworkers took an average of 50 minutes in Arizona and 13 minutes in Michigan to conduct a follow up. In Arizona, the time to conduct a follow up varied little by database. However, in Michigan, it took an average of only 10 minutes to conduct a follow up of the SDX match and 19 minutes to conduct a follow up of the SWICA and IRS matches. The SWICA, BEER, and IRS matches require more follow-up time because caseworkers must obtain third-party verification of external income data and compare monthly income reported by the client in a previous quarter or year with quarterly or annual data on the external database. The UI, BENDEX, and SDX databases do not require third-party verification and contain current, monthly income information.

In Arizona, the average cost per follow up of IEVS varied little by database: \$40 for the SWICA database, \$39 for the BEER database, and \$42 for the IRS database. In contrast, the average cost per follow up in Michigan varied from \$12 for the BENDEX database to \$106 for the IRS database. The average cost per follow up for the other databases in Michigan was \$13 for UI, \$14 for SDX, and \$22 for SWICA.

The costs of developing the three IEVS matches and targeting strategies in Arizona were about \$100,000. In Michigan, we could not estimate the cost of developing the matches as they were developed prior to our study. Staff in Michigan reported that few resources were used to implement the new IRS targeting strategy.

## **COST-EFFECTIVENESS OF IEVS**

All matches in the demonstration were found to be cost-effective. For each match, the savings from the IEVS process exceeded the costs incurred by the process. Table 1 presents the savings-to-cost ratios and the net savings (savings minus costs) per research-sample case for each IEVS match. The most cost-effective match in the demonstration was the IRS match in Michigan, with nearly 11 dollars saved for every dollar spent on the match. The least cost-effective match was the SDX match in Michigan with \$1.24 saved for every dollar spent.

Our findings suggest that the net savings that can be realized from IEVS matches is potentially very large. If the matches were conducted statewide, net savings per year would be about \$355,000

TABLE 1  
 THE COST-EFFECTIVENESS OF IEVS MATCHES IN  
 ARIZONA AND MICHIGAN

State	Match	Savings-to-Cost Ratio	Net Savings per Research-Sample Case (dollars)
Arizona	SWICA	1.55	0.70
	BEER	3.13	2.35
	IRS	3.53	3.00
Michigan	SWICA	2.82	6.63
	UI	6.40	5.64
	BENDEX	7.26	1.56
	SDX	1.24	0.14
	IRS	10.66	2.12

for the SWICA match and over \$1 million for the BEER and IRS matches in Arizona. In Michigan, net savings per year would be over \$2 million for the SWICA and UI matches, over \$500,000 for the IRS and BENDEX matches, and over \$50,000 for the SDX match. These estimates far exceed our estimates of the costs of developing the IEVS matches in Arizona.

All IEVS matches in the demonstration were found to be cost-effective even under a wide range of alternative assumptions. Even if we ignored any savings from case closures, benefit denials, or benefit reductions and just included savings from recovered overpayments, all IEVS matches in our study in Arizona were cost-effective. They were also cost-effective in Arizona even if we assume that (1) the costs of claims establishment and collection are as high in Arizona as they are in Michigan, (2) the portion of established claims that is recovered is as low in Arizona as it is in Michigan, or (3) the hourly cost of a caseworker is as high in Arizona as it is in Michigan. In Michigan, the savings from case closures, benefit denials, and benefit reductions need persist only for three and a half months for all the IEVS matches to be cost-effective. If we ignore all savings to the AFDC program, and attribute all IEVS costs to the Food Stamp Program, all matches in both states, except the SDX match in Michigan, were still cost-effective.

The SWICA applicant match would be cost-effective if savings persisted for at least two-and-a-third months. This match ceases to be cost-effective only if we assume that (1) a SWICA recipient match would have detected all misreported income detected by the applicant match and (2) this recipient match occurred within two-and-a-third months of application.

A study by agency staff in Michigan (Ward and Smucker 1990) found that the SWICA applicant match is not cost-effective. Their study differs from this study in two important ways: (1) they estimated that a follow up took an average of over 34 minutes compared to our estimate of 19 minutes, and (2) they estimated that for applicants savings from case closures, benefit denials, and benefit reductions persisted for 2.5 months compared to our estimate of 7 months. If we estimate savings using *either* of Ward and Smucker's estimates, the SWICA applicant match is still cost-effective. However, it is not cost-effective if we use *both* of these estimates.

The results of our study are consistent with the results of a previous study of applicant matching conducted by Puma (1989). He found that all applicant matches, except the SDX match, were cost-effective. Although the results are similar, Puma's study differed from ours in five important ways: (1) it examined only applicant matches, (2) none of its matches were targeted, (3) only offices in which the caseworker could receive information before certification were included in the study (this was not the case for Michigan during our demonstration), (4) it included Medicaid savings, and (5) caseworkers verified external data in only two of the nine offices, while caseworkers in our study offices verified the SWICA, BEER, and IRS data.

## TARGETING

As this study was designed to estimate the cost-effectiveness of the whole IEVS process and not targeting *per se*, we cannot draw many firm conclusions about targeting strategies. Because all of the matches were cost-effective, we can conclude in some sense that all targeting strategies used in this study were successful. We cannot say whether these matches *would* have been cost-effective had they *not* been targeted. However, the IEVS matches with targeting strategies that excluded many matched

SSNs from follow up (all of the matches in Arizona and the IRS match in Michigan) had higher than average action rates and large savings per action.

Our results suggest that there is a trade-off between the cost-effectiveness of a targeting strategy and total savings from IEVS. For example, the IRS targeting strategy in Michigan targeted only eight matches for follow up during our study. The match was very cost-effective because one of the follow ups led to large savings, and as only eight follow ups were conducted, the cost of the match was low. In contrast, the cost-effectiveness of the SWICA applicant match in Michigan was relatively low because the match was not targeted and caseworkers consequently followed up all matches. However, the total savings from the SWICA match were over four times the total savings from the IRS match. This trade-off occurs because it is nearly impossible to design a targeting strategy that exempts from follow up only those cases in which there is no misreported income.

The IEVS regulations prohibit applicant targeting. The rationale for this regulation is that it is less costly to detect misreported income before a case begins to receive benefits. Moreover, the Puma study is cited as evidence that applicant matches without targeting are cost-effective. However, many applicants begin to receive benefits before follow up is completed. In Michigan, caseworkers rarely finished a follow up prior to certification. Although we found that the SWICA applicant match was cost-effective without targeting, our findings suggest a targeting strategy would increase the cost-effectiveness of the match. Some targeting strategies that would probably increase the cost-effectiveness of the match while only marginally reducing savings include: (1) exclude from follow up inactive cases, (2) exclude from follow up persons under age 18, and (3) exclude from follow up cases in which the average monthly reported income over the reference quarter is the same as or similar to the income on the SWICA database.

## CONCLUSIONS

All IEVS matches were cost-effective during the demonstrations. We cannot conclude that each IEVS match is *always* cost-effective. However, our results suggest that the matches were cost-effective with the targeting strategy used with each database, with the IEVS procedures used in each state, and for the types of clients that were in the research sample in each state (recipients in Arizona, and applicants and new recipients in Michigan).

## I. INTRODUCTION

To be eligible to receive benefits from the Food Stamp Program (FSP), a household's income and assets must fall below specified limits. However, if incorrect information is provided at the time of application or later changes in a household's circumstances are not reported, it is possible for individuals who are actually ineligible for the program to receive benefits and for eligible individuals to receive an incorrect amount of benefits. Minimizing such errors in eligibility and benefit levels is important because it increases the resources available to the truly needy and strengthens public support for the program.

The Income and Eligibility Verification System (IEVS) was established by Congress under the 1984 Deficit Reduction Act to minimize errors in determining eligibility and benefit levels in the Food Stamp, Aid to Families with Dependent Children (AFDC), and Medicaid programs. The IEVS regulations require state agencies to compare income reported by program applicants and recipients with income reported on six databases containing information on: earnings reported to the state by in-state employers; earned and unearned income reported to the Internal Revenue Service (IRS); and the receipt of social security, unemployment insurance, and supplementary security income benefits. Lists of welfare applicants and recipients are matched, using a computer, to the external database. If information on the external database is available for the applicant or recipient, the agency conducts "follow-up" procedures, which may include reviewing the client's case, contacting the client, verifying information on the external database, recomputing eligibility and benefits, investigating fraud, and recovering benefits paid in error.

In 1986, the FSP regulations were amended to require states to implement the IEVS procedures.<sup>1</sup> These regulations required states to match *all* applicants and recipients to the six

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<sup>1</sup>The final IEVS regulations are discussed in the February 28, 1986 *Federal Register*. The regulations became effective October 1986. The final IEVS regulations pertaining to the FSP are  
(continued...)

external databases, and to follow up on *all* cases about which the external database supplied information.

After implementing IEVS under these regulations, some state food-stamp agencies expressed concern that the IEVS regulations were inflexible and burdensome. While caseworkers followed up on many matches with the external database, errors were detected in only a small proportion of follow ups. As follow ups can be very time-consuming, caseworkers perceived that IEVS used a large amount of resources in relation to the savings it generated and was not cost-effective. This issue was especially pertinent as states faced a combination of fiscal contraction and growing caseloads.

The U.S. Department of Agriculture (USDA) and the U.S. Department of Health and Human Service (HHS) responded to these concerns by publishing interim regulations for comments in February 1988 permitting states to follow up on only a subset of matches that were most likely to lead to a benefit savings. The process of selecting a subset of matches to follow up is known as *targeting*. The interim amendments to the IEVS regulations gave the states the option to target recipient matches, although they are still required to follow up all applicant matches.<sup>2</sup>

While many states have adopted targeting strategies, their efforts to design and implement cost-effective strategies have been limited by the lack of information with which to evaluate targeting strategies. In response, the Food and Consumer Service (FCS) of USDA contracted with Mathematica Policy Research, Inc. (MPR) to conduct a study of targeting under IEVS. The objectives of this study were to (1) learn about targeting strategies used by state agencies, (2) develop improved targeting strategies, (3) evaluate the cost-effectiveness of these targeting strategies in two demonstration states, and (4) disseminate the results of the study to the state agencies.

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<sup>1</sup>(...continued)  
contained in 7 CFR, Parts 271-273; the regulations pertaining to the AFDC program are contained in 45 CFR, Parts 205-206; and the regulations pertaining to the Medicaid program are contained in 42 CFR, Parts 431 and 435.

<sup>2</sup>The interim IEVS targeting regulations pertaining to the FSP are contained in 7 CFR Part 272.

As we learned more about the needs of the state agencies, the focus of the study changed. As originally planned, the study was to develop and evaluate new or refined targeting strategies. Implicit in this vision of the study was the assumption that computer matching with an appropriate targeting strategy was cost-effective. However, during discussions with state agencies in the course of conducting a census of states' IEVS procedures and recruiting demonstration states, it became clear that the states questioned this assumption; some argued that some computer matches were not cost-effective even with targeting. The targeting strategies the states wished to introduce were not fine-tuned versions of existing targeting strategies, but radically different strategies that involved not following up on *any* matches with certain databases. In response, the study evolved into a comparison of the cost-effectiveness of matching IEVS databases using a targeting strategy with the cost-effectiveness of *not* following up any matches with some databases *at all*.

This report presents the findings from the cost-effectiveness study of IEVS matching and targeting strategies implemented as part of the IEVS demonstration. In total, five new matching and targeting strategies were implemented in the two demonstration states, Michigan and Arizona. The demonstrations were conducted between July and October 1992.

The rest of this chapter is organized as follows. Section A provides an overview of the IEVS process. Section B discusses the states' perceptions of the IEVS process. Prior research related to IEVS is discussed in Section C. Section D provides an overview of the demonstration and evaluation, and Section E presents the structure of the rest of the report.

#### **A. AN OVERVIEW OF THE IEVS PROCESS<sup>3</sup>**

The *IEVS process* is the sequence of procedures involved in verifying client-reported information under IEVS regulations. It includes preselecting cases and databases to match, as well as computer matching, targeting, and follow up. While FSP, AFDC, and Medicaid regulations specify that certain

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<sup>3</sup>The content of this section is based on the results of a state census of IEVS procedures conducted by MPR in 1991 and reported in Allin (1991).



## 1. Matching

FSP regulations require states to conduct computer matches of all applicants and recipients with six external databases:

1. ***State Wage Information Collection Agency (SWICA) Database.*** This database, maintained by a state agency such as the Department of Employment Security or the Department of Labor, provides quarterly earnings information that employers whose employees are covered by unemployment insurance must report each quarter. In most states, when the SWICA match takes place, the data refer to earnings information from the quarter prior to the previous quarter.
2. ***Unemployment Insurance (UI) Database.*** This database provides weekly data on UI benefits received in the previous month. It is often maintained by the same agency that maintains the SWICA database.
3. ***Beneficiary Data Exchange (BENDEX) Title II Database.***<sup>5</sup> This database, also maintained by the Social Security Administration (SSA), provides monthly information on social security and other benefits provided under Title II of the Social Security Act such as Black Lung benefits, Railroad Retirement benefits, and Medicare. At the time of the match, the data refer to benefits that will be received in the subsequent month.
4. ***Beneficiary Earnings Exchange Reports (BEER) Database.*** This database, maintained by the SSA, provides annual earnings information compiled from information on the IRS Form W-2. If the match is made before about April, the data refer to the year prior to the previous year; if the match occurs after April, the SSA sends data from the previous year when it becomes available.
5. ***State Data Exchange (SDX) Database.*** This database, also maintained by SSA, provides monthly information on supplemental security income (SSI) benefits. At the time of the match, the SDX data refer to the subsequent month.
6. ***Internal Revenue Service (IRS) Database.*** This database provides annual information on unearned income, such as interest and dividends, compiled by the IRS from the IRS Form 1099. If the match occurs before July, the data refer to the year prior to the previous year; if the match occurs in July or later, the data refer to the previous year.

Not all states comply with the IEVS regulations and conducts matches with all six of these databases.

In a state census of IEVS procedures, respondents from three states reported not matching with BEER, and one respondent reported not matching with BENDEX. Both states in our demonstration

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<sup>5</sup>Strictly speaking, BENDEX refers to the system at SSA through which Title II and Beneficiary Earnings Exchange Reports information is accessed. However, in this report we use the term BENDEX to refer to only the Title II information.

did not follow up any cases from some matches. In addition, some states reported that they screened cases before a match: not all persons on the client database were sent to be matched to the external database. Most forms of screening are prohibited by the IEVS regulations. However, some forms of screening are permitted. For example, state agencies are not required to request UI information on all applicants and recipients.

**a. Nonmandated Databases**

The IEVS regulations require that state agencies verify social security numbers (SSNs). SSNs can be verified by matching with the Numident file, which contains a list of SSNs and names, or with another SSA database, such as BENDEX. Most states conduct a separate match with the Numident database. However, in nearly all of these states the match is not coordinated with the matches with the IEVS-mandated databases. A state may not follow up on any discrepancies between the SSN reported by the client and the SSN on the Numident file until after a match has been conducted with the other databases. Many states also conduct computer matches with databases other than the six mandated databases, such as the state's Department of Motor Vehicles.<sup>6</sup>

**b. Timing of Matches**

The IEVS regulations require applicant matching at the "next available opportunity." This must be at least every two weeks with the SWICA and UI databases and every month with IRS and SSA data. Recipient matching is required less frequently--SWICA data must be matched quarterly, IRS data annually, SSA data by the second month of each certification period. Not all state agencies comply with these timing regulations.

**c. Matching Procedures**

The procedures involved in matching with the SWICA and UI databases vary by state. Typically, one or more of the following procedures is used: (1) the state agency sends a tape to the SWICA, which

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<sup>6</sup>More information about the use of nonmandated databases is available in an FCS report *Profiles of States' Food Stamp Operations* (Research and Evaluation Associates 1992).

conducts the match and sends a tape with the matched cases back to the state agency; (2) the SWICA sends a tape containing earnings or UI benefit information to the state agency, which conducts the match; (3) a central computer agency conducts the match and sends reports to the state agency (this often occurs when the state agency and the SWICA are part of the same umbrella organization); or (4) workers at the local office conduct on-line matches with the databases.

The matches with the BEER and BENDEX databases occur at SSA. Typically, states send a tape to SSA, which conducts the match and sends a tape with the matched information back to the state agency. In addition, SSA keeps an "orbit file" of all SSNs that were sent previously by the state agency.<sup>7</sup> If BEER or BENDEX information regarding SSNs on the orbit file becomes available or changes, SSA sends another tape with the new information to the state agency or appends this new information to data on the match tape.

Each month, SSA sends each state a tape, known as the "Treasury tape," containing data on all SSI recipients in the state. The state agency then typically matches the data on the tape against its client database. Eleven states also have direct access to BENDEX and SDX data (but not BEER data) at SSA via SSA's File Transfer Management System. Through this system, SSA can provide the states with information on SSI recipients three times a week via electronic file transmission. SSA sends a weekly tape containing information on changes in BENDEX and SDX data to those states that do not have direct access to the File Transfer Management System. In addition, all states have access to third-party query (TPQY) through which they can request a BENDEX or SDX match directly from a computer terminal at an SSA district office or by completing special cards they send to SSA. Information can be obtained via TPQY in about one or two weeks.

The match with the IRS database occurs at IRS. The state agency sends a tape of client SSNs to IRS, and IRS matches the tape with its databases and sends a tape containing the matched information back to the state.

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<sup>7</sup>The SSNs stay on the orbit file until the state explicitly requests their removal.

## 2. Targeting

The 1988 interim amendments to the IEVS regulations permitted targeting of recipients, not applicants. According to the IEVS state census, most states have implemented a targeting strategy for at least one database, and over three-quarters of all states have implemented targeting strategies for at least three of the IEVS-mandated databases. The matches most frequently targeted are those conducted with the BEER, IRS, and SWICA databases. Only five states have not implemented any targeting strategies and so follow up on all matches from all IEVS-mandated databases.

The types of targeting strategies used by the state agencies vary considerably by state and by database. However, the strategies typically consist of a number of rules, most of which fall into one of four categories:

1. ***Exempt Cases from Follow Up on the Basis of Individual or Case Characteristics.*** This rule exempts individuals or cases from follow up on the basis of their benefits-related and/or demographic characteristics. Examples of this type of rule include (a) follow up only on cases in which a person is currently receiving benefits and (b) do not follow up on persons under a certain age.
2. ***Exempt Specified Data Items from Follow Up.*** Under this rule, certain information items are not followed up because the information duplicates information available from other databases.
3. ***Use of a Tolerance Threshold.*** Individuals or cases are targeted for follow up if the income reported on the external database exceeds a given threshold.
4. ***Use of a Discrepancy Threshold.*** Individuals or cases are targeted for follow up if the difference between income reported on the external database and income on the client database exceeds a given threshold. A more general variant of this rule is to follow up if there is any discrepancy between an item of information included in the two databases--the item may be the dollar amount of income, the receipt of a type of income, or the employer name.

The IEVS census reported that the most common targeting strategy for the SWICA, UI, BENDEX, and SDX databases is the use of a discrepancy threshold. The size of the threshold varies by database and by state. The most common targeting strategy used for the BEER database is to examine income data that are not also contained on the SWICA database--information on earnings

from out-of-state activities, pensions, agricultural work, and self-employment. As the BEER data are annual and one or two years old at the time of the match, states would require an extensive benefit-history file in order to compare income from the same periods on the BEER database and the client database. Hence, most states do not use a discrepancy threshold as part of their targeting strategy for BEER. The predominant strategy for the IRS database is to follow up on matches only if the amounts of one or more of the types of unearned income are above a certain tolerance threshold. States rarely use a discrepancy threshold for the IRS database for the same reason that they do not use one for the BEER database--the data are annual and out of date.

### 3. Follow Up

A case designated for follow up is called a hit. There are two main procedures used to send information on hits to local offices: (1) hard-copy reports (IEVS reports) and (2) messages, or "alerts," that appear on the caseworker's computer screen. These procedures may vary by database.

The caseworker is usually responsible for most of the follow up. However, clerical staff, specialized caseworkers, and fraud investigators may also be involved. Follow-up procedures involve the activities listed below:

1. ***Reviewing the Information in the Casefile.*** This involves checking that the client-reported information used in the computer match is valid and was correctly entered into the computer; checking that the information had not already been received from the client or via another match, and whether the computer system has not already made this check; and checking whether there is a discrepancy between the information reported by the client and the information provided on the external database.
2. ***Contacting the Client.*** The caseworker may contact the client to (1) ask for verification of income, (2) obtain permission for the collateral contact to release information, (3) inform the client that there is a discrepancy between income he or she reported and income on the external database, or (4) inform the client that an action is going to be taken as a result of the IEVS match.
3. ***Verifying Information from the External Database If a Discrepancy Exists.*** This involves contacting the client and/or making a "collateral contact" with the client's bank or employer. In some states the computer system produces letters to the collateral contacts if the caseworker enters into the system the necessary information. *Data on*

*SSI, Title II, and UI benefits are considered already verified and do not require third-party verification.*

4. ***Recomputing Eligibility and Benefits Using Information from the External Database.*** In many states this can be performed by the computer. After recomputing the eligibility and benefits, the caseworker inputs the new information into the client database.
5. ***Processing Claims, Disqualifying Recipients, and Investigating Fraud.*** Processing claims involves computing total overpayments and initiating action to recover the overpayment. Depending on the state, the caseworker, a specialized worker, or the state agency's collection division is responsible for processing claims. In most states a special unit is responsible for investigating fraud.

IEVS regulations require that the states complete follow-up procedures within 45 days of receipt of the matched information. If follow up is delayed because the state is waiting for information from collateral contacts, the state is permitted to follow up 20 percent of the cases in more than 45 days. Estimates of how many cases are followed up within the 45-day limit vary widely from state to state, but in most states follow up procedures are completed within 45 days for two-thirds to three-quarters of the cases designated for follow up.

## **B. PERCEPTIONS OF THE IEVS PROCESS**

This section describes some of the states' concerns about IEVS and some changes to the IEVS regulations suggested by the states. This section draws upon the state census, a report by the American Public Welfare Association (1989), and discussions with state staff at potential and actual demonstration sites.<sup>7</sup>

Most of the agency staff believe that computer matching is useful and generally cost-effective. However, they perceive a number of problems with some of the information provided by the IEVS-mandated databases. The three most often cited problems are:

1. ***Out-of-Date Data.*** BEER and IRS data can be up to 30 months out-of-date. SWICA data can be up to 6 months out of date. Thus, income on those databases could refer to periods of time when the client was not receiving benefits. Moreover, verifying out-of-date

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<sup>7</sup>These concerns were expressed prior to our study.

information is more difficult. The benefit data provided by BENDEX, UI, and SDX are kept up-to-date.

2. ***Data Are Aggregated over Different Time Periods.*** While clients report monthly income, income collected by the source agencies are often aggregated over a longer period of time. BEER and IRS data provide annual income data and SWICA provides quarterly income data. Thus, it is difficult to make direct comparisons between income reported by the client and income reported by the external data source.
3. **Duplicated Data.** Most of the information provided by BEER duplicates data provided by SWICA. The only income data that are provided by BEER, but not SWICA, are (1) self-employment income, (2) out-of-state wages, (3) federal and military employees wages, and (4) agricultural earnings.

Although few states had conducted detailed cost-effectiveness studies, over half of the states responding to the state census perceived that matches with the SWICA, UI, BENDEX, and SDX databases were cost-effective. The SWICA match was the most popular—80 percent of the states viewed the SWICA match as cost-effective. Staff argued that information on earned income was useful in detecting incorrect benefit and eligibility determinations and easy to use. However, other respondents were more critical of the match and argued that the SWICA information was out-of-date and was costly to follow up because it required contact with employers. UI, BENDEX, and SDX matches were popular because the data are up-to-date, monthly, and do not require third-party verification.

The least popular matches were those with the IRS and BEER databases. Only 12 percent of states perceive the BEER match to be cost-effective. Problems with these matches include: (1) the data are out-of-date, (2) the data are annual, (3) much of the BEER data duplicates data received from the SWICA match, (4) there is a long turnaround time for receiving the data, and (5) there are stringent security requirements for using these data.

A common view among state agency staff is that the IEVS regulations do not allow the states sufficient flexibility to use computer matching in the most cost-effective way. This perception of the burden of the IEVS regulations is reflected in the evidence we found of noncompliance with the regulations. Neither of the two demonstration states were in full compliance with the IEVS

regulations prior to the demonstration. Changes in the current IEVS regulations that have been suggested include:

- Allow states to conduct matches with only those databases viewed as cost-effective
- Allow states to use screening, that is, to send only selected clients to be matched with the external database
- Allow states to target applicants

### **C. PRIOR COST-EFFECTIVENESS STUDIES OF IEVS**

No previous multi-state study of IEVS has estimated the cost-effectiveness of computer matching with targeting under IEVS. Greenberg and Wolf (1986) estimated the cost-effectiveness of computer matching with earnings data, but their study was conducted before IEVS was established. Puma (1989) examined the cost-effectiveness of using computers to match external data sources with data reported by applicants, but not recipients. Some states have conducted their own cost-effectiveness studies, but in general these studies lack sophistication and are difficult to interpret.

Greenberg and Wolf estimated the cost-effectiveness of computer matching with state earnings databases in four sites: Mercer County, New Jersey; Camden County, New Jersey; San Joaquin, California; and New Hampshire. These sites were chosen because they had well-functioning wage matching systems. This study was conducted in 1982, prior to the introduction of IEVS. Greenberg and Wolf found that wage matching was cost-effective in all four sites, with the cost-benefit ratio varying from 1.6 to 2.5.

Puma (1989) estimated the cost-effectiveness of computer matching of applicants in nine sites. Only offices in which information from the matches could be made available to the caseworker before certification were included in the study. This study was conducted in 1987, before applicant matching was mandatory. (No site did an IRS applicant match.) Puma found that the cost-benefit ratio, averaged over all matches, was greater than one in all sites. Overall, the cost-benefit ratio was just

under four. The SWICA match was the most cost-effective. The SDX match was the only match that, on average over all sites, not cost-effective.

During the census, states were asked to submit to MPR any cost-effectiveness studies of IEVS matching that they had conducted. Studies were received from 13 states. In general, these studies were not highly sophisticated, and among those of moderate to high quality, results varied widely. Although no match was found to be cost-effective by all studies, a majority found the SWICA, UI, BENDEX, and SDX matches to be cost-effective and the BEER and IRS matches not to be cost-effective.

Michigan--one of our demonstration sites--conducted a cost-effectiveness study of matching with the SWICA database (Ward and Smucker 1990). This study is of fairly high quality. Ward and Smucker found that while matching recipients against SWICA data is cost-effective, matching *applicants* with SWICA data is not cost-effective. The ratio of savings to cost for the recipients varies from between 3 and 15 depending on the targeting strategy used--the higher the tolerance threshold used in the targeting strategy, the higher the savings-to-cost ratio. However, the savings-to-cost ratio for applicants is less than 0.8. This is contrary to Puma's findings that applicant wage matching is cost-effective. We discuss Puma's study in more detail in Chapter VIII.

#### **D. AN OVERVIEW OF THE IEVS TARGETING DEMONSTRATION AND EVALUATION**

The demonstration involved introducing a total of five new IEVS matching and targeting strategies in two states, Michigan and Arizona. The criteria used for selecting the states were that the state was interested in committing the necessary resources to conduct the study, and the state was as similar as possible to the majority of states in its IEVS system and in demographic and economic factors. Although states vary considerably in the operation of IEVS, we consider the operation of IEVS in either Michigan or Arizona to be fairly representative of the other states.

The Arizona demonstration focused on recipients, while the Michigan demonstration focused on applicants. Arizona introduced three new matching and targeting strategies: (1) matching recipients

with the SWICA database and using a new targeting strategy, (2) following up recipient matches with the BEER database and using a new targeting strategy, and (3) following up recipient matches with the IRS database and using a new targeting strategy. Michigan introduced two new IEVS strategies: (1) not following up any match of an applicant with the SWICA database and (2) increasing the tolerance threshold for the IRS match.

In the evaluation, we estimated the cost-effectiveness of the SWICA recipient match, the BEER match, and the IRS match in Arizona. In Michigan, we estimated the cost-effectiveness of the SWICA applicant match (or not conducting the match), and the cost-effectiveness of the IRS match. We also measured the cost-effectiveness of the UI, BENDEX, and SDX matches in Michigan. No changes were made to the matching or targeting strategies used with these databases.

Cost-effectiveness is measured as the ratio of program savings from IEVS to the cost of matching, targeting, and following up under IEVS. Program savings, the numerator of the ratio, includes FSP and AFDC benefits that would have been erroneously paid to clients, benefits that were erroneously paid to clients in the past and are recovered, and the cost of administering cases that would have been opened or maintained on the rolls in the absence of IEVS. The cost of IEVS, the denominator of the ratio, includes the cost of matching and targeting, the cost of the caseworkers' follow ups, the cost of investigating fraud, and the costs of establishing and collecting claims. We also estimated the cost of developing new the new matching and targeting rules. However, as the development costs are one-time-only costs, we do not include them in the savings-to-cost ratio.

We measure cost-effectiveness from the perspective of the federal and state governments. Hence, we do not include the costs of IEVS to the clients or to third parties, such as employers and financial institutions. We also include only directly measurable savings and costs. Hence, we do not include any measure of the savings that may result because IEVS deters clients from misreporting their income or because caseworkers' morale has improved.

It is important to note that cost-effectiveness is not the only possible criteria by which matching and targeting under IEVS can be judged. While the savings-to-cost ratio indicates the amount of program savings that can be expected for every dollar spent on matching and targeting, it does not provide any information about the percentage of all errors in benefit and eligibility determination that are detected. The most cost-effective matching and targeting strategy may be one that follows up on only a few cases that are likely to yield large savings, while allowing many smaller errors go undetected.

## **E. AN OVERVIEW OF THE REPORT**

This volume of the report (Volume I) provides an overview of the study and discusses the main results. Volume II consists of a series of appendices that provide more details about the IEVS procedures used in the two states and the measures of savings and costs used in the study.

Chapter II of this report describes the two demonstration sites, Michigan and Arizona. Chapter III describes the evaluation design. Chapter IV presents our framework for estimating costs and savings. It discusses the measurement issues and the assumptions underlying our measures. The last four chapters present the results of the evaluation. The cost-effectiveness of IEVS depends on three factors: (1) the proportions of all cases that are matched, targeted for follow up, and lead to savings, (2) the size of the savings realized as a result of follow up, and (3) the cost of matching, targeting, and following up cases. Chapters V, VI, and VII examines each of these factors, respectively. Chapter VIII presents our estimates of the cost-effectiveness of IEVS matches and discusses our overall findings from the IEVS demonstrations.

## II. THE ENVIRONMENT: ARIZONA AND MICHIGAN FOOD-STAMP AGENCIES

The IEVS demonstrations were conducted at two food-stamp agencies: Arizona and Michigan. These agencies were chosen to take part in the demonstration because (1) they were interested in

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participating in the study and willing to commit the necessary staff to the demonstration and (2) their IEVS procedures were fairly representative of IEVS procedures used in other states. In order to provide some context for the results of the evaluation, this chapter describes the key characteristics of the two food-stamp agencies. We begin in Section A by describing some general features of the FSP in the two states. Section B provides a summary of the IEVS procedures in the two states. Finally, Section C provides a description of the matches that took place during our demonstration.

### A. CHARACTERISTICS OF THE FOOD-STAMP AGENCIES IN ARIZONA AND MICHIGAN

In Arizona, the Food Stamp and AFDC programs are fully integrated. Both programs are administered by the Family Assistance Administration (FAA) within the Department of Economic Security (DES). The administration of the Medicaid program is the responsibility of the Arizona Health Care Cost Containment System (AHCCCS) Administration, but Medicaid cases that are also FSP or AFDC cases are administered by the FAA. In Michigan, all three programs are fully integrated and administered by the Department of Social Services (DSS). In both states, most caseworkers work with cases in all three programs.

In July 1992, Arizona's caseload was about 169,000. This is an average-sized state caseload; 20 states had larger caseloads. In comparison, Michigan had a caseload of about 406,000, larger than that of all but seven other states. Both states, like most others, have experienced a growth in their caseload over the past three years. Arizona experienced a particularly large growth both in absolute and relative terms. Between fiscal year 1991 and 1992, the food-stamp caseload in Arizona rose by nearly 30,000 or 21 percent, while in Michigan the caseload remained fairly steady over this time period.

The average number of cases per caseworker in Arizona is about 152, compared to 231 in Michigan. The IEVS Census found that the caseload per caseworker varied considerably by state, ranging from 100 to 523 with an average of 258 cases per caseworker.

The quality control error rates vary considerably by state. In fiscal year 1991, the percentage of cases with errors detected in a state during the quality control process varied between 4 and 14 percent, and on average was 9.8 percent. Both of the demonstration agencies had error rates that were about average: in fiscal year 1991, the error rate was 10.9 percent in Arizona and 8.9 percent in Michigan.

Table II.1 describes some characteristics of the food-stamp households in the two demonstration states and in the U.S. as a whole estimated from the 1991 Food Stamp Quality Control database. Important differences between the two states include:

- A smaller proportion of the food-stamp households also receive AFDC in Arizona (33 percent) than in Michigan (51 percent) and the U.S. as a whole (41 percent). Also, a smaller proportion of the food-stamp households in Arizona receive Medicaid than in Michigan or the U.S. as a whole.
- More food-stamp households have earnings in Arizona (29 percent) than in Michigan (15 percent) or the U.S. as a whole (20 percent). The average amount of earnings received by food-stamp households in Arizona (\$196) is larger than in Michigan (\$72) and in the U.S. as a whole (\$117).
- The proportion of households with elderly persons is slightly higher in Arizona (11 percent) than in Michigan (10 percent), but it is lower in both states than in the U.S. as a whole (16 percent).
- Arizona has a larger proportion of Hispanic and Native American households (28 and 14 percent, respectively) than does Michigan (2 and 1 percent, respectively). Michigan has a higher proportion of African-American households (46 percent) than does Arizona (8 percent).
- The average length of the certification period in Arizona (6.6 months) is much shorter than in Michigan (12.6 months) and in the U.S. as a whole (9.7 months).

TABLE II.1

**CHARACTERISTICS OF FOOD STAMP HOUSEHOLDS IN  
MICHIGAN, ARIZONA, AND U.S. AS A WHOLE, 1991**

Characteristic	Arizona	Michigan	U.S. as a Whole
<b>Percent of Households with</b>			
AFDC Benefits	33.2	50.9	40.5
Medicaid Eligibility	42.3	62.5	59.1
Positive Gross Income	86.1	95.4	91.7
Positive Earnings	29.2	14.6	19.8
Expedited Service	8.4	4.7	5.0
Elderly Persons	10.7	9.8	16.4
Children under 18	63.9	58.4	60.4
No Male Adult Present	56.2	65.0	64.7
<b>Percent Distributions</b>			
<b>Income as Percent of Poverty</b>			
0	13.9	4.6	8.3
1-50	45.2	42.4	33.3
51-100	31.2	47.0	50.6
101-150	9.6	5.9	7.7
Over 150	0.2	0.0	0.2
<b>Race of Household Head</b>			
White, non-Hispanic	45.4	50.9	45.7
Black, non-Hispanic	7.8	45.5	35.0
Hispanic	27.7	2.1	13.7
Native American or Alaskan Native	13.5	0.6	1.1
Other/Unknown	5.6	0.8	4.5
<b>Average Values</b>			
Gross Income	\$434	\$430	\$464
Earnings	\$196	\$72	\$117
Household Size	2.9	2.4	2.6
Food Stamp Benefit	\$191	\$166	\$161
Number of Persons with Earnings in Household	0.3	0.2	0.2
Length of Certification Period (months)	6.6	12.6	9.7
<b>Sample Size</b>	<b>1,214</b>	<b>1,644</b>	<b>63,692</b>

SOURCE: 1991 Food Stamp Quality Control database.

## **B. IEVS PROCEDURES IN ARIZONA AND MICHIGAN**

The IEVS process is fairly well automated in both states. In both states, the caseworker can use the system to recompute eligibility and benefits for a defined past period. According to the IEVS Census, 28 other states have this capability (Allin 1991). As in most states (all but seven), targeting is completely automated in both states. Twelve states have some automated support for follow up--usually to produce a letter for the client or collateral contact. Arizona has some automated support for producing letters to the collateral contacts, but follow up is almost completely manual in both Arizona and Michigan.

As in the majority of states, in Arizona and Michigan the matching process for the food stamp, AFDC, and Medicaid programs is coordinated. That is, one tape containing SSNs for individuals participating in one or more of these programs is sent to the external agency.

Below, we describe the matching, targeting, and follow-up procedures used in Arizona and Michigan. For brevity, we include only a discussion of the procedures used for matches in our demonstrations. A fuller description of the IEVS procedures in the two states is given in Appendix A of Volume II.

### **1. Arizona**

The IEVS procedures in Arizona are summarized in Table II.2.

#### **a. Matching**

Arizona has conducted matches with all six IEVS-mandated databases. However, prior to our demonstration, Arizona had discontinued its SWICA quarterly tape match and was conducting only on-line matches with the SWICA database. And although the state was conducting matches with the BEER and IRS databases, no matches from these databases were followed up. The BEER and IRS matches were not followed up because Arizona believed they were not cost-effective.

TABLE II.2

SUMMARY OF IEVS PROCEDURES IN ARIZONA

Match	Match Took Place Prior to Demonstration?	Frequency of Match	Which Clients Are Matched?	Process	Targeting?	Form in Which Information is Sent to Caseworkers
<b>SWICA</b>						
On-line	Yes	NA	Applicants, clients at recertification, and clients who report any changes in circumstances	Direct on-line access	No	Print of screen (on-line access)
Tape	No	Quarterly	All clients	Tape match at FAA	NA	Hard-copy report
<b>BEER</b>	Yes	Monthly	New clients and any clients for whom there is new information on the system; SSA sends information on all clients whose situation has changed	Tape match at SSA (response tape returned to FAA via AHCCCS)	No matches followed up prior to demonstration	Hard-copy report
<b>IRS</b>						
All Clients	Yes	Annually	All clients who are active	Tape match at IRS	No matches followed up prior to demonstration	Hard-copy report
New Clients	Yes	Monthly	New clients	Tape match at IRS	No matches followed up prior to demonstration	Hard-copy report

NA = Not applicable.

During our demonstration, Arizona reinstated the quarterly SWICA recipient match and followed up matches from the BEER and IRS databases. No matches were followed up from BENDEX. Only the quarterly SWICA recipient match and the BEER and IRS matches were included in the demonstration.

The client database in Arizona includes applicants, recipients, and persons who do not receive benefits but who reside in the households of applicants or recipients. Unless otherwise stated, Arizona's FAA requests information from the external database on *all* persons on the client database.

**SWICA.** Employers in Arizona are required to report their employee's quarterly earnings to the Administration of Unemployment Insurance, which is a division within the Arizona DES. The SWICA database, known in Arizona as the "base wage" database, contains information on the SSN of each employee, the employees' quarterly earnings, and the employers' names and addresses.

Two types of matches can be conducted with the SWICA database, an on-line match and a tape match. As the SWICA database is in effect "in-house" at the DES, staff can access the database directly via on-line commands from their computer terminals. The quarterly SWICA recipient match is a tape match that takes place at the FAA.

**BEER.** The BEER match is coordinated with the BENDEX match. Arizona sends a tape, known as the "BENDEX request tape," to the SSA each month. This tape contains the SSNs of all new clients who have not been sent previously. The SSA matches the SSNs on the BENDEX request tape with its BEER database in addition to its BENDEX database. The FAA receives two tapes a month containing BEER information--one consisting largely of matched information on new clients and the other containing new matched information from the orbit file on clients who were previously sent to SSA. Depending on when in the month new data on clients on the orbit file is received by SSA, information on clients who were previously sent to SSA may be included on the first tape containing matched information on new clients or on the orbit-file tape.

**IRS.** Once a year, Arizona sends a tape to the IRS containing the SSNs of clients on the client database who are active for either the food stamp or AFDC programs. As not all clients on the database are sent to be matched, this is a form of screening. After a month or two, Arizona receives a tape back from the IRS with the matched information. In addition, Arizona sends a tape to the IRS each month containing the SSNs of all new clients (that is, those clients who have not been previously matched with the IRS database). About one month later, Arizona receives a tape from the IRS that contains information on any matches with the IRS database.

**b. Targeting**

In the past, Arizona conducted targeting on the matches with all six IEVS-mandated databases. However, prior to the demonstration, Arizona was targeting only its BENDEX match, UI tape match and SDX match.

**c. Follow Up**

This section explains the typical follow-up procedures in Arizona. The specific procedures do, however, vary across local offices.

The manner in which caseworkers are notified of a hit varies by database. Caseworkers are notified of a hit from the SWICA, BEER, and IRS matches by a hard-copy report. The SWICA reports are sent from the state office to the local offices, where they are distributed to caseworkers. For security reasons, BEER and IRS reports are locked in cabinets. Caseworkers must sign for a report when it is removed from the cabinet and must return the report to the cabinet within a few hours.

While the IEVS regulations require that caseworkers follow up a hit within 45 days, caseworkers in Arizona are requested to complete the follow-up procedures in less time. The time allowed to complete follow up varies by database. The SWICA hits must be followed up within 10 calendar days after the worker receives the report; the UI, BENDEX, and SDX hits within 14 days; and the BEER

and IRS hits within 30 days. Discussions with some field staff in Arizona suggest that these time limits are not always met, and in some instances, a hit may not be followed up at all.

If the caseworker discovers that the client is currently receiving an incorrect benefit payment, he or she will recompute the new benefit amount using the new income information. However, if the caseworker suspects fraud or discovers an overpayment, he or she will complete a *referral form (FA-526)*, which is given to an *overpayment writer*. An overpayment writer is a caseworker who specializes in calculating overpayments and establishing claims. It may take a couple of weeks for the overpayment writer to calculate the amount of the overpayment. The overpayment writer completes a form, FA-529, with information on the case. This form is sent to the Office of Accounts Receivable and Collections (OARC), which investigates the cause of the overpayment (fraud, client error, or agency error), proceeds with any legal action, and arranges for the collection of the claim.

## 2. Michigan

The IEVS procedures in Michigan are summarized in Table II.3.

### a. Matching

Michigan conducts matches with all six IEVS-mandated databases. All matches except the BEER and the SWICA recipient match are included in the demonstration. During our study period, none of the research-sample cases were subject to the SWICA recipient match and no BEER match was processed.<sup>1</sup>

Before a case is found to be eligible for benefits, only the SSN of the person who applied for benefits is entered into the client database. That is, applicant matches in Michigan do not include the SSNs of persons who reside in the same household as the applicant. Unlike Arizona, which requests information on everyone in the household, Michigan requests information on *only one*

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<sup>1</sup>All BEER tapes received during the year are processed at one time. The annual processing did not occur during our study.

TABLE II.3  
SUMMARY OF IEVS PROCEDURES IN MICHIGAN

Match	Frequency of Match	Which Clients Are Matched?	Process	Targeting?	Form in Which Information is Sent to the Caseworkers
<b>SWICA</b>					
Applicants	Twice weekly	New applicants who have not been active within the past 105 days	Tape match at MESC	No	Hard-copy report
Recipients	Quarterly	All recipients who have received benefits for the past three months	Tape match at MESC	Yes	Hard-copy report
<b>UI</b>					
Applicants	Twice weekly	New applicants who have not been active within the past 105 days	Tape match at MESC	Yes	Hard-copy report
Recipients	Monthly	Clients who report receiving some unearned income, clients who have lost employment within the past three months, and clients who applied for welfare benefits less than three months previously	Tape match at MESC	Yes	Hard-copy report
BENDEX	Monthly	New recipients and one-third of the caseload SSA sends information on all clients whose situations have changed	Tape match at SSA	Yes	Hard-copy report
SDX	Weekly	All applicants and recipients	Receive tapes from SSA	Yes	Hard-copy report
IRS	Monthly	Applicants, and recipients due for redetermination within 3 months	Tape match at IRS	Yes	NA <sup>a</sup>

<sup>a</sup>Notification is sent first to the client. Caseworkers receive a printout listing those clients who were notified.

NA = Not applicable.

person in each household for the applicant matches. For recipient cases, information is requested only on persons who are eligible to receive benefits.

**SWICA.** Employers are required to report the quarterly earnings of employees who are covered by Unemployment Insurance to the Michigan Economic Security Commission (MESC). Michigan performs an applicant match and a recipient match with these SWICA data. Michigan's DSS does not have direct on-line access to the SWICA database, so both matches involve sending a tape to the MESC. With the exception of New York, Michigan is the only state required to pay for each match with the SWICA database.

A tape of the SSNs of "new" applicants is sent about twice a week to the MESC. A "new" applicant is defined as an applicant who has not previously been active in the previous 105 days. As a client is defined as active if they have either applied for or receive welfare benefits, this screens out applicants who previously applied for benefits within the past three months. The rationale for this screen is that as the SWICA database is updated only on a quarterly basis, it will provide identical information on a person for three consecutive months. This screening rule could, however, screen out useful information on a person who applies more than once in a three-month period if these applications were made in two different quarters.

The MESC conducts the match and returns the matched information on a tape within two or three weeks. Within a few days of receiving the tape, DSS produces reports of the hits and sends them to the caseworkers.

**UI.** The MESC also collects information on UI benefits. Although DSS must pay for the SWICA match, it does not pay for the UI match. An applicant match and a recipient match are conducted with the UI database.

The tape of all "new" applicant SSNs sent twice a week to the MESC to be matched to the SWICA database is also matched to the UI database. The MESC conducts the match and returns the matched information within about a week. At the beginning of each month, DSS also sends to

the MESC a tape containing the SSNs of all clients who report receiving some form of unearned income, who do not report receiving UI benefits but have lost employment within the past three months, or who do not report receiving UI benefits but have applied for welfare benefits less than three months previously.<sup>2</sup> The rationale for including persons who report receiving some unearned income is that the client database does not include a field that contains UI benefit information; hence, any UI benefit data is entered as unearned income.

**BENDEX.** Michigan sends a BENDEX request tape to the SSA during about the third week of the month. The request tape contains SSNs of all new recipients who have become active that month and have not already been matched to the BENDEX database. Michigan does not currently include applicants on the BENDEX request tape. The BENDEX request tape also contains the SSNs of about one-third of the clients on the client database (chosen by the digits in the case number).<sup>3</sup>

The SSA sends two tapes back to Michigan. Both arrive around the middle of the month. The first tape consists primarily of information on the clients included on the request tape. The second tape contains any new information on clients who were sent previously and were kept by the SSA on its orbit file. Within two or three days of receiving the tapes, Michigan produces reports of hits to be sent to the caseworkers. If, during the application process, a caseworker suspects that a client is receiving unreported Title II (or SSI) benefits, he or she can send a TPQY card to the SSA.

**SDX.** At the end of each month, Michigan's DSS receives a tape--the Treasury tape--containing information on all persons in Michigan who have applied for SSI, receive SSI, or have received SSI in the past. Because Michigan does not have direct access to the SSA File Transfer Management System, it does not electronically receive updated information on SSI recipients three times a week.

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<sup>2</sup>As all clients are not sent to be matched, this is a form of screening. However, this form of screening for the UI match is explicitly permitted by the IEVS regulations.

<sup>3</sup>As SSA sends a tape from the orbit file containing data on any clients whose benefits have changed, it is redundant to send SSNs of clients who have previously been sent to SSA. However, this procedure began before SSA sent data from the orbit file and has not yet been changed.

Instead, each week Michigan receives a tape from SSA that contains any new information on persons on the SDX database.

**IRS.** Around the second week of each month, Michigan sends the IRS a tape containing SSNs of all current applicants and SSNs of recipients who are due for redetermination within about three months. About two or three weeks later, the IRS returns to Michigan a tape with the matched information.

#### **b. Targeting**

Michigan conducts some form of targeting on all of its matches except the SWICA applicant match. The targeting strategies are implemented at the state office. There is no difference in the targeting strategies by welfare program. The following explains Michigan's targeting strategies for each database.

**SWICA.** No targeting strategy is applied to the applicant match with the SWICA database--all matches are designated for follow up. However, discussions with agency staff in Michigan suggest that caseworkers do not currently have time to follow up a substantial proportion of the matches.

**UI.** Michigan applies the same targeting strategy to its applicant and recipient matches with the UI database. A match is followed up only if both of the following rules are satisfied:

- The client is currently active for a program administered by DSS.
- The UI database reports that the client has applied for UI benefits in the past 30 days, has received UI benefits in the past 60 days, or has returned to work within the past 90 days.

The first rule exempts from follow up clients who, at the time the targeting strategy is applied, have neither applied for nor receive benefits. These clients are not followed up because they cannot lead to any change in current benefits or eligibility status and because it is difficult to recover overpayments from clients who are no longer active. The second rule exempts from follow up those cases for which the receipt of UI benefits is unlikely to affect current benefits or eligibility. However,

it does not exempt from follow up clients who have recently stopped receiving UI benefits because this may indicate that the client has recently started work and has earned income.

**BENDEX.** The targeting strategy for the BENDEX match is to follow up on matches only if both of the following rules are satisfied:

- The client is currently active for a program administered by the DSS.
- The client is currently receiving Title II benefits.

The first rule exempts inactive clients from follow up. The second rule exempts from follow up clients who do not currently receive any Title II income.

**SDX.** Matches are followed up by the caseworker only if both of the following targeting rules are satisfied:

- The client is currently active for a program administered by DSS.
- The client has applied for SSI, is currently receiving SSI benefits, has just had SSI benefits denied or terminated, or has had a change in address or living arrangements.

These targeting rules exempt from follow up any clients that received SSI benefits in the past, but are no longer receiving benefits and for which the information consequently cannot lead to a change in current benefits or eligibility.

**IRS.** The targeting strategy for the IRS match used prior to the demonstration was is to follow up only if both of the following targeting rules were satisfied:

- The client is currently active in a program administered by DSS.
- The IRS reports levels of unearned income that exceed specified thresholds:
  - Interest income exceeds \$100 or
  - Dividends exceed \$100 or
  - Agricultural subsidies exceed \$100 or
  - Capital gains exceed \$100 or
  - Stock dividends exceed \$100 or
  - Stock liquidations exceed \$100 or

- Savings bond interest exceeds \$100 or
- Income from rental properties exceeds \$100 or
- Royalties exceed \$100 or
- Bond liquidations exceed \$100 or
- Prizes and awards exceed \$100 or
- IRA distributions exceed \$100 or
- Profit sharing distributions exceed \$100 or
- Real estate sales exceed \$100 or
- State income tax refunds exceed \$300

### **c. Follow Up**

The follow-up procedures in Michigan also vary by local office and by database. For example, in some offices certain caseworkers process applicant matches, and others process recipient matches; in other offices caseworkers process both applicant and recipient matches.

Caseworkers are notified of a hit from the SWICA, UI, BENDEX, and SDX matches by a hard-copy report from the state office. For a hit from the BEER or IRS match, the state office sends a letter to the client notifying him or her that DSS has been notified of a source of income. The client is required to schedule an interview with the caseworker within a couple of weeks. If the client fails to do so, he or she is disqualified from the program and the case is closed. The caseworker receives a printout that lists those clients who have been sent a letter notifying them of the BEER or IRS information.

Caseworkers are requested to complete the follow up of all hits within the 45 days specified by the IEVS regulations. They begin by checking the information in the casefile. If verification is required, the caseworker sends a letter to a collateral contact. The BEER and IRS matches are not verified until after the client has given the caseworker the letter from the state office about the match.

If the estimated amount of overpayment is less than \$200 or if fraud is not suspected because, for example, the agency itself made an error in benefit payments, the caseworker sends the client a letter about the overpayment. If the client does not dispute the overpayment, the caseworker enters the amount of the overpayment into a special system on the mainframe computer, the Automated

Recoupment System (ARS). The ARS automatically calculates the recoupment, which is the amount by which the monthly benefit is reduced to recover the overpayment.

If the estimated amount of the overpayment is between \$200 and \$500 and fraud is suspected, the caseworker transfers the case materials to a caseworker who is specialized in dealing with overpayments, a *designated staff person* (DSP).<sup>4</sup> The DSP checks the amount of the overpayment and investigates whether there was fraud. If the investigation shows that fraud is a possibility, the DSP arranges for a hearing. It takes about a month for these procedures to be completed.

If the estimated amount of the overpayment is \$500 or more and fraud is suspected, the case is referred to the Office of the Inspector General (OIG). OIG conducts an investigation and arranges for any legal proceedings. If the case is referred to the OIG, it can take months or even years before the exact amount of the overpayment is established.

### **C. MATCHES DURING THE DEMONSTRATION**

This section describes the matches that took place as part of the demonstration. In Arizona, two quarterly SWICA matches took place. Usually, only one match would take place during our study period. However, in order to increase the number of hits in our sample, an early SWICA match was postponed by a few months so it would take place during our study. The first SWICA match, which took place in August, involved matching the client database against earnings data for the first quarter of 1992 (January, February, and March). The second SWICA match, which occurred in September, involved matching the client database against earnings data from the second quarter of 1992 (April, May, and June). Arizona sent three monthly BEER request tapes to SSA in July, August, and September, respectively. These tapes were processed (targeted and reports produced) in August, September, and early November, respectively. Arizona processed two IRS matches during our study. The first was the annual IRS match, which includes all active clients. The request tape for this match was sent in early July. The response tape was processed in late October. The second was a monthly

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<sup>4</sup>In some offices where there is no DSP, the caseworker would perform the tasks of the DSP.

match including only new clients. The request form for this match was sent in early October, and the

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### **III. EVALUATION DESIGN**

The evaluation was designed to estimate the cost-effectiveness of new IEVS matching and targeting procedures. Cost-effectiveness is measured as the ratio of program savings from IEVS to the costs incurred because of IEVS. Program savings, the numerator of the ratio, includes FSP and AFDC program benefits that would have been erroneously paid to clients, benefits that were erroneously paid to clients in the past and are recovered, and the cost of administering cases that would have been opened or remained on the rolls in the absence of IEVS. The cost of IEVS, the denominator of the ratio, includes the cost of the time caseworkers devote to follow-up activities; data processing costs; the cost of investigating fraud, establishing and collecting claims, and conducting hearings and prosecutions. We also estimated the cost of developing new matching and targeting rules.

In this chapter, we discuss the design of the evaluation, including the general approach, the research sample, the new matching and targeting strategies tested in each state, and the data collection procedures. Table III.1 provides an overview of the evaluation design in each state.

#### **A. THE GENERAL APPROACH**

Each demonstration state, Arizona and Michigan, agreed to develop and operate, for a four-month period, a total of five new versions of IEVS. In Arizona, the new versions of IEVS involved conducting three matches with new targeting strategies: (1) the quarterly SWICA recipient tape match, (2) the BEER match, and (3) the IRS match. Previously, Arizona did not conduct the SWICA tape match, and did not follow up any hits from the BEER or IRS matches. In Michigan, the new versions of IEVS were (1) discontinuing the applicant match with the SWICA database, and (2) increasing the tolerance threshold in the targeting strategy for the match with the IRS database.

The objective of the evaluation is to estimate the cost-effectiveness of the new matching and targeting strategies in each state. However, it is important to note that we do not estimate the cost-

TABLE III.1  
OVERVIEW OF EVALUATION DESIGN

	Arizona	Michigan
New IEVS Procedures	<ol style="list-style-type: none"> <li>1. Match and target the quarterly SWICA recipient match</li> <li>2. Target and follow up the BEER match</li> <li>3. Target and follow up the IRS match</li> </ol>	<ol style="list-style-type: none"> <li>1. Discontinue the SWICA applicant match</li> <li>2. Increase the tolerance threshold for the IRS match</li> </ol>
Definition of Research Group	<ol style="list-style-type: none"> <li>1. May be matched with SWICA (UI, BENDEX, and SDX)<sup>a</sup></li> <li>2. May be matched with BEER (UI, BENDEX, and SDX)<sup>a</sup></li> <li>3. May be matched with IRS (UI, BENDEX, and SDX)<sup>a</sup></li> </ol>	<ol style="list-style-type: none"> <li>1. May be matched with SWICA, UI, BENDEX, and SDX</li> <li>2. May be matched with IRS, BENDEX, and SDX</li> <li>3. May be matched with BENDEX, and SDX</li> </ol>
New Targeting Strategies	SWICA, BEER, IRS	IRS
Type of Case	Food stamp recipients	Food stamp applicants and new recipients
Number of Demonstration Offices	7	16
Sample Size (cases)	22,500	13,462

<sup>a</sup>The matches in parentheses were conducted during our study, but the results of the follow ups were not recorded.

effectiveness of the targeting strategy *per se*, nor do we estimate the cost-effectiveness of matching with a database and following up on all hits (no targeting). Instead, the evaluation is designed to address the question: Is a match against a given external database cost-effective if conducted with a particular targeting strategy? The policy decision rule implicit in this design is that the state will implement the new matching and targeting strategy if the ratio of savings to costs is greater than one, and it will not implement the strategy if the ratio is less than one.

In measuring the cost-effectiveness of the IEVS matching and targeting strategies, the savings and costs are measured relative to the situation in which the match with the database did not occur, but the rest of the IEVS procedures used prior to the demonstration are continued. Hence, the IEVS program is viewed as a set of independent programs rather than a single integrated system. Implicit in this design is the assumption that the cost-effectiveness of each IEVS database is independent of every other IEVS database. In other words, matching with a given database will result in a certain amount of program savings whether or not any other databases are used. One rationale for this assumption is that many food stamp applicants and recipients have only a single source of income. Because each database investigates different income sources, it is unlikely that misreported income would be picked up by more than one database.<sup>1</sup>

Due to differences in the states' interests and their implementation of IEVS prior to the demonstration, the demonstration design is fundamentally different in the two states. In Arizona, the evaluation was designed to estimate the cost-effectiveness of matching *recipients* with the SWICA, BEER, and IRS databases. Michigan staff were primarily interested in improving the IEVS matching and targeting of *applicants*. Hence, the evaluation in Michigan was designed to estimate the cost-

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<sup>1</sup>The BEER and SWICA databases contain similar income information. However, in Arizona, the BEER match did not take place prior to the demonstration, and in Michigan, the BEER match did not occur during the study.

effectiveness of matching applicants and "new" recipients<sup>2</sup> with the SWICA, IRS, UI, BENDEX, and SDX databases.

In each state a sample of FSP cases were chosen to be in the research sample. We refer to cases in the research sample as "research-sample cases." The sample was designed to represent the entire state and to provide enough observations to support statistical estimates of the cost-effectiveness of IEVS.

Prior to being matched to a database, each case in the research sample was randomly assigned to one of three groups. In Arizona, cases in the first group were subject to the quarterly SWICA recipient tape match, cases in the second group were subject to the BEER match, and cases in the third group were subject to the IRS match. All cases were also subject to the UI, BENDEX, and SDX matches. In Michigan, all cases were matched to the SDX and BENDEX databases. Cases in the first group were subject to the SWICA and UI match, as well as the SDX and BENDEX matches. Cases in the second group were subject to the IRS, SDX, and BENDEX matches, but not the SWICA or UI match. Cases in the third group were subject only to the SDX and BENDEX matches.

The follow-up procedures were not affected by the study. However, each caseworker recorded on a data collection form the outcome of the follow up and the amount of time he or she spent conducting follow-up activities for the case. In Arizona, data collection forms were completed for follow ups of the SWICA recipient match, the BEER match, and the IRS match. In Michigan, data collection forms were completed for follow ups of the SWICA, UI, IRS, BENDEX, and SDX databases.

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<sup>2</sup>"New" recipients are recipients who have recently applied.

## **B. THE RESEARCH SAMPLE**

Even though IEVS involves matching client rather than case data, follow ups are conducted on the whole case. Thus, cases, not clients, were randomly assigned. All clients within a case were assigned to the same group.

As changes to the IEVS process involved both matching and targeting, random assignment took place prior to matching. In Arizona, all cases were randomly assigned at the beginning of the study. In Michigan, a case was randomly assigned once it was registered into the computer system as an applicant (a few days after the application was submitted). Once a case was assigned to a group, it remained in that group for the rest of the study. If a research-sample case was denied or closed and the household later reapplied for benefits within our study period, the case was assigned to the same research group after the second application.

### **1. The Research Sample in Arizona and Michigan**

The research sample consists of the set of cases that were included in the study. The types of cases included in the research sample differ between Arizona and Michigan.

**Arizona.** In Arizona, a case is in the research sample if:

1. The case was open (that is, eligible to receive benefits), suspended (that is, ineligible to receive benefits for a reason that is temporary), or in the recertification process on July 1, 1992.
2. The case is open for food stamps. Cases that are open for AFDC and/or Medicaid but not food stamps are not in the research sample.
3. The case is in a local office included in the demonstration.

**Michigan.** In Michigan, a case is included in the research sample if:

1. A new application for food stamps was submitted by a person in the case's household between July 1 and October 2, 1992. We will refer to these cases as "applicant cases". These cases include households that apply for food stamps for the first time, households that became ineligible for food stamps but then reapplied, and households who failed to complete their monthly reporting requirements but then reapplied. A case is not

considered an applicant at recertification. However, if a household fails to complete the recertification procedures in time, it is required to reapply for the program. In this case, a household would be considered an applicant at recertification.

2. The household applied for food stamps. Households who applied for AFDC and/or Medicaid but not food stamps are not in the research sample.
3. The case is in a local office included in the demonstration.

Although every case must be an applicant case during the study period to qualify for the research sample, the application may be approved and begin to receive benefits during our study period. We refer to cases that are approved during our study as "new" recipient cases. Thus, the sample includes both applicants and new recipients.

There are two major differences between the research sample in Arizona and Michigan. First, in Arizona, all the cases are recipient cases, while in Michigan, the research-sample cases are applicant cases at some time during the study period. Second, in Michigan the cases flowed into the research sample during the study period, while in Arizona, the research sample consisted of a stock of cases and did not vary in size during the study period.

## **2. Demonstration Offices**

The offices that participated in the demonstration were chosen by state staff with input from MPR. The objective was to choose offices that were representative of the state and were large enough to meet the targeted sample size. Table III.2 lists the demonstration offices in Arizona and Michigan and presents a brief description of each office.

In Arizona, there were seven demonstration offices in seven counties. The offices were chosen to include both rural and urban counties and to include only offices that were under the supervision of a key member of the Arizona IEVS team. An office on an Indian Reservation was also included.

In Michigan, there were 16 demonstration offices in 12 counties. The offices were chosen to include both rural and urban offices, offices serving Detroit (Wayne County), and offices that were

TABLE III.2

PROJECT OFFICES IN THE DEMONSTRATION

Office	Description/Location
<b>Arizona</b>	
Phoenix	Urban
Mesa	Urban
Buckeye	Rural
Tucson	Urban
Flagstaff	Urban
Winslow	Rural
Window Rock	Indian Reservation
<b>Michigan</b>	
Bay	Small urban
Muskegon	Midsize urban
Crawford	Upper northern rural
Saginaw	Large urban
Eaton	Southern rural
Sanilac	Midstate rural
Genesee	Large urban (Flint)
Ionia	Midstate rural
Wexford	Lower northern rural
Jackson	Small urban
Midland	Midstate rural
Wayne - Fullerton	West Detroit
Wayne - Greydale	West Detroit
Wayne - Hamtramck	East Detroit
Wayne - Maddelein	East Detroit
Wayne - Oakman	West Detroit

under the supervision of members of the Michigan IEVS team. The rural offices were chosen to be geographically representative, including offices in upper northern Michigan, lower northern Michigan, mid-state Michigan, and southern Michigan. The urban offices include small urban areas, mid-size urban areas, and large urban areas. Five offices are located in Wayne County, which accounts for over 40 percent of the total caseload. Three of these offices are located in West Detroit and two are located in East Detroit.

### 3. Sample Sizes

The sample sizes were chosen to be large enough to estimate the cost-effectiveness of each database, but not so large as to waste project resources and caseworker time on unnecessary observations. Table III.3 shows the realized sample sizes in Arizona and Michigan. The random assignment algorithm was designed so that different numbers of cases were assigned to each group. The likelihood of a case being assigned to a group was set so that there would be enough hits in each group to measure the cost-effectiveness of each match with a similar level of statistical significance.

TABLE III.3  
SIZE OF RESEARCH SAMPLE

Research Group	Number of Cases
<b>Arizona</b>	
1. SWICA	3,856
2. BEER	8,507
3. IRS	10,137
<b>Total</b>	<b>22,500</b>
<b>Michigan</b>	
1. SWICA, UI, BENDEX, SDX	2,460
2. IRS, BENDEX, SDX	3,861
3. BENDEX, SDX	7,141
<b>Total</b>	<b>13,462</b>

## **C. THE NEW IEVS MATCHING AND TARGETING PROCEDURES**

This section describes in detail the new IEVS procedures used in Arizona and Michigan during the demonstration. In both states, some IEVS procedures used in the demonstration were radically different from the matching and targeting strategies that were used prior to the demonstration. In Arizona, matches that were not conducted prior to the demonstration were conducted during the demonstration. In Michigan, an applicant match was discontinued. In both states, the matching and targeting strategies do not distinguish between programs—the targeting strategy for food-stamp-only cases is the same as that for food-stamp/AFDC cases.

### **1. Arizona**

Table III.4 provides a summary of the targeting strategies used in Arizona during the demonstration and those strategies used prior to the demonstration. Most elements of the new targeting strategies used in Arizona have been used in other states. However, the targeting strategies are innovative in that they combine many elements of targeting strategies previously used separately.

#### **a. Match and Target the SWICA Database**

In the first new IEVS procedure, Arizona continued to conduct its SWICA on-line match and reinstated the quarterly SWICA recipient tape match with a new targeting strategy. Under the new targeting strategy, caseworkers followed up on matches only if all of the following rules were satisfied:

##### **1. Use of individual and case characteristics**

- The person is active in either the current month or was active in one of the two previous months
- The person is 16 years of age or older as reported on the client database in the current month<sup>3</sup>
- The case received a benefit during at least one month over the reference quarter

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<sup>3</sup>Current month refers to the month in which the computer job is run.

TABLE III.4

PREDEMONSTRATION AND DEMONSTRATION TARGETING STRATEGIES IN ARIZONA

Match	Predemonstration Targeting Strategy	Demonstration Targeting Strategy
<p>SWICA Tape</p>	<p>Match did not take place</p>	<p>Follow up if all of the following are satisfied:</p> <p>INDIVIDUAL AND CASE CHARACTERISTICS</p> <ul style="list-style-type: none"> <li>• Person is active for food stamps in current month or was active in one of the two previous months</li> <li>• Person is 16 or older in the current month</li> <li>• Case received a benefit during at least one month over the reference quarter</li> </ul> <p>TOLERANCE THRESHOLD</p> <ul style="list-style-type: none"> <li>• The person's total quarterly earnings reported on the SWICA database from all employers are \$3,600 or more</li> </ul> <p>DISCREPANCY THRESHOLD</p> <ul style="list-style-type: none"> <li>• The difference between the total prorated earnings on the SWICA database and the total earnings reported on the client database over the same quarter is 20 percent or more of the total prorated earnings on the SWICA database</li> </ul>
<p>BEER</p>	<p>No matches were followed up</p>	<p>Follow up if all of the following are satisfied:</p> <p>INDIVIDUAL AND CASE CHARACTERISTICS</p> <ul style="list-style-type: none"> <li>• Employer identification code on the BEER database is different from the employer identification code on the SWICA database</li> <li>• Person was active for at least six months during the reference year</li> <li>• Information from the BEER database for the same employer during the same reference period has not already been received</li> <li>• Person is active for food stamps in current month or was active in one of the two previous months</li> <li>• Person is 16 or older in the current month</li> <li>• Case received a benefit during at least one month of the reference year</li> </ul>

TABLE III.4 (continued)

Match	Predemonstration Targeting Strategy	Demonstration Targeting Strategy
IRS	No matches were followed up	<p>Follow up if all of the following are satisfied:</p> <p><b>INDIVIDUAL AND CASE CHARACTERISTICS</b></p> <ul style="list-style-type: none"> <li>• Person was active for at least six months during the reference year</li> <li>• Person is active for food stamps in current month or was active in one of the two previous months</li> <li>• Person is 16 or older in the current month</li> <li>• Case received a benefit during at least one month of the reference year</li> </ul> <p><b>TOLERANCE THRESHOLD</b></p> <ul style="list-style-type: none"> <li>• Total unearned income for the case, excluding UI income and prior year tax refunds, exceeds \$100</li> </ul>

**2. Use of a tolerance threshold**

The person's total quarterly earnings from all employers as reported on the SWICA database are \$3,600 or more

**3. Use of a discrepancy threshold**

The difference between the total prorated earnings on the SWICA database and the total earnings reported on the client database over the same quarter is 20 percent or more of the total prorated earnings on the SWICA database. The prorated earnings on the SWICA database are calculated by dividing the person's quarterly earnings by three to find the average monthly earnings, and multiplying the average monthly earnings by the number of months in which the person was active in either the Food Stamp or AFDC programs.

The first set of rules for this targeting strategy exempts from follow up persons for whom changes in earnings will probably not affect benefits and persons from whom it will be difficult to recover overpayments. Earnings of persons younger than age 16 are not counted toward income under the FSP. If a person did not receive benefits during the reference quarter, errors in reported earnings could not have caused an overpayment. Persons who have not been active for three months are not followed up because they will typically remain inactive over the period in which benefits could be recovered. It is extremely difficult to recover overpayments from persons who are not receiving benefits.

The second rule exempts from follow up some persons whose earnings are low enough that they will not affect eligibility for the FSP, although unreported earnings could still affect the level of benefits. The gross monthly income eligibility threshold for a household of three is currently \$1,207. Hence, if a person was the single earner in a three-person household, he or she could earn up to \$3,621 each quarter and still be eligible for benefits. As the typical working FSP household contains just under three persons and only one earner, a tolerance threshold of \$3,600 a quarter will exempt from follow up a high proportion of persons whose earnings are low enough for them to be eligible for food stamps. However, it will also exempt from follow up some persons whose earnings are too

high for them to be eligible for food stamps. For example, a person in a one-person household would not be eligible for food stamps if he or she earned more than \$718 per month, or \$2,154 per quarter.

Persons with earnings of less than \$3,600 are excluded from the external database *prior* to the match. Excluding persons prior to the match, rather than after the match, conserves computer resources but has no impact on which clients are followed up. However, strictly speaking this is a screening rule rather than a targeting rule. As such, it is not in compliance with the IEVS regulations.

The third rule compares client-reported income with income on the external database. When Arizona previously matched with the SWICA database, the state followed up only if the difference between the *total* quarterly earnings reported by the client and the *total* quarterly earnings reported on the SWICA database exceeded 20 percent of the total quarterly earnings on the SWICA database. Under this rule, a high proportion of matches were targeted for follow up, many of which did not lead to changes in benefits or eligibility. The problem with this targeting strategy was that it did not take into account that some persons were not active during some of the reference quarter because, for example, they had not yet been accepted into the program. In these months, their earnings were not recorded on the client database and were treated as zero earnings in the calculation of total quarterly earnings. Hence, in these cases the total quarterly earnings reported on the SWICA database were much higher than the total quarterly earnings on the client database even though the client may have correctly reported earnings while active on the program.

Ideally, Arizona would like to compare earnings as reported by the client with earnings reported on the SWICA database during only those months in which the client is active. However, the SWICA database reports total *quarterly* earnings, not monthly earnings. The new targeting strategy addresses this problem by prorating the quarterly earnings on the SWICA database over the months in which the person was active. For example, if the client earned \$2,500 over the quarter but was active for only two months, his total prorated earnings would be \$1,670 ( $2,500 \div 3 \times 2$ ). However,

prorating does not completely solve the problem. If earnings were higher in the months in which the client was not active, the prorated earnings would still be higher than the client's true earnings. For example, suppose a person earned \$1,000 in the first month of the quarter and \$750 in the subsequent two months, and became active in the second month of the quarter. The total prorated earnings on the SWICA database would be \$1,670  $[(1,000 + 750 + 750) \div 3 \times 2]$ , but the total quarterly earnings as reported on the client database would be only \$1,500  $(0 + 750 + 750)$ . So, to further reduce the number of matches to be followed up, the targeting rule requires a 20 percent difference between the prorated earnings on the SWICA database and the earnings on the client database.

**b. Match and Target the BEER Database**

Under the second new IEVS procedure, Arizona introduced a new targeting strategy for the BEER database and followed up some hits. Under the new targeting strategy, caseworkers followed up on matches if all of the following rules were satisfied:

***1. Use of individual and case characteristics***

- The employer identification code on the BEER database is different from the employer identification code on the SWICA database
- The person was active for at least six months during the reference year
- Information from the BEER database for the same person and the same reference period has not already been received
- The person is 16 years of age or older as reported on the client database in the current month
- The person is active either in the current month or was active in one of the two previous months
- The case received a benefit during at least one month of the reference year

Arizona opted not to use a tolerance threshold as part of this targeting strategy.

Both the BEER and SWICA databases provide earnings data. However, the BEER database provides information on some forms of earnings, such as out-of-state earnings, not provided by the SWICA database. When earnings data from the same employer are provided by both databases, the data from the SWICA database are viewed as the more useful because they are more recent and are aggregated by quarter instead of by year. Hence, the first targeting rule restricts the matches to be followed up to those in which the employer reported on the BEER database differs from the employer reported on the SWICA database.<sup>4</sup>

As discussed above, there is a problem in comparing client-reported earnings with earnings from an external database when the client is not active during all of the reference period. This is an even more pertinent problem in the BEER match because the earnings reported on the BEER database cover 12 months. To prevent following up matches in which the client was not active for a substantial period of time, the second targeting rule requires the client to have been active for at least six months during the reference year.

A match is made with the BEER database for all new clients and all clients who have reported a change in circumstances. This may be an actual change in name or address or a change because information provided previously, such as the person's date of birth or SSN, was incorrect on the client database. Hence, it is possible for the same person to be matched more than once even though there is no new earnings information from the BEER database for this person. Consequently, follow-up efforts on essentially the same information may result. By excluding all information that duplicates information already received, the third targeting rule prevents duplicate follow-up efforts.

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<sup>4</sup>A technical difficulty with this element of the targeting rule is that the employer identification code on the BEER database is a federal employer identification code, while the employer identification code on the SWICA database is a state employer identification code. The state employer identification code was "translated" to the federal employer identification code using a mapping between the two codes provided by the Administration of Unemployment Insurance. Unfortunately, there was not always a correct translation between the two identification codes.

The remaining three elements of the first rule of the targeting strategy were part of the SWICA targeting strategy and have the same purpose.

**c. Match and Target the IRS Database**

Under the third new IEVS procedure, Arizona introduced a new targeting strategy for the IRS match and followed up on the hits. The same targeting strategy was used for both the IRS annual and monthly matches. Under the new targeting strategy, caseworkers followed up on matches only if all of the following rules were satisfied:

**1. Use of individual and case characteristics**

- The person was active for at least six months during the reference year
- The person is 16 years of age or older as reported on the client database in the current month
- The person is active in either the current month or was active in one of the two previous months
- A person in the case received a benefit during at least one month of the reference year

**2. Use of a tolerancethreshold**

- Unearned income, excluding UI income and prior year tax refunds, summed over all persons in the case is more than \$100

The first rule in this targeting strategy--the exemptions based on individual and case characteristics--was also part of the BEER targeting strategy and were used in this match for the same reasons. The rationale for the second rule is that to be eligible for the FSP a household must have

total liquid assets in each month of less than either \$2,000 (if the household does not contain an elderly FSP participant) or \$3,000 (if the household does contain an elderly FSP participant). Hence, the targeting rule specifies that only persons for whom the total unearned income for the case exceeds a threshold should be followed up. The amount of interest income that corresponds to asset

holdings of \$2,000 will vary with the interest rate. However, with a 5 percent rate of interest a household with assets of \$2,000 held all year would earn \$100 in interest income.

Two types of unearned income are excluded from the calculation of total unearned income: (1) UI income and (2) prior year tax refunds. UI income is excluded because the match with the UI database can provide more recent and less aggregated information about the receipt of UI benefits. Prior year tax refunds are excluded because they are disregarded when determining income eligibility for the FSP.

## **2. Michigan**

Table III.5 provides a summary of the matching and targeting strategies used in Michigan during the demonstration and those strategies used prior to the demonstration.

### **a. No SWICA Applicant Match**

Under the first new IEVS procedure, Michigan discontinued its applicant match with the SWICA database. No matches with the SWICA database in the second and third research group were followed up. In the first research group, all SWICA matches were followed up.

The rationale for not conducting the SWICA applicant match is that a cost-benefit study of the SWICA match conducted by Michigan staff (Ward and Smucker 1990) found that following up on SWICA applicant matches was not cost-effective. This was because no action was required, and hence no savings realized, for over 95 percent of the applicant matches. (An action was defined by Ward and Smucker as an application denied, a case closed, or a change in benefits.)

The IEVS regulations explicitly state that *all* applicants must be matched and followed up—they prohibit the targeting of applicants. There are two rationales for this regulation. First, savings can be achieved at a lower cost prior to certification. Prior to certification, benefits can be denied, but after certification, previous benefits overpayments must be recovered. Second, Puma (1989) found that following up on all applicant matches was cost-effective.

TABLE III.5

PREDEMONSTRATION AND DEMONSTRATION TARGETING STRATEGIES IN MICHIGAN

Match	Predemonstration Targeting Strategy	Demonstration Targeting Strategy
<p>SWICA Applicants</p>	<p>None</p>	<p>All matches are followed up in first research group, no matches are followed up in second and third research group</p>
<p>UI Applicants and Recipients</p>	<p>Follow up if both of the following are satisfied:</p> <ul style="list-style-type: none"> <li>• The UI database reports that the client has applied for UI benefits in the past 30 days, has received UI benefits in the past 60 days, or has returned to work in the past 90 days</li> </ul> <p>INDIVIDUAL AND CASE CHARACTERISTICS</p> <ul style="list-style-type: none"> <li>• Client is currently active</li> </ul>	<p>Same as current strategy</p>
<p>BENDEX</p>	<p>Follow up if both of the following are satisfied:</p> <p>INDIVIDUAL OR CASE CHARACTERISTICS</p> <ul style="list-style-type: none"> <li>• Client is currently active</li> </ul> <p>TOLERANCE THRESHOLD</p> <ul style="list-style-type: none"> <li>• Client is currently receiving any Title-II benefits</li> </ul>	<p>Same as current strategy</p>
<p>SDX</p>	<p>Follow up if both of the following are satisfied:</p> <ul style="list-style-type: none"> <li>• Client is currently active</li> <li>• Client has applied for SSI, is currently receiving SSI benefits, has just had SSI benefits denied or terminated, or has had a change in address or living arrangements</li> </ul>	<p>Same as current study</p>

TABLE III.5 (continued)

Match	Predemonstration Targeting Strategy	Demonstration Targeting Strategy
IRS	<p>Follow up if all of the following are satisfied:</p> <p><b>INDIVIDUAL AND CASE CHARACTERISTICS</b></p> <ul style="list-style-type: none"> <li>• Client is currently active</li> </ul> <p><b>TOLERANCE THRESHOLDS</b></p> <ul style="list-style-type: none"> <li>• Amounts of unearned income as reported on the IRS database exceed specified tolerance thresholds                             <ul style="list-style-type: none"> <li>- Interest income exceeds \$100 or</li> <li>- Dividends exceed \$100 or</li> <li>- Agricultural subsidies exceed \$100 or</li> <li>- Capital gains exceed \$100 or</li> <li>- Stock dividends exceed \$100 or</li> <li>- Stock liquidations exceed \$100 or</li> <li>- Savings bond interest exceeds \$100 or</li> <li>- Income from rental properties exceeds \$100 or</li> <li>- Bond liquidations exceed \$100 or</li> <li>- Royalties exceed \$100 or</li> <li>- Prizes and awards exceed \$100 or</li> <li>- IRA distributions exceed \$100 or</li> <li>- Profit sharing distributions exceed \$100 or</li> <li>- Real estate sales exceed \$100 or</li> <li>- State income tax refund exceeds \$300</li> </ul> </li> </ul>	<p>Follow up if all of the following are satisfied:</p> <p><b>INDIVIDUAL AND CASE CHARACTERISTICS</b></p> <ul style="list-style-type: none"> <li>• Client is currently active</li> </ul> <p><b>TOLERANCE THRESHOLDS</b></p> <ul style="list-style-type: none"> <li>• Amounts of unearned income as reported on the IRS database exceed specified tolerance thresholds                             <ul style="list-style-type: none"> <li>- Interest income exceeds \$200 or</li> <li>- Dividends exceed \$200 or</li> <li>- Agricultural subsidies exceed \$200 or</li> <li>- Capital gains exceed \$200 or</li> <li>- Stock dividends exceed \$200 or</li> <li>- Stock liquidations exceed \$200 or</li> <li>- Savings bond interest exceeds \$200 or</li> <li>- Income from rental properties exceeds \$200 or</li> <li>- Bond liquidations exceed \$200 or</li> <li>- Royalties exceed \$200 or</li> <li>- Prizes and awards exceed \$200 or</li> <li>- IRA distributions exceed \$200 or</li> <li>- Profit sharing distributions exceed \$200 or</li> <li>- Real estate sales exceed \$200 or</li> <li>- State income tax refund exceeds \$300</li> </ul> </li> </ul>

## **b. New Targeting Strategy for the IRS Match**

The second new IEVS procedure used in Michigan involved a change in the IRS targeting strategy. Prior to the demonstration, Michigan followed up only clients whose unearned income from fourteen different sources, such as interest, exceeded \$100 or whose state income tax refund exceeded \$300. During the demonstration, the tolerance threshold for unearned income from these fourteen sources was raised to \$200. Michigan continued to use the other element of the targeting strategy used prior to the demonstration—exempting inactive clients from follow up and applying the \$300 tolerance threshold to state income tax refunds.

It is important to note that the IRS targeting strategy used in Michigan is more restrictive than the IRS targeting strategy used in Arizona. There are three important differences: (1) the tolerance threshold is higher in Michigan (\$200 during the demonstration) than in Arizona (\$100), (2) the tolerance threshold is applied to each type of unearned income in Michigan while it applies to all unearned income in Arizona, and (3) the tolerance threshold is applied to the *client's* income in Michigan while it applies to *household* income in Arizona.

## **D. DATA COLLECTION**

Data for the evaluation were collected from four sources: (1) data collection forms recorded the results of the follow ups of the hits and the time taken to complete the follow up, (2) monthly extracts from the state's case records contained information on the characteristics of the cases in our research sample, (3) the state agencies' accounting records provided cost data, and (4) reports submitted to federal agencies provided data on claims collections and administrative costs.

### **1. Data Collection Forms**

Caseworkers were required to complete a data collection form each time they followed up a case in our research sample. (The data collection form for each state is presented in Appendix B of Volume II of this report.) The following information was obtained on these forms:

- Whether there was a change in current benefits or eligibility as a result of the IEVS follow up, and if so, for what program
- If the case was closed, the amount of benefit paid prior to the closure. If the benefit was reduced, the amount paid before and after the reduction
- If no change occurred, the reason that the report did not result in an action
- Whether a previous benefit overpayment occurred, and if so, the estimated amount
- The tasks involved in the follow up, and the time taken each time the case was reviewed for an IEVS follow up
- The date the form was completed, and in Michigan, the date the form was received by the caseworker
- The case and client identification number, the database matched, and the date the report was produced

In Arizona, each form represented a follow up. In Michigan, there was one report per person. However, if more than one person in case was followed up at the same time, the forms were stapled together, and the information for the follow up was recorded on the top form.

We received completed data collection forms for 95 percent of the follow ups in our study in Arizona and 73 percent of the follow ups in our study in Michigan. We received 99 percent of the forms from Arizona and 82 percent of the forms from Michigan. The other reports were either lost, or the follow up had not yet been completed by March 31, 1992. If the case was transferred to a nondemonstration office, a data collection form was sent to us, but it did not include information on the follow up. Of all forms issued, 4 percent of the forms in Arizona, and 9 percent of the forms in Michigan, were not completed for this reason.<sup>5</sup>

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<sup>5</sup>In Michigan, an application for food stamps can be completed at any office. The case is then transferred to the office appropriate to the client. In Michigan, 8 percent of the data collection forms were not completed because the case was transferred out of a demonstration office immediately after application.

## **2. Monthly Case-Record Extracts**

For each month of the demonstration, the state agencies provided us with a tape containing information on the research-sample cases from their automated case records. These extracts included data on:

- Whether the case was active in the Food Stamp and AFDC programs, and in Michigan, the Medicaid program
- The value of the food stamp allotment and AFDC grant
- Date of last recertification or application, length of certification period, whether the case received expedited service, and whether the case was subject to monthly reporting
- Demographic information on household size, age, sex, race, and citizenship of household members
- Employment, income, and (in Arizona) asset information

The states also provided us with a tape which listed all the cases in the research sample and the research group the case was assigned to.

## **3. State Agencies' Accounting Records**

Data items collected from the state agencies' accounting records include:

- Salary, fringe benefit, and overhead cost data needed to calculate loaded salary rates of caseworkers
- Size of the caseload
- Costs of computer jobs from the Information Systems departments
- Payments made to external agencies, such as the IRS, and in Michigan, the MESC
- Quarterly costs of administering the FSP

#### **4. Reports Submitted to Federal Agencies**

To estimate certain savings and costs (such as the expected amount of previous benefit overpayments that will be recovered), we used aggregate data from quarterly and annual reports submitted by the state agencies to FCS and HHS.

#### IV. MEASURES OF SAVINGS AND COSTS

The primary purpose of the IEVS evaluation is to assess the cost-effectiveness of computer matching, targeting, and follow up. We measured this outcome, cost-effectiveness, by the ratio of the savings resulting from the IEVS process to the costs incurred, considering only savings and costs to the Food Stamp and AFDC programs. This savings-to-cost ratio provided a measure of the savings in program costs resulting from each dollar spent on matching, targeting, and follow-up activities.

Because many persons and organizations are directly or indirectly affected by the IEVS process, it is important to define the perspective from which we measured cost-effectiveness. The General Accounting Office (1986) has argued that six groups should be considered in a cost-effectiveness study of IEVS:

1. State and federal agencies that administer the welfare programs
2. Applicants for and recipients of welfare benefits
3. Third parties, such as employers and financial institutions, that are contacted to verify information
4. Agencies that maintain the external databases, such as SSA, IRS, and the state agencies that provide the state wage and unemployment insurance data
5. The justice system
6. The general public

In this study, we took a narrower perspective than that suggested by the General Accounting Office (GAO) and considered only the savings and costs from the IEVS process that accrued to the state and federal agencies that administer the Food Stamp and AFDC programs.

We measured the cost-effectiveness of the IEVS process *as it is implemented*, not as it would operate under ideal conditions. Hence, we measured savings that resulted from detection of incorrect benefit and eligibility determination as determined by the *caseworker* or agency staff, not by an

outside auditor. We included estimates of realized savings from the recovery of incorrect benefit payments, not the potential savings if all previous overpayments were recovered. Similarly, we measured the cost of matching, targeting, and follow up as IEVS is actually operated rather than the costs that would be incurred if IEVS were operated in the most efficient way.

Our cost and savings analyses required that we make many assumptions. Whenever a range of equally reasonable options was presented, we selected the one that led to the highest estimate of costs and the lowest estimate of savings. The savings-to-cost ratios presented in this report are therefore conservative estimates of the savings resulting from each dollar spent on IEVS activities.

In this chapter, we define the savings and costs included in the calculation of the savings-to-cost ratios, and explain how these savings and costs were measured. Section A discusses savings measures; Section B covers costs. More detailed explanations of our savings and costs measures are contained in Appendices C and D in Volume II of this report.

#### **A. SAVINGS RESULTING FROM THE IEVS PROCESS**

The IEVS process was designed to minimize errors in eligibility and benefit determinations by helping caseworkers identify incorrectly reported income information. We group the resulting savings from the IEVS process into four categories:

1. ***Avoided Benefit Payments.*** Benefits may be denied or reduced on the basis of follow-up information obtained through the IEVS process.
2. ***Avoided Administrative Costs.*** If an applicant is denied benefits or a case is closed because of the IEVS process, the agency will avoid the cost of administering that case.
3. ***Recovered Previous Benefit Overpayments.*** Any previous overpayment to a client that can be recovered by the IEVS process will be a savings.
4. ***Other Unmeasured Savings.*** There are other savings that we do not measure in this study. The most obvious of these is savings from actions in other programs, such as Medicaid. IEVS may also deter clients from misreporting income and improve caseworker morale.

## **1. Avoided Benefit Payments**

Benefit payments, in the form of food stamps or AFDC cash grants, may be avoided as a result of the IEVS process if (1) an applicant is not approved for the program, (2) a recipient is determined to be no longer eligible for the program, or (3) the benefit payment to a recipient is reduced or the benefit payment to an applicant is lower than it would have been in the absence of IEVS.

Avoided benefit payments are the difference between (1) the sum of the monthly benefits that *would* have been paid in the absence of computer matching and (2) the sum of the monthly benefits that *are* paid. (The latter may be zero if the case is found to be ineligible for the program.) This difference is summed over all months in which there is a difference between actual benefits paid and benefits that would have been paid in the absence of computer matching. However, as this measure is based on a hypothetical condition--what would have happened in the absence of matching--it is not directly observable. We therefore estimate avoided benefit payments from the product of (1) the error in the monthly benefit at the time the benefit is changed, the application is denied, or the case is closed and (2) an estimate of the number of months the error would have persisted in the absence of IEVS.

The difference in benefit levels could be negative if the IEVS process leads to an increase in benefits. However, since in most cases benefits are reduced and not increased, we will hereafter refer to the error in monthly benefits as monthly benefit savings, and the period over which we expect the error would otherwise have gone undetected as the number of months savings persist.

### **a. Monthly Benefit Savings**

The benefits paid to a household can vary over time for many reasons unrelated to IEVS--a change in household composition, a change in income, or a change in assets. Hence, the difference between the benefits that would have been paid in the absence of IEVS and the benefits that are paid could also vary. However, we believe that the amount of benefit savings in the first month following the redetermination is a good estimate of the average future monthly savings in benefits.

Although household circumstances change, over all cases, the instances in which the monthly savings to the agency decrease over a given period may be balanced out by instances in which the savings increase. Therefore, we assume (1) the monthly benefit that would have been paid in the absence of IEVS is the benefit that was paid prior to the change resulting from IEVS, and (2) the monthly benefit that is paid after the change resulting from IEVS remains at the same level for as long as savings persist.

For both the Food Stamp and AFDC programs, the monthly benefit savings is in most cases the difference between two amounts entered by caseworkers on the data collection forms: the monthly benefit that *would* have been paid in the absence of the IEVS process (the benefit prior to the follow up) and the monthly benefit that *will* be paid (the benefit after the follow up). If the case is closed as a result of the IEVS process, the monthly benefit that will be paid is zero. In the three cases in Michigan where IEVS follow ups led to an increase in benefits, we included the increased benefit payments in our calculations as a negative savings.

**b. Number of Months Savings Persist**

The number of months savings persist depends on when a benefit reduction or case closure takes effect. Staff in each state report that in almost all cases, action is taken in the month following that in which the redetermination was made. This is the month after the completion date entered on the data collection form.

Because we can only conjecture what would have happened in the absence of IEVS matching, it is not possible to measure the length of time a savings resulting from IEVS persists.<sup>1</sup> Given our assumption that the monthly benefit savings in the first month do not change over time, savings

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<sup>1</sup>A classical experiment, with cases randomly assigned to treatment and control status (subject to IEVS and not subject to IEVS, respectively), would have permitted us to estimate the length of time cases would have remained on the FSP in the absence of IEVS. However, to observe actual case closures, we would have had to follow cases for 10 or more years. Resources were not available for this lengthy an evaluation.

resulting from the IEVS process can be said to persist until a correction in the client's status or benefit levels would have been made without IEVS--until the caseworker would have detected the error through some other means, the client would have reported the correct income, or a change in the household's circumstances affecting benefits and eligibility would have occurred. (For example, the case might have closed with or without IEVS if a change in household composition made the family ineligible for food stamps.)

None of these events was observable within the time frame of our study. To estimate the cost-effectiveness of IEVS, we therefore had to make an assumption about the length of time an error would go undetected in the absence of the matching and targeting process. Our benchmark estimates are based on the assumption that savings persist until the end of the certification period. However, we also estimated total savings under two alternative assumptions: (1) savings persist until the case would have closed in the absence of IEVS, and (2) savings from the SWICA applicant match in Michigan persist until the subsequent SWICA recipient match.

In his evaluation of applicant matching in nine sites nationwide, Puma (1989) estimated savings using a combination of two of these three assumptions. He assumed that the duration of benefit savings was the lesser of two periods: (1) the time to recertification or (2) the time until the next scheduled match that could uncover the error. Puma assumed that for applicants, this verification would ordinarily occur at the next recipient match and that the period over which savings persist was therefore the time until the match occurred plus the time required to follow up any discrepancy and adjust the client's benefits or eligibility status.

In Michigan's wage reporting evaluation, Ward and Smucker (1990) assumed that Food Stamp and AFDC program savings from benefit reductions persist 2.5 months for applicants and 3.0 months for recipients. It is not clear from the report how these estimates were derived. These figures are simply described as estimates of the duration of benefit reductions. Ward and Smucker calculated savings from case closures and benefit denials under an alternative assumption: that savings from

IEVS persist until the case reopens. Savings from these actions were assumed to persist 2.5 months for applicants and 6.4 months for recipients. These figures are described as the length of time sample cases were reported closed on the Client Information System (CIS). Cases appear to have been tracked over a six-month period; the report does not state how cases that never reopened during the tracking period were figured into this estimate.

**Savings Persist Until the End of the Certification Period.** For our benchmark estimates of the cost-effectiveness of IEVS, we assumed that savings resulting from the IEVS process persist until the end of the certification period. (In both states, cases that receive both food stamps and AFDC are recertified for both programs at the same time.)<sup>2</sup> The assumption that an error detected by IEVS would otherwise have been detected at the next recertification can be justified on four grounds:

1. The client is more likely to report additional income at recertification, when he or she is asked directly about the household's finances, than at any time prior to recertification, when reporting requires that the client take the initiative to inform the caseworker.
2. The client is more likely to report changes in household circumstances, especially those that lead to a benefit reduction or case closure, at recertification than at any time prior to recertification.
3. A caseworker is more likely to detect an error at recertification, when he or she is focused on a case and may require verification and documentation from the client that would not be requested earlier.
4. The 1988 Interim IEVS regulations require that the states' cost-effectiveness studies measure the savings that accrue from IEVS under the assumption that they persist until the end of the certification period.

For both states, the date of the next scheduled recertification was obtained from the monthly case-record extracts. In Arizona, the average length of time remaining in the certification period for cases with a change resulting from IEVS was 3.5 months. In Michigan, the average was 6.6 months. The period was longer in Michigan than in Arizona for two reasons. First, clients entered our

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<sup>2</sup>AFDC cases are subject to review, rather than recertification. However, for ease of exposition, we use FSP terminology in discussing either program.

Michigan sample as applicants, so any change in benefits or eligibility resulting from IEVS matching occurred early in these clients' certification periods; for recipients in the Arizona sample, the IEVS matches in our study occurred at various points in their certification periods. Second, the average certification period for all cases in Arizona is 6.6 months, compared with 12.6 months in Michigan.<sup>3</sup>

Calculating savings under the assumption that any IEVS-detected error would persist until the next recertification underestimates actual savings if the additional income and/or change in circumstances detected through the IEVS process would not have been reported or detected at recertification. Alternatively, this calculation overestimates actual savings if reporting or detection would have occurred earlier or if the case would have closed before recertification.

**Savings Persist Until the Case Would Have Closed.** An alternative assumption is that the error detected by IEVS would never have been reported or detected by other means. In that case, savings are assumed to persist until the case would have closed in the absence of IEVS. These assumptions yield an *upper-bound* estimate of potential savings.

Because we did not observe how long a case would have remained open in the absence of IEVS, we used national estimates of the average length of spells on the FSP to calculate upper-bound estimates of savings resulting from case closures, benefit denials, and benefit reductions in both the food stamp and AFDC programs. Because AFDC spells tend to be slightly longer than food stamp spells,<sup>4</sup> using the average length of a food stamp spell to calculate AFDC savings underestimates these savings.

The expected length of food stamp receipt differs for applicants and recipients. Although the majority of households that enter the program will receive benefits for only a short time, households in the midst of long spells dominate the caseload at any point in time. Thus, a sample of applicants includes a higher proportion of households who will have short spells of benefit receipt than does a

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<sup>3</sup>Michigan received a waiver in 1991 which permitted it to extend the certification period for some cases beyond the 12 month maximum set by FSP regulations.

<sup>4</sup>Tabulations from the 1990 panel of the Survey of Income and Program Participation.

sample of recipients. We therefore used different figures to estimate savings for the applicant and new recipient sample in Michigan and the recipient sample in Arizona.

For both samples, the appropriate estimate of the length of time a case would have remained open is the average length of a *left-censored spell*, so-called because time on the program is measured from a given point in time and not from the beginning of the spell. (A *completed spell* measures time on the program from the month a household applies to the month it leaves the program.) To estimate savings for the recipient sample in Arizona, we used estimates of the mean length of left-censored spells calculated from the 1990 Survey of Income and Program Participation (SIPP).<sup>5</sup> Because there are no published estimates of the average length of left-censored spells for applicants and new recipients, we estimated savings for the Michigan sample using adjusted estimates of the average length of completed spells calculated from the 1984 SIPP and published in Burstein (1993, p.45). To estimate the number of months new recipients would have remained on the program, we subtracted from the completed spell estimates the number of months the households received benefits before the change resulting from IEVS.

Households with earnings also differ from those without earnings. Both applicant and recipient households with earnings remain on the program for a shorter period than do households with no earnings. We used the average spell length for households with earnings to estimate savings resulting from matches with databases that maintain earnings data (SWICA and BEER) and the average spell length for all households to estimate savings from matches with all other databases.

Table IV.1 shows estimates of the length of time applicants and recipients would have remained on the FSP in the absence of IEVS. (For applicants, the unadjusted estimates of the length of completed spells are shown in parentheses.) For applicant households, the average spell of remaining benefit receipt is less than two years, compared with more than five years for recipient households.

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<sup>5</sup>These estimates were calculated by MPR. Details of the methodology used to calculate the distribution of these spells is provided in Miller and Martini (1991).



Several caveats are in order concerning our assumptions. Applying these figures to cases in our study samples assumes (1) the average length of stay on the program is the same for cases with IEVS actions as for all cases, (2) the distribution of time on the program in Michigan and Arizona is the same as the national distribution, and (3) the average length of stay for cases observed during our study period is the same as that for cases observed when the data on which these estimates are based were collected.

**Savings from the SWICA Applicant Match Persist Until the Next Recipient Match.** An important argument for discontinuing the SWICA applicant match in Michigan is that any error that would consequently go undetected would be caught at the next SWICA recipient match. We were unable to test this theory because the research-sample cases were not subject to the SWICA recipient match during the four months of our study. However, if we assume that in the absence of the SWICA applicant match, any errors that would have been detected by this match would instead be caught by the SWICA recipient match, savings for a given case persist until the next recipient match. As this occurred between three and six months after a client's application, we estimated total savings from the SWICA applicant match assuming monthly benefit savings persist an average of four and a half months.

This is likely to be an underestimate of the amount of time savings actually persist. Because targeting is used in Michigan's SWICA recipient match but not in the applicant match, some cases that would have been followed up in the applicant match would not be followed up in the recipient match.

## **2. Avoided Administrative Costs**

Administrative costs include the costs of certification and recertification, benefit issuance, employment and training programs, claims establishment and collection, and computer system development and operation. To the extent that these costs vary with the number of cases, case

closures and benefit denials will yield savings to the agency over and above those from avoided benefit payments.

The following two sections describe our basic approach to estimating administrative cost savings per case-month for food stamps and AFDC. Estimates of the administrative cost savings per case-month for each program are presented in Table IV.2. The cost savings associated with closure of a joint FSP/AFDC case is the sum of the two figures. Savings from avoided administrative costs were assumed to persist for the same length of time as the savings from avoided benefit payments.

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TABLE IV.2

ADMINISTRATIVE COST SAVINGS  
(in Dollars per Case-Month)

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	Arizona	Michigan
Food Stamps	\$14.51	\$16.52
AFDC	\$28.79	\$34.20

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**Food-Stamp Administrative Cost Savings Per Case-Month.** We estimated an average administrative cost savings per case-month by dividing the sum total of administrative costs that are likely to vary with small changes in the caseload by the total number of cases administered. This calculation of food stamp administrative cost savings is based on figures reported by Arizona and Michigan to FCS on Form 269, the "Financial Status Report." Included in the estimate are the costs of certification, issuance, automated data processing (ADP) operations, and a percentage of unspecified other costs. Excluded are those costs that are less likely to vary with the size of the caseload: costs associated with performance reporting, fair hearings, employment and training programs, and ADP development. These calculations yield an estimated administrative cost savings per food stamp case closed of \$14.51 in Arizona and \$16.52 in Michigan. This difference in cost estimates for the two states was expected, given the substantial difference in labor costs between the

two. (The average annual salary for caseworkers is almost 70 percent higher in Michigan than in Arizona.)

**AFDC Administrative Cost Savings Per Case-Month.** The states report AFDC administrative expenditures to HHS on Form ACF-231. Because both Arizona and Michigan categorize most of their AFDC spending as other administrative expenditures, we were unable to distinguish costs that vary with the size of the caseload from those that do not. We therefore estimated administrative cost savings per AFDC case closed by adjusting the estimate of food stamp administrative cost savings to reflect the disproportionate amount of time caseworkers spend administering AFDC. (The states' worker time allocation surveys show that on a per-case basis, AFDC casework consumes more than two and a half times as much of caseworkers' time than does food-stamp casework.) These calculations yield an administrative cost savings per AFDC case closed of \$28.79 in Arizona and \$34.20 in Michigan.

### **3. Recovered Previous Benefit Overpayments**

Many of the IEVS databases provide information about the client's past, rather than current, income. The SWICA, BEER, IRS, and UI matches provide information on income received previously.

Hence, a possible outcome of a follow up is a determination that a client has in the past received benefits for which he or she was ineligible.<sup>6</sup> Information about past income is relevant for applicants for two reasons. First, the matching and follow-up process may take several months, during which time most applicants will begin to receive benefits. Second, many applicants have previously participated in the Food Stamp and/or AFDC programs--some as recently as a month or two prior

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<sup>6</sup>Theoretically, the BENDEX and SDX matches should detect no overpayments. These matches provide information on benefits that will be paid the next month, thus allowing the caseworker to adjust food stamp and AFDC benefits before the client receives the income. However, if for some reason this information was not provided in the past, or the caseworker receives the information late, the adjustment may not be made in time.

to their most recent application--and may have received incorrect benefits during this previous program enrollment.

An overpayment is defined as the difference between the total benefits paid to the client and those that *should* have been paid. (The overpayment may be negative if the income reported by the client is higher than his or her true income.) The savings to the agency is not, however, the total amount of the overpayment, but the portion that is actually recovered. When an agency discovers that a household has received an overpayment, its next step is to establish a *claim* against the household. A claim is the amount of the overpayment that the agency attempts to recover. In most cases, claims establishment is a simple procedure. The agency fixes the amount of the overpayment and notifies the client in writing of the claim. However, if fraud is suspected, the agency must investigate to determine whether to initiate legal proceedings.<sup>7</sup>

The amount the agency actually recovers through the claims process depends on a number of factors, including the size of the overpayment, the income and assets of the household, the cause of the overpayment (household error, agency error, or intentional program violation), when the overpayment occurred, whether the case is currently receiving benefits, and the method by which the agency attempts to recover the overpayment. Methods of collecting a claim include:

1. ***Recoupment.*** If the case is still receiving benefits, the agency may be able to recover some or all of the overpayment by reducing the size of the current benefit paid to the case. The amount the agency can collect each month is the greater of (1) \$10, or (2) 10 or 20 percent of the monthly allotment, with the percentage depending on whether the cause of the overpayment is client error or fraud. (In the case of agency error, the client must grant permission for the agency to take this action.)
2. ***Cash Payments.*** This is often the only way an overpayment can be recovered if a case is not currently receiving benefits.

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<sup>7</sup>For simplicity, we use FSP terminology to describe both AFDC and FSP policies and procedures regarding overpayments. "Overpayments identified" in the AFDC program is the equivalent of "claims established" in the FSP.

3. ***Reducing State Tax Refunds.*** In some states, the agency may be able to recover some of the overpayment by reducing the amount of any state tax refund due to the household.

4. ***Wage or Bank Account Garnishments or Property Seizure.***

In fiscal year 1992, recoupment accounted for three-quarters or more of all collections in both states, and cash payments for about one-fifth.

Pursuing a claim is a lengthy process. Even if the agency establishes the claim soon after detecting the overpayment, it may take many months or even years to collect. Hence, it was not possible for us to measure directly the value of recovered overpayments. Instead, we estimated this amount as the product of (1) the value of identified overpayments and (2) the estimated proportion of identified overpayments recovered over a two-year period in Arizona and Michigan.

**a. Value of Identified Overpayments**

On the basis of discussions with state agency staff, we assumed that the overpayment amounts entered for food stamps and AFDC on the data collection form are the amounts the agency will attempt to recover (in other words, the claim amounts). Since the overpayment amounts were ordinarily calculated by specially trained staff (designated staff persons in Michigan and overpayment writers in Arizona), the estimates are likely to be highly accurate. The IEVS process also provides excellent documentation, making it likely that these estimates will be upheld in a subsequent hearing or prosecution.

**b. Proportion of Overpayments Recovered**

Neither state collects data on the proportion of established food stamp or AFDC claims that are collected. However, at the end of each quarter, all states report to FCS and HHS the value of claims established and collected during the quarter. Our estimated average recovery rates for the two programs are based on these aggregate data. Because the reliability of states' reporting has been

questioned (Long and Wray 1987), these estimates should be considered rough measures of the proportion of overpayments recovered in the two states.

Claims collection typically takes many months and could take years, so some collections on claims established in a given year will occur in later years. Similarly, some of the collections reported in a given year represent collections on claims established in prior years. The recovery rate therefore cannot be obtained by simply dividing the value of collections in one year by the value of claims established in the same year.

Instead, we used quarterly data reported by Arizona and Michigan to FCS and HHS to estimate regression models of food stamp and AFDC claims collections with the value of claims established in each quarter of the past two years as explanatory variables. (We chose a two-year period based on our rough estimate of the time required to collect a food stamp overpayment of average value through recoupment.) The coefficients on the claims established variables provide estimates of the amount that will be collected each quarter for each dollar established as a claim. The total proportion of claims collected over a two-year period can be estimated from the sum of the coefficients. Recovery rates for food stamps and AFDC are presented in the following sections.

**Food Stamps Claims Collection Rates.** Our estimated food stamp overpayment recovery rates are based on data reported by Arizona and Michigan to FCS on Form 209, "Status of Claims Against Households" between 1988 and 1993. In 1992, Arizona established food stamp overpayment claims of \$3.7 million and collected \$1.9 million. Michigan established claims of \$14.7 million and collected \$4.3 million. In Arizona, overpayment writers indicated on the data collection forms whether overpayments were attributable to agency error or to client error. Since the claims establishment and collection data on Form 209 are also categorized by error type, we calculated separate recovery rates for these two types of claims. (For claims of less than \$35 of either type, we assumed the collection rate was zero, since Arizona does not attempt to collect these claims.) The distinction between error

types was not made on the Michigan data collection forms, so we calculated a single recovery rate for Michigan claims. (Results of the regression analysis are presented in Appendix C of Volume II.)

Our results suggest that for every dollar of agency-error food stamp claims established in Arizona, 28 cents are recovered within one year and another 4 cents the following year, yielding a two-year recovery rate of 32 percent. For every dollar of client-error claims established, 30 cents are collected in the first year and 23 cents the following year. The two-year recovery rate is thus 53 percent. (The state is less successful in collecting agency-error claims because clients are not legally obligated to refund these overissuances.)

For every dollar of food stamp claims established in Michigan, 21 cents are collected in the first year and 6 cents in the second, for a two-year recovery rate of 27 percent.

For both states, our estimate of the one-year recovery rate is lower than the national median calculated by Long and Wray (1989). They estimated from state agency statistics that the median value of claims collected within one year for each dollar of claims established was about 38 cents. However, this estimate is based on a comparison of collections in a single year with claims established that same year. Long and Wray also found that states' collection rates varied widely.

**AFDC Claims Collection Rates.** AFDC overpayments and collections are reported by the states to the HHS on Form SSA-4972, the "Quarterly Report of Recoveries of Overpayments (Aid to Families with Dependent Children)." In 1992, Arizona identified overpayments in the amount of \$4.8 million and collected \$1.9 million. Michigan identified overpayments in the amount of \$19.4 million and collected \$5.7 million. (Results of our regression analysis, based on quarterly data from 1986-92 for Arizona and 1985-92 for Michigan, are presented in Appendix C of Volume II.)

Our results suggest that for every dollar of AFDC overpayments identified in Arizona, 29 cents are collected in the first year and 40 cents in the second year. The two-year recovery rate is 68 percent. The erratic pattern of AFDC collections in Michigan precluded our calculating a recovery rate through regression analysis. (The model actually predicted *negative* collections in the second

year, for example.) We therefore assumed the same recovery rate (27 percent) for both AFDC and food stamps in Michigan. Since there is reason to believe that the recovery rate for AFDC is actually higher than that for food stamps (as it is in Arizona), this assumption should yield a low estimate of savings from AFDC collection efforts.

It is important to bear in mind that the recovery rate for either food stamps or AFDC may be influenced by the targeting strategies in effect. A strategy may, for example, reduce the number of follow ups on cases from which it will be difficult to recover overpayments. Consequently, estimates of the proportion of identified overpayments that are recovered under the current system may be biased estimates of the proportion that would be recovered under a system incorporating the new targeting strategies. We were unable to assess the magnitude of this effect, if it indeed exists.

#### **4. Unmeasured Savings**

We identified three additional benefits of IEVS matching and targeting: (1) savings from actions in other programs, (2) deterrent effects, and (3) possible improvements in caseworker morale. We did not attempt to quantify any of these benefits, as doing so was beyond the scope of this study. However, we do provide some rough estimates of Medicaid savings and qualitative evidence gathered from discussions with caseworkers and other state agency staff regarding deterrent effects and impacts on caseworker morale.

#### **B. COSTS INCURRED DURING THE IEVS PROCESS**

The 1988 Interim IEVS regulations require that a measurement of the cost-effectiveness of targeting include the cost of administering targeting, the direct cost of targeting, and the cost of verification, but exclude the costs of matching and start-up and developmental costs.<sup>8</sup> The GAO (1986) takes a much broader perspective and includes the cost of matching, the costs of material and

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<sup>8</sup>The regulations require that targeting strategies implemented by the states be justified by cost-effectiveness studies.

supplies, and the costs of claims collection and fraud investigation. Both the GAO and the SSA (1990) recommend that the cost of developing targeting strategies be included.

Because we are studying the impact of the whole IEVS process, rather than targeting alone, we use a broader measure of costs than that suggested by the IEVS regulations and include the costs of matching. As recommended by the GAO, we also include the costs involved in investigating fraud, establishing and collecting claims, and conducting hearings and prosecutions. We also estimate, but do not include in our savings-to-cost ratio, one-time-only costs of developing and implementing the new IEVS processes. This enables us to offer other state agencies an estimate of the costs involved in adopting the new matching and targeting strategies. Any costs specifically associated with the study, such as the cost of developing and producing the data collection form, are excluded whenever possible.

The costs incurred in the IEVS process are of four types: labor, data processing, overhead, and materials and supplies. State agency accounting procedures precluded our measuring these costs independently of one another. We therefore calculated these costs *in the aggregate* at four stages of the IEVS process, listed in order of their importance in our cost calculations:

1. Caseworker follow up
2. Claims establishment and collection
3. Data processing
4. Development

In the sections that follow, we define our four cost categories and explain how they were measured.

## 1. Caseworker Follow-Up Costs

Following up on IEVS hits requires the involvement of a range of state agency staff members. An ideal way to measure costs would be to track the time spent by each staff member and then to convert this time to a dollar value by multiplying the number of hours by a measure of the cost to the agency of each hour of the person's time. However, given the extraordinary burden this type of tracking would have imposed on agency staff, we adopted a simpler method for measuring costs associated with follow up, as explained below.

### a. Staff Time

Because caseworkers perform the bulk of follow-up activities, we directly tracked the time of these staff persons. We also tracked the time of caseworkers that specialize in investigating overpayments (overpayment writers in Arizona and DSPs in Michigan), excluding any involvement in hearings. In most cases, these staff members recorded on the data collection forms both the amount of time spent on particular follow-up tasks (rounded to the nearest five minutes) and the total amount of time spent each time they handled the case file. Other staff time (supervisory, clerical, and other support) was calculated as a fixed percentage of caseworker hours.

### b. Unit Labor Cost

The full cost of caseworkers' time includes costs in addition to their wages. These include:

- *Fringe benefit costs*, including health insurance contributions, education and professional fees, unemployment insurance, workmen's compensation, and civil service charges
- *Overhead costs*, including the costs of office space, communication services, equipment, and such central office administrative services as budgeting, accounting, and personnel
- *Clerical costs*, which include support staff's salaries, fringe benefits, and the overhead associated with clerical workers' services
- *Supervisory costs*, which include line supervisors' salaries, fringe benefits, and the overhead associated with supervisors' services

To calculate the fully loaded hourly cost of a caseworker's time in Michigan, we adopted an approach very similar to that developed by state staff for the wage reporting evaluation (Ward and Smucker 1990). Arizona's accounting system does not lend itself to any reasonably simple calculation of loaded rates. We have therefore estimated an hourly rate for Arizona caseworkers by adjusting the Michigan rate to reflect reported differences in the two states' costs. The sections that follow outline the method used to estimate the hourly rate in Michigan and describe how this figure was adjusted to estimate Arizona's costs.

**Michigan.** The state's cost allocation department computes on a quarterly basis so-called cost pools for central and local office administration, as well as for various employee classifications (e.g., caseworkers and caseworker supervisors). Central office costs, which include the costs of general support services provided by the accounting, personnel, and legal services departments, are distributed across employee groups on the basis of the percentage of total Department of Social Services (DSS) staff each group represents. Local office administrative costs, which include the costs of clerical support and office space, are distributed on the basis of the percentage of total local office staff each employee group represents.

Using several July to September quarterly reports produced by the state's cost allocation department, we calculated the total cost of caseworker and supervisor labor plus applicable central and local office administrative costs. We then divided this figure by the number of paid caseworker hours during the quarter (assuming 520 hours per caseworker) to obtain a fully loaded hourly cost per caseworker of \$48.78. This estimate is very close to the \$44.35 hourly rate calculated by Ward and Smucker in 1990.

**Arizona.** As noted above, Arizona's accounting system precluded our calculating loaded rates as we had for Michigan. We therefore adjusted the Michigan figure to reflect differences in Arizona's costs. Since caseworkers' primary responsibility is certification, we used certification costs billed to FCS by Arizona and Michigan (adjusted to reflect the proportion of caseworker hours spent

on food-stamp casework in the two states) to develop a state-to-state cost ratio. Our calculations suggest that costs associated with caseworker labor in Arizona are about 80 percent of those in Michigan. Applying this cost ratio to the fully loaded hourly rate calculated for Michigan caseworkers, we calculated an hourly rate of \$39.07 for caseworkers in Arizona. It is reasonable to believe Arizona's labor costs would be at least 20 percent lower than Michigan's, given the even larger salary gap between the two states. (The average annual caseworker salary is \$18,536 in Arizona and \$31,374 in Michigan.)

## **2. Claims Establishment and Collection Costs**

The costs of claims establishment and collection include the costs of investigating the cause of the overpayment, notifying the client of the claim, conducting a hearing or prosecution, and administering collections (tracking payments through the computer system). Many of these costs are incurred months or even years after an overpayment is detected. Because our tracking of staff time ended when a case left the caseworker's hands--when the case was referred to the collection unit (OARC) in Arizona or to a DSP-administered hearing or to the fraud unit (OIG) in Michigan--we used state agency estimates and aggregate data reported by the states to FCS on Form 269 and 366B to estimate the costs of claims establishment and collection.<sup>9</sup> Costs are incurred on a per-case basis. We assumed that the cost of establishing and collecting a claim is the same whether the overpayment was for food stamps, AFDC, or both.

Because the states treat overpayments differently depending upon their dollar value and/or cause, we calculated separate cost estimates for claims of different types in each state. (See Chapter II, Section B, subsections 1.c. and 2.c. for discussions of these claims establishment and collection procedures in Arizona and Michigan respectively.) These costs depend on the procedures performed.

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<sup>9</sup>FCS Form 269, the "Financial Status Report," lists quarterly expenditures related to fraud control. FCS Form 366B, the "Program and Budget Summary Statement, Part B - Program Activity Statement," lists the number of cases referred for investigation, the number and outcomes of investigations completed, and the numbers of administrative disqualification hearings held and prosecutions conducted over the quarter.

In Arizona, these procedures may include categorization by OARC, client notification, investigation, a hearing or prosecution, and administration of collections. In Michigan, these procedures may include client notification, a DSP-administered hearing, OIG investigation, a hearing or prosecution, and administration of collections. Per-case cost estimates for these various procedures are presented in Tables IV.3 (Arizona) and IV.4 (Michigan).

In Arizona, overpayment writers identified the probable cause of an overpayment as either agency error or household error. Since all claims are officially categorized and established by OARC, we assumed that the cost of OARC procedures will be incurred for both types of claim. Our per-case estimate of this cost (\$54) is based on results of an internal OARC study (Werne 1993) and information gathered on our data collection forms. (To avoid double-counting, we subtracted from the OARC estimate the costs of some activities that were recorded on our data collection forms.)

For Arizona cases where household error was indicated, we used data reported to FCS on Forms 269 and 366B to calculate the average cost of investigating possible fraud, holding hearings, and conducting prosecutions. This estimated average cost (\$150) masks wide variation in costs among cases, as the few claims that lead to legal proceedings are far more costly than others to pursue. However, the available cost data do not permit separate cost estimates for claims that are prosecuted and those that are not.

In Michigan, the cause of the overpayment was not identified on the data collection form. However, Michigan's procedures and estimated costs vary depending upon the total dollar amount of the overpayment (combining food-stamp and AFDC amounts). For overpayments of less than \$200, we assumed that the only cost that will be incurred is the cost of notifying the client and administering collections. For overpayments of \$200 to \$500, we assumed the additional cost of a DSP-administered hearing. Although not all such claims are disputed by the client (thus requiring a hearing), we assumed a 100 percent hearing rate to avoid underestimating costs. This \$221 hearing cost estimate was based on results of an internal DSS study (Hall 1993). For overpayments of more

TABLE IV.3

COSTS OF CLAIMS ESTABLISHMENT AND COLLECTION: ARIZONA  
(In Dollars per Case)

Cause of Overpayment	Establishment and Collection Procedures				Total
	Categorization by OARC	Client Notification	OIG Investigation, Possible Hearing or Prosecution	Administration of Collections	
Agency Error <sup>a</sup>	54.35	1.75	NA	20.88	76.98
Household Error <sup>a</sup>	54.35	1.75	149.75	21.30	227.15

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<sup>a</sup>For food stamp claims of less than \$35, the only cost incurred is the cost of client notification.

NA = Not applicable.

TABLE IV.4

COSTS OF CLAIMS ESTABLISHMENT AND COLLECTION: MICHIGAN  
(In Dollars per Case)

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	Establishment and Collection Procedures			
Overpayment Amount	Client	DSP-administered	OIG Investigation	Administration

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than \$500, we assumed that the cost of OIG investigation will be incurred in all cases and the cost of prosecution will be incurred in approximately three-quarters of all cases. (The latter assumption was based on the prosecution rate calculated from figures on Form 366B for fiscal year 1992.) The average cost estimate of \$680 is based on results of an internal OIG study<sup>10</sup> and data from FCS Forms 269 and 366B.

In calculating cost estimates for both states, we assumed that the cost of inputting payment information over a two-year period<sup>11</sup> will be incurred whenever the agency attempts to collect an overpayment. (Because Arizona establishes but does not attempt to collect food stamp claims of less than \$35, we assumed that the only cost that will be incurred for these overpayments is the cost of notifying the client of the claim.) Cost data from the ARS in Michigan permitted rough estimates of the cost of entering a claim into the system and notifying the client (\$1.75) and entering each payment into the record (87 cents). Data on the cost of notifying clients and administering collections were not available in Arizona, so we used the Michigan estimates for both states. Obviously, the cost of tracking payments will not be incurred if no payments are made. However, to avoid underestimating costs, we assumed payments will be made and the information inputted in all cases.

The estimated average cost of pursuing claims classified as agency error in Arizona is the sum of the costs of the tasks involved, or \$77. For claims classified as household error in Arizona, the estimated average cost is \$227. In Michigan, the estimated average costs of pursuing claims of less than \$200, \$200 to \$500, and over \$500 are \$23, \$244, and \$702 respectively. There are three possible explanations for the large cost differentials between the two states. First, Michigan's unit labor costs are higher than Arizona's. Second, administrative disqualification hearings are more common in Michigan than in Arizona. Third, prosecutions are much more common in Michigan.

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<sup>10</sup>DSS Publication 6 (11-91).

<sup>11</sup>This period was chosen for consistency with our estimates of recovered overpayments, which assumed a two-year recovery period.

Only about 1 percent of cases referred for investigation in Arizona are eventually prosecuted, compared with about 37 percent in Michigan. Michigan's average cost per case for cases referred to OIG reflects this higher prosecution rate.

### **3. Data Processing Costs**

A third component of IEVS operational costs is the cost of data processing. We identified three types of data processing costs: microcomputer costs, mainframe computing costs, and payments made to other agencies for data processing. Because the cost of caseworkers' microcomputer use is already figured into unit labor cost estimates, we did not assess this cost independently.

Most of the uses of the mainframe for IEVS matching and targeting activities (preparing tapes, matching databases, or running targeting algorithms, for example) involve submitting a batch job to the computer. Although Arizona staff perform some match activities on-line, we did not assess the cost of these transactions. Because our study focused on three of Arizona's tape matches, matching that occurs interactively would not figure into our cost or savings estimates. While caseworkers' on-line inquiries into the case file (to obtain an employer's address, for example) are a cost of follow up, data on the actual number and cost of these inquiries are difficult to obtain. Since Arizona staff estimate no more than one on-line inquiry per client matched to the SWICA database, we believe the cost of this mainframe use is negligible and unlikely to affect our cost estimates.

Both Arizona and Michigan provided us with batch processing cost data; Michigan also provided information on external agency charges. We divided data processing costs into four categories:

- 1. *The Cost of Producing the Request Tape and/or Matching a Tape from the External Database against the Client Database.*** For matches that are conducted at the source agency (the agency that maintains the external database), such as the BEER and IRS matches in Arizona and the SWICA, UI, BENDEX, and IRS matches in Michigan, the welfare agency produces a request tape containing the SSNs of clients who are to be matched with the external data. For other matches, such as the SDX match and the BENDEX and BEER orbit-file matches, the source agency sends the welfare agency unmatched data and the welfare agency itself matches the external data against its client database. For these matches, the welfare agency does not produce a request tape.

2. ***The Cost of Processing the Response Tapes and/or Running Targeting Algorithms.*** If the match is conducted at the source agency, the source agency returns to the welfare agency a tape containing external data, when it is available, for the SSNs that were listed on the request tape. The welfare agency reads the tape and identifies those SSNs that were matched to the external database. If the agency conducts the match itself, this step may be combined with targeting procedures. Running targeting algorithms may involve not only implementing the targeting screen, but pulling data from the client database that will be used in the algorithm.
3. ***Producing the IEVS Reports.*** A report identifying the client, the case, and the information on the external database is produced for each SSN to be followed up. This report is then sent to the appropriate caseworker for use in the follow up. The production of these reports is automated in both Arizona and Michigan.
4. ***Payments to Agencies That Maintain the External Database.*** The IRS charges one cent for each SSN sent to be matched with the IRS database. The MESC, which maintains SWICA data in Michigan, also charges the welfare agency for its data.

The cost data provided by the states reflected the cost of conducting IEVS matching and targeting statewide. To estimate the costs of matching, targeting, and producing reports for just the SSNs in our sample, we first determined the cost per SSN for each of the four categories of cost outlined above. To obtain a total matching and targeting cost for our sample, we multiplied this unit cost by the estimated number of SSNs in our sample processed at each stage.

In the sections that follow, we discuss how we calculated the unit costs of mainframe batch processing, estimated the number of SSNs processed, and determined the unit costs of payments made to other agencies for data processing.

#### **a. Unit Costs of Mainframe Computing**

Arizona provided us with mainframe utilization data for July to November 1992. Because Arizona's Department of Data Administration does not bill user agencies for mainframe computing, we used the rate schedule developed by another Arizona agency to calculate the costs of the SWICA, BEER, and IRS matches. Michigan, which does bill users, provided us with total quarterly costs for the SWICA, UI, BENDEX, SDX, and IRS matches. In both states, the mainframe computing rates used to calculate costs are fully loaded, incorporating the full cost of computer operations (programmer, computer operator, and support staff salaries; fringe benefits; and overhead.)

For both states, we assumed that costs vary with the number of SSNs processed, unless match data directly contradicted this assumption. (Data to test this assumption were available only for some matches in Arizona.) If costs we deemed variable are actually fixed, the cost per SSN calculated for particular procedures or matches in Arizona (where some procedures involved only SSNs in our sample) may not be applicable to the entire caseload.

In order to calculate the cost per SSN of processing response tapes and/or running targeting algorithms statewide, we needed to know the number of SSNs actually matched to a given database. These data were available for Arizona, but not for Michigan. (Michigan provided us with quarterly totals of the numbers of SSNs sent to be matched to each database and the numbers of SSNs targeted for follow up.) We therefore assumed that for a given database, the match rate for the quarter was the same as the match rate for a single match on which we were able to obtain more data.<sup>12</sup>

Unit costs for the three steps in the matching and targeting process are presented in Tables IV.5 (Arizona) and IV.6 (Michigan).

#### **b. Numbers of SSNs Processed**

To determine the portion of statewide match costs attributable to cases in our sample, we multiplied the cost per SSN for each step by the estimated number of SSNs in our sample processed during that step.

Some data processing costs vary with the number of *SSNs eligible to be matched*. For matches conducted at the source agency, this is the number of SSNs included on the request tape. For matches conducted by the welfare agency itself, the number of SSNs eligible to be matched is the number of SSNs on the client database. We estimated this number using data on case characteristics

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<sup>12</sup>Since it was not possible to calculate match rates for the BENDEX and SDX matches, we used an alternative method to estimate the number of SSNs processed. For a full discussion of match rates, see Chapter V.

TABLE IV.5  
DATA PROCESSING UNIT COSTS: ARIZONA  
(In Cents)

	Database		
	SWICA	BEER	IRS
Producing request tapes or matching extract tapes against client database. ( <i>Cost is per SSN eligible to be matched unless otherwise noted.</i> )	0.12	1.00	0.20 \$15.95 per match
Processing response tapes and/or running targeting algorithms. ( <i>Cost is per SSN matched unless otherwise noted.</i> )	2.08	0.03 \$93.11 per match \$654.36 per year	\$38.31 per match
Producing reports. ( <i>Cost is per SSN targeted for follow up.</i> )	4.61	2.10	5.95
Payments to agency that maintains external data source ( <i>Cost is per SSN eligible to be matched.</i> )	NA	NA	1.00

NA = Not applicable.

TABLE IV.6  
DATA PROCESSING UNIT COSTS: MICHIGAN  
(In Cents)

	SWICA	UI	BENDEX	SDX	IRS
Producing request tapes or matching extract tapes against client database. ( <i>Cost is per SSN eligible to be matched unless otherwise noted.</i> )	0.14	0.14 <sup>a</sup> 0.11 <sup>b</sup>	0.46 \$15.95 per match	0.18 <sup>d</sup>	0.02 \$15.95 per match
Processing response tapes and/or running targeting algorithms. ( <i>Cost is per SSN matched unless otherwise noted.</i> )	0.06	0.06 <sup>c</sup>	0.07	0.18 <sup>d</sup>	0.27
∞ Producing reports ( <i>Cost is per SSN targeted for follow up.</i> )	0.11	0.11 <sup>c</sup>	0.11	3.80	0.79
Payments to agency that maintains external data source. ( <i>Cost is per SSN eligible to be matched.</i> )	6.47	NA	NA	NA	1.00

<sup>a</sup>UI applicant match

<sup>b</sup>UI recipient match

<sup>c</sup>UI applicant and recipient matches

<sup>d</sup>Cost shown is combined cost of matching and targeting

NA = Not applicable.

from the monthly case-record extracts. For some matches, such as the SWICA match in Michigan, we used case characteristics to simulate the screening process. Other matches required that we make other assumptions. For the SWICA match in Arizona, for example, we assumed that each SSN in the sample was eligible to be matched each time the match was conducted. (This overestimates matching costs, because some cases may have closed and been removed from the database during the study period.) The specific assumptions made for each match are detailed in Chapter V, Section D.

We also adjusted our estimates of the numbers of SSNs sent (eligible) to be matched to account for the subsequent loss of data on some SSNs targeted for follow up. We could not include in our cost-effectiveness ratio costs or savings resulting from follow ups of targeted SSNs in cases that transferred to offices outside our study sample or for which data collection forms were not returned. For consistency, we adjusted our estimates of data processing costs to reflect this attrition, using as an adjustment factor the ratio of the number of follow ups for which we had outcome data to the total number of follow ups.

Some data processing costs vary with the number of *SSNs matched*. For most matches, we used estimates of the state-wide match rate to determine the number of SSNs matched in our sample. However, for the BEER match in Arizona and the BENDEX match in Michigan, we could not calculate a match rate. We therefore assumed that all of the SSNs eligible to be matched were matched (a 100 percent match rate). This assumption is unrealistic, but prevents our underestimating response-tape processing and targeting costs for these matches.

Some data processing costs are fixed and do not vary with the number of SSNs processed. For example, it costs \$16 to deliver a tape to the IRS regardless of the number of SSNs on the tape. As matching and targeting is ordinarily operated on a state-wide basis, the fixed cost should be set against the savings from IEVS follow ups state-wide. Because we assessed savings only for cases in our research sample, however, we prorated each fixed cost to reflect the proportion of the state caseload that was in our sample.

### **c. Payments to Other Agencies**

All state agencies pay the IRS one cent per match inquiry for data processing that occurs at the agency. Michigan's DSS also pays its SWICA (MESC) for state wage data. The MESC charges are based on the cost of maintaining the database and on the proportion of MESC data use that is attributable to IEVS matching over the course of a year. To calculate the cost per inquiry, we assumed (1) that total MESC costs (primarily, the cost of collecting and inputting data from employers) is fixed and that other use of MESC data would also remain constant over the year, and (2) that the number of DSS's data requests would decrease by the estimated number of applicants sent to be matched over the course of a year. We estimated that the charge per inquiry is thus 6.5 cents.

### **4. Development Costs**

Development costs are the costs of developing and implementing new targeting strategies. These costs fall into two categories: management and data processing. We assumed that management costs are essentially zero. Agency staff in both states report that training and materials costs were negligible and that senior management time devoted to developing and implementing new targeting strategies was similarly limited.

Data processing costs are of two types: programmer labor costs and mainframe computing costs associated with test runs. In Arizona, these costs included the costs of updating matching programs. This was necessary to bring programs in line with system upgrades installed either at FAA or the source agencies since these matches were last run or hits last followed up. To calculate labor costs, we multiplied programmer hours spent upgrading matching programs and programming new targeting strategies by these individuals' fully loaded hourly wage rates (using the same loading factor we used for caseworker labor). We assumed that the cost of test runs was the difference between the total cost of all processing done under the relevant IEVS job numbers between July and November and the cost of actual matches conducted during the period.

In Michigan, data processing development costs were limited to the cost of changing a few lines of code in the IRS targeting algorithm. We assumed this cost was negligible.

## V. ACTION, HIT, AND MATCH RATES

This chapter examines three rates that affect the cost-effectiveness of IEVS procedures: (1) the action rate, (2) the hit rate, and (3) the match rate. The *action rate* is the number of follow ups (or cases that are followed up) that lead to a change in benefits, a change in eligibility, or the detection of a previous benefit overpayment as a proportion of all follow ups (or cases). The *hit rate* is the number of social security numbers (SSNs) that are targeted for follow up as a proportion of all SSNs for which information is available from the external database. The *match rate* is the number of SSNs for which information is available from the external database as a proportion of all SSNs that could potentially be matched to the external database.

The central criticism of IEVS is that caseworkers are required to conduct many follow ups that do not lead to any change in benefits, change in eligibility status, or the detection of a previous benefit overpayment. For these follow ups, the agency incurs the cost of caseworkers' time without reaping any savings. The action rate is an important statistic because it affects the extent to which follow ups are cost-effective. Everything else equal, the higher the action rate, the more cost-effective the IEVS procedures. Using a targeting strategy may raise the action rate. The hit and match rates are of interest for two reasons. First, the hit rate indicates the restrictiveness of the targeting strategy. The lower the hit rate, the more restrictive the targeting strategy. Second, as data processing costs are a function of the number of matches with the external database and the number of follow ups, both the hit and match rate affect the cost-effectiveness of IEVS.

In Section A of this chapter, we discuss the action rate for each database matched in Arizona and Michigan. Section B discusses the reasons caseworkers gave for not realizing any change in eligibility or benefits as a result of an IEVS follow up. In Section C, we describe the characteristics of cases that resulted in a change in benefits, a change in eligibility status, or the detection of a

previous benefit overpayment. Section D describes estimates of the hit and match rates for each state.

#### A. ACTION RATES

We use the term "*action*" to refer to any change in eligibility status (either a benefit denial or a case closure), a change in benefit amount (either an increase or reduction in benefits), or a detected previous overpayment.<sup>1</sup> The change must be a result of the IEVS follow up. In our definition, we include only actions that occur in either the Food Stamp, AFDC, or Medicaid programs. The action rate is the proportion of *follow ups* that result in an IEVS action. The action rate can also be defined as the proportion of *cases* targeted for follow up that are acted upon.

Table V.1 presents the number of follow ups, the number of follow ups that resulted in an action, and the action rate (defined in terms of follow ups) for each database in Arizona. It also presents the number of cases that were followed up, the number of cases for which an action occurred, and the action rates (defined in terms of cases) for each database. Table V.2 presents the corresponding information for each database in our study in Michigan. As we do not observe whether any action occurred as a result of follow ups that were conducted at nondemonstration offices and those for which data collection forms were not returned, we excluded these follow ups from the counts in Tables V.1 and V.2. The number of cases followed up is smaller than the number of follow ups because the same case could be followed up more than once if it is matched more than once against the same database (as for example, the SWICA match in Arizona, and the UI, BENDEX, and SDX matches in Michigan).<sup>2</sup>

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<sup>1</sup>In Michigan, this includes follow ups where the caseworker states on the data collection form that the case was transferred to the OIG, but no overpayment amount was entered on the data collection form.

<sup>2</sup>In Michigan, some cases were applicants more than once during the study. This would occur, if, for example, a household reapplied for benefits after benefits were denied. This explains why the same case could have been matched against the SWICA database in Michigan more than once during the study.

TABLE V.1  
NUMBER OF HITS, ACTIONS, AND ACTION RATES: ARIZONA

	Follow Ups			Cases		
	Targeted for Follow Up (Hits)	With Action	Action Rate (Percent)	Targeted for Follow Up (Hits)	With Action	Action Rate (Percent)
SWICA	123	8	6.5	110	6	5.5
BEER	238	24	10.1	233	24	10.3
IRS	290	47	16.2	290	47	16.2
<b>Total</b>	<b>651</b>	<b>79</b>	<b>12.1</b>	<b>633</b>	<b>77</b>	<b>12.2</b>

NOTES: Action is defined as a change in eligibility status, a change in benefits, or a detection of a previous benefit overpayment for the Food Stamp, AFDC, or Medicaid programs that occurs because of an IEVS follow up.

These counts exclude data collection forms that were not returned and cases that were transferred out of a demonstration office before the data collection form was completed.

TABLE V.2

NUMBER OF HITS, ACTIONS, AND ACTION RATES: MICHIGAN

	Follow Ups			Cases		
	Targeted for Follow Up (Hits)	With Action	Action Rate (Percent)	Targeted for Follow Up (Hits)	With Action	Action Rate (Percent)
SWICA	400	25	6.3	391	25	6.4
UI	204	9	4.4	156	8	5.1
BENDEX	284	27	9.5	249	25	10.0
SDX	548	25	4.6	457	24	5.3
IRS	8	1	12.5	8	1	12.5
<b>Total</b>	<b>1,444</b>	<b>87</b>	<b>6.0</b>	<b>1,143</b>	<b>80</b>	<b>7.0</b>

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NOTES: Action is defined as a change in eligibility status, a change in benefits, or a detection of a previous benefit overpayment for the Food Stamp, AFDC, or Medicaid programs that occurs because of an IEVS follow up.

These counts exclude data collection forms that were not returned and cases that were transferred out of a demonstration office before the data collection form was completed.

In Michigan, the total number of cases targeted for follow up is lower than the sum of the number of cases targeted for follow up for each database. This is because in Michigan, a case can be matched with more than one database in our study. In Arizona, because of the demonstration design, a case can be matched with only one database in our study. Here, the total number of cases targeted for follow up in Arizona is equal to the sum of the number of cases targeted for follow up for each database.

In three cases in Michigan, match information from more than one database led to actions for the case. In two cases, a follow up of a SWICA match and a follow up of a UI match both provided information that led to the same action for the case. Similarly, information received from an SDX match led to a reduction in benefits and the detection of a previous benefit overpayment, while information received from a later IRS match led to a case closure and the detection of the same overpayment. In this table, we count each of these actions as a separate action for each database. However, these actions are counted only once in the total number of cases with actions presented in the last row of the table.

In both states, the action rate was low. The overall action rate defined in terms of follow ups was just over 12 percent in Arizona and about 6 percent in Michigan. Thus, in Arizona, for every 100 follow ups conducted, only 12 resulted in an action. In Michigan, only 6 out of every 100 follow ups resulted in an action.

The action rates defined by case do not differ much from the action rates defined by follow up. However, with the exception of the SWICA match in Arizona, the case action rates were slightly higher than the follow-up action rates. This suggests that the probability of an action resulting from a second and third follow up of the same case was lower than the probability of an action resulting from the first follow up. This is less likely to be the case for the SWICA match in Arizona because, by its design, each match provided new information on the case.

In both states, the action rate varied considerably by database. The proportion of follow ups that resulted in an action was highest for the IRS database. The follow-up action rate for the IRS match was 16 percent in Arizona and 13 percent in Michigan. (However, in Michigan, a total of only eight follow ups of the IRS match were conducted.)

In both states, the action rate for the SWICA match was about 6 percent--even though recipients were matched in Arizona while applicants were matched with the SWICA database in Michigan. The action rate in Arizona was found to be higher than the 5 percent action rate found by the state when it conducted a study of the SWICA recipient match with a less restrictive targeting strategy (Estrella 1990). Since that study was conducted, the targeting strategy was changed so that the quarterly earnings information on the SWICA were prorated. Our results suggest that the new targeting strategy was effective in raising the action rate.

The action rate for the applicant SWICA match in Michigan was found to be remarkably similar to the action rate found by Ward and Smucker (1990) in their study of the SWICA applicant match in Michigan. Excluding overpayments from their definition of an action, Ward and Smucker found an action rate of 4.4 percent. In our study, 4.3 percent of the follow ups of the applicant SWICA match led to a change in benefits or eligibility.

The lowest action rates--less than 5 percent--occurred for the UI and SDX matches in Michigan. The BEER match in Arizona had an action rate of about 10 percent. The BENDEX match in Michigan had an action rate of just under 10 percent.

#### **B.- REASONS GIVEN FOR FOLLOW UPS THAT DO NOT LEAD TO A CHANGE IN BENEFITS OR ELIGIBILITY**

The majority of follow ups in our study (91 percent in Arizona and 95 percent in Michigan) did not result in any change in benefits or eligibility (although some of them detected a previous benefit overpayment). When the follow up did not result in a change in benefits or eligibility, the caseworker

recorded the reason on the data collection form.<sup>3</sup> This information helps us to understand why so few follow ups led to a change in benefits or eligibility and suggests ways to improve targeting strategies.

From the caseworkers' responses,<sup>4</sup> we identified six categories of reasons for the lack of a change in benefits or eligibility:

1. The income was already recorded in the casefile
2. The income on the external database did not affect benefits or eligibility
3. The case was inactive at the time the follow up was conducted
4. The caseworker was unable to verify the income on the external database
5. The income on the external database was incorrect
6. The report did not provide income information

These categories of responses are not mutually exclusive, and in both states, the caseworker often provided more than one reason for the lack of a change resulting from the follow up. For example, the income may already have been reported (category 1) and was also not large enough to affect benefits or eligibility (category 2). Moreover, the distinction between the categories is not always clear. For example, the caseworker may not have been able to verify the income on the external database (category 4) *because* the income on the external database was incorrect (category 5). However, unless the caseworker was certain that the income on the external database was incorrect, he or she may have reported only that they could not verify the income. The reasons given varied

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<sup>3</sup>The caseworkers were not asked to record why no overpayment was detected.

<sup>4</sup>Both data collection forms listed precoded reasons. However, of the data collection forms on which caseworkers recorded that there was no change in benefits or eligibility, caseworkers recorded the reason as "other" on 15 percent of the forms in Arizona and 22 percent of the forms in Michigan. The categories of reasons discussed in this section were developed from the coded responses and the comments written by the caseworkers on the forms.

little between the Food Stamp, AFDC, and Medicaid programs, so in discussing the reasons for the lack of a change we do not distinguish between programs.<sup>5</sup>

Table V.3 shows the number of follow ups for which caseworkers in Arizona cited a given reason for an "unproductive" follow up (one that did not lead to a change in current benefits or eligibility). Table V.4 reports the corresponding numbers for Michigan. The percentage of all unproductive follow ups for which each reason was cited is given in parentheses. As more than one reason can be cited for a given follow up, the percentages add up to more than 100 percent of all unproductive follow ups.

#### **1. Income Was Already Recorded in the Casefile**

The most frequently given reason for an unproductive follow up for all databases in the study was that the income was already recorded in the casefile. In 42 percent of unproductive follow ups in Arizona and 57 percent of unproductive follow ups in Michigan, the caseworker was already aware of the income before the follow up was conducted. In over half of the unproductive follow ups of the SWICA database in Arizona and the UI, BENDEX, and IRS databases in Michigan, the income was already reported in the casefile.

A follow up on income that is already recorded in the casefile could occur for two reasons. First, a targeting strategy was not used, or the targeting strategy did not exclude from follow up cases for

TABLE V.3

## REASONS GIVEN FOR NO CHANGE IN BENEFITS OR ELIGIBILITY: ARIZONA

	Number of Follow Ups			Total
	Database			
	SWICA	BEER	IRS	
1. Income Was Already Recorded in Casefile	81 (67%)	79 (35%)	91 (36%)	251 (42%)
2. Income Does Not Affect Benefits or Eligibility	36 (30%)	83 (37%)	87 (35%)	206 (35%)
• Income Was Received in Prior Period	9	33	40	82
• Excluded Income	4	42	31	77
• Budgeted Retrospectively	22	4	0	26
• Income Was Too Low	0	6	14	20
• Other	2	1	3	6
3. Case Is Inactive	20 (17%)	40 (18%)	38 (15%)	98 (16%)
4. Unable to Verify Income on External Database	11 (9%)	38 (17%)	33 (13%)	82 (14%)
• No Response from Collateral	8	30	19	57
• Collateral Does Not Verify	5	9	16	30
5. Income on External Database is Incorrect	5 (4%)	2 (1%)	3 (1%)	10 (2%)
• Wrong SSN	5	2	1	8
• Client Provided Verification of Income	0	0	2	2
<b>Number of Follow Ups with No Change in Current Benefits or Eligibility</b>	<b>121</b>	<b>224</b>	<b>250</b>	<b>595</b>

NOTE: Percentage of all follow ups that do not lead to any change in benefits or eligibility are given in parentheses.

TABLE V.4

## REASONS GIVEN FOR NO CHANGE IN BENEFITS OR ELIGIBILITY: MICHIGAN

	Number of Follow Ups					Total
	Database					
	SWICA	UI	BENDEX	SDX	IRS	
1. Income Was Already Recorded in Casefile	180 (47%)	127 (64%)	211 (81%)	261 (50%)	4 (57%)	783 (57%)
2. Income Does Not Affect Benefits or Eligibility	159 (42%)	42 (21%)	24 (9%)	23 (4%)	2 (29%)	250 (18%)
• Income Was Received in Prior Period	137	36	3	15	1	192
• Excluded Income	25	5	17	8	2	57
• Budgeted Retrospectively	0	1	0	0	0	1
• Income Was Too Low	2	0	4	1	0	7
• Other	0	0	0	0	0	0
3. Case Is Inactive	65 (17%)	24 (12%)	20 (8%)	73 (14%)	0 (0%)	182 (13%)
4. Unable to Verify Income on External Database	3 (1%)	3 (2%)	0 (0%)	1 (0%)	1 (14%)	8 (1%)
• No response from Collateral	1	0	0	0	0	1
• Collateral Does Not Verify	2	0	0	1	1	4
• Unable to Verify Date of Receipt of Benefits	0	3	0	0	0	3

TABLE V.4 (continued)

	Number of Follow Ups					Total
	Database					
	SWICA	UI	BENDEX	SDX	IRS	
5. Income on External Database Is Incorrect	0 (0%)	1 (1%)	1 (0%)	1 (0%)	0 (0%)	3 (0%)
• Wrong SSN	0	0	0	1	0	1
• Client Provided Verification of Income	0	1	1	0	0	2
6. Report Provides No Income Information	0 (0%)	15 (8%)	4 (2%)	178 (34%)	0 (0%)	197 (14%)
Number of Follow Ups with No Change in Current Benefits or Eligibility	383	198	259	523	7	1,370

NOTE: Percentage of all follow ups that do not lead to any change in benefits or eligibility are given in parentheses.

Second, the client may have reported the income after the targeting strategy was applied, but prior to the follow up, which may have occurred one or two months later.

Even though the targeting strategy for the SWICA match in Arizona involved a comparison of client-reported income and income on the external database, caseworkers still reported that for 67 percent of the unproductive SWICA follow ups, there was no change in benefits or eligibility because the income was already recorded in the casefile. A case is followed up in Arizona if prorated quarterly earnings on the SWICA database exceed the client-reported earnings by 20 percent or more. However, it is still possible that client-reported earnings were consistent with earnings on the SWICA database if the client earned substantially more before joining the FSP than after. For example, suppose a client earned \$1,000 in January, but then lost his or her job and received food stamps in February and March. His quarterly earnings on the SWICA database, prorated to take into account that he or she was receiving food stamps for only two months, would have been \$667 ( $\$1,000 \div 3 \times 2$ ), but his or her budgeted earnings over the quarter would have been zero. Hence, this case would have been slated for follow-up. However, the caseworker may have already been aware of these earnings from the SWICA *on-line* match or from conversations with the client.

Even though the SWICA applicant match is not targeted in Michigan, caseworkers stated that the income was already recorded in the casefile in only 47 percent of the unproductive follow ups--significantly less often than for the SWICA recipient match in Arizona. One reason for this difference is that in Michigan the clients were applicants (or new recipients), while in Arizona, the clients were recipients. Recipients were much more likely to have received welfare benefits and therefore to have reported earnings during the reference quarter of the SWICA database.

## **2. Income Did Not Affect Benefits or Eligibility**

The second most frequently given reason for an unproductive IEVS follow up was that the income on the external database neither affected the amount of benefits paid nor led to a case closure. This reason was especially important in Arizona, where caseworkers reported that the

income did not affect benefits or eligibility for 35 percent of the unproductive follow ups. In Michigan, this reason was cited for 18 percent of the unproductive follow ups. In both states, it was cited more often as a reason for unproductive follow ups of the SWICA, IRS, and BEER databases than for unproductive follow ups of the UI, BENDEX, and SDX databases.

We identified four major reasons why the income on the external database may not have affected benefits or eligibility:

1. The income was received in a prior period and no longer exists
2. The income was excluded from calculation of benefits and eligibility
3. The income was budgeted retrospectively, but the targeting strategy compared client-reported income and income on the external database *as if* the case were budgeted prospectively
4. The income was too low to affect benefits or eligibility

**a. Income Was Received in a Prior Period**

Income received previously, but that no longer exists, would not affect current benefits or eligibility (but could lead to a detection of a previous overpayment). The client might no longer have been receiving the income at the time of the follow up for many reasons. For example, the client may have recently lost his or her job, exhausted his or her UI benefits, or cashed in an interest-bearing asset. Many IEVS follow ups were unproductive because they provided information only on *previous* income receipt. This was especially important for those databases--SWICA, BEER, and IRS--that do not provide any current income information. However, it was also a problem for the UI, BENDEX, and SDX databases, which provide information on both past and current benefit receipt.<sup>6</sup>

Caseworkers cited "the income had been received in a prior period" as a reason for not changing benefits or eligibility in only 7 percent of unproductive follow ups of the SWICA recipient match in Arizona compared to 36 percent of the unproductive follow ups of the SWICA applicant match in

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<sup>6</sup>While the BENDEX and SDX databases do not provide information on the amount of benefits received in the past, they may indicate that the client received benefits in the past.

Michigan. One explanation for this difference is that because many clients applied for food stamps *because* they lost their jobs, applicants in the third and fourth quarter of 1992 were more likely than recipients to have had earnings in the first or second quarter of 1992, but not at the time of follow up.

In Arizona, the targeting strategies for the SWICA, BEER, and IRS databases were designed to exclude from follow up persons who were not active for a large proportion of the period in which the income was received. The targeting strategy for the SWICA database excluded from follow up clients who were not active during at least one month of the quarter covered by the SWICA data. Similarly, the BEER and IRS targeting strategies excluded from follow up clients who were not active during at least six months of the year covered by these databases. However, it is still possible for clients to have received the income on the external database before they entered the program.

In Michigan, the targeting strategy for the BENDEX database targets for follow up only clients who *currently* receive benefits. In contrast, the targeting strategies for the UI and SDX databases do not exclude from follow up clients who are not currently receiving benefits. These differences in targeting strategies are reflected in the reasons given for unproductive follow ups. For instance, "income was received in a prior period" was cited in 18 percent of the unproductive follow ups of the UI matches and 3 percent of the unproductive follow ups of the SDX matches compared with only 1 percent of the unproductive follow ups of BENDEX matches.

#### **b. Income was Excluded**

The income reported on the external database may not affect benefits or eligibility because it is excluded by the program from determination of the case's benefits and eligibility. This was given as a reason for the lack of a change in benefits or eligibility in 13 percent of the unproductive follow ups in Arizona and 4 percent of the unproductive follow ups in Michigan.

A client's income may not affect benefit or eligibility determination for many reasons. Reasons specifically cited in our study included:

- The client was inactive. A client may have been inactive but listed in a case that was active. This would occur if the client lived with persons who received benefits but was not part of the household as defined by the program.
- The income was earned by a student.
- The income was inaccessible. Income from an irrevocable trust fund is an example of inaccessible income.

While the IRS database provides information on income from assets, it is also used to detect assets that exceed the allowable level for the program. For some IRS follow ups in Arizona, caseworkers reported that there was no change in benefits or eligibility because the type of asset reported on the IRS database was not counted in determining FSP benefits or eligibility. Assets that are not counted in benefit and eligibility determination include assets of SSI recipients and the cash value of life insurance policies.

In both states, the targeting strategies were designed to eliminate follow ups of excluded income reported on the external database. In Arizona, clients who were inactive for the current and previous two months were not followed up. In addition, children age 16 or under were not followed up. In Michigan, except for the SWICA match, the client must be currently active to be followed up. No age limit was used in the targeting strategy in Michigan.

**c. Income Was Budgeted Retrospectively**

Two different methods are used to determine benefits and eligibility for the FSP: (1) prospective budgeting, in which benefits and eligibility are based on the expected income for the current month and (2) retrospective budgeting, in which benefits and eligibility are based on actual income in a previous month and clients are required to submit monthly reports documenting their income. In both states, each method is used for different types of households. However, Arizona is moving toward using prospective budgeting for all households.

When the targeting strategy involves a comparison of client-reported income and income on the external database, the correct comparison depends on which budgeting method is used. Under

prospective budgeting, reported or budgeted income should be compared with income on the external database for the same month. Under retrospective budgeting, reported income should be compared with income on the external database received during a previous month.

In Arizona, the targeting strategy for the SWICA match compares reported income with income on the external database over the same quarter. This is the correct comparison for households that are subject to prospective budgeting. However, for households that are subject to retrospective budgeting, benefits and eligibility may have been determined from income earned in a previous quarter. In this case, a discrepancy between the budgeted income and income reported on the external database may not have indicated misreported income. This was cited by caseworkers as a reason for no change in benefits or eligibility in 18 percent of the unproductive follow ups of the SWICA database.

This reason is not applicable to any match that does not involve a direct comparison of reported income and income on the external database. Only the SWICA recipient match in Arizona involves a targeting strategy that compares client-reported income with income on the external database. However, this reason was cited in four follow ups of the BEER database in Arizona and in one follow up of the UI database in Michigan.

**d. Income Was Too Low**

Even if there was a discrepancy between client-reported income and income on the external database, the income on the external database may have been too low to affect benefits or eligibility. Not all targeting strategies exclude from follow up income on the external database that is below a certain threshold. Follow ups may have been conducted on income of as little as one cent reported on the BEER database in Arizona and on the SWICA, UI, BENDEX, and SDX databases in Michigan. However, this was cited as a reason for no change in benefits or eligibility in about 3 percent of unproductive follow ups in Arizona and in less than 1 percent of unproductive follow ups in Michigan.

The SWICA targeting strategy in Arizona excludes from follow up quarterly income of less than \$3,600. No follow up of the SWICA database in Arizona was reported as unproductive because the income was too small. In Michigan, which has no targeting strategy for the applicant SWICA match, "the income was too small" was cited as a reason for an unproductive follow up in only two follow ups of the SWICA database.

The IRS targeting strategy in Arizona excluded from follow up unearned income for the case of \$100 or less. In Michigan, the IRS targeting strategy had a much higher tolerance threshold, excluding from follow up *each* source of unearned income for the *client* of less than \$200. Reflecting these differences, the income was reported as too low to affect benefits or eligibility for 6 percent of the unproductive IRS follow ups in Arizona and in no instance in Michigan. (However, there were only seven unproductive IRS follow ups in Michigan).

**e. Other Reasons That Income Does Not Affect Benefits or Eligibility**

In Arizona, three other reasons not easily categorized were cited for the lack of a change in benefits or eligibility:

- The caseworker made an error in entering income information into the client database.
- The client-reported income was the client's best estimate of income, and the case was budgeted prospectively.
- The IRS database showed income from resources that had subsequently been cashed in and spent.

**3. Case Was Inactive**

If the case has already been closed or denied benefits at application or recertification, an IEVS follow up cannot lead to any change in benefits or eligibility. This was cited as a reason for no change in benefits or eligibility in 16 percent of the unproductive follow ups in Arizona and 13 percent of the unproductive follow ups in Michigan.

Both states use targeting strategies that were designed to exempt from follow up cases that are inactive. In Arizona, a case was exempt from follow up if it was inactive in both the current month and the previous two months.<sup>7</sup> In Michigan, the targeting strategies for the UI, BENDEX, SDX, and IRS databases exempt from follow up cases that are inactive in the current month. However, in both states, "current" refers to the month the targeting strategy is run. The follow up may take place a month or two later. The "case is inactive" was given more frequently as a reason for an unproductive follow up in Arizona, where the requirement that the case be active is less stringent. In Michigan, the case could be inactive if the application was withdrawn or denied. Inactive status was most often given as an explanation for not changing benefits or eligibility in follow ups of the applicant SWICA match, which was not targeted.

#### **4. Caseworker Could Not Verify Income on the External Database**

Income reported on the SWICA, BEER, and IRS databases must be verified by either the client or a third-party, such as an employer or financial institution, before the caseworker can change benefits or close the case. Benefit information on the UI, BENDEX, and SDX database does not require verification.

Caseworkers in Arizona reported that they could not verify income on the external database for 14 percent of the unproductive follow ups. However, in Michigan this reason was cited in only 1 percent of unproductive follow ups. One reason for this difference is that the majority of follow ups in Michigan were conducted for the UI, BENDEX, or SDX databases, which do not require third-party verification. However, even for the SWICA and IRS databases, this reason was cited much less frequently in Michigan.

Caseworkers may not be able to verify income for two reasons. First, the collateral contact may not respond to requests for verification. This may be because the employer or financial institution

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<sup>7</sup>The targeting strategy requires that the *client* is active. However, a case is active if at least one client in that case is active.

is no longer in business, has changed address, or does not wish to respond. Second, the collateral contact may respond but fail to verify the income. This may be because the contact is unwilling or unable to provide the information, or because the information on the external database is incorrect. Typical responses from employers include "we have no knowledge of your client" or "the person did not work here at that time." Typical responses from financial institutions include "we have no knowledge of that account number" or "that account number has no income." The lack of response from the collateral contact was cited nearly twice as frequently as "the collateral does not verify income" as a reason for the caseworker's inability to verify income.

#### **5. Income on the External Database Was Incorrect**

In both states, it was fairly rare for caseworkers to attribute the lack of a change in benefits or eligibility to incorrect information on the external database. In about 2 percent of unproductive follow ups in Arizona and less than 0.5 percent of unproductive follow ups in Michigan, the caseworker reported that either the SSN on the external database was not the client's SSN or the client provided verification of the income he or she had reported. However, it is possible that the caseworker gave "could not verify income" as a reason for an unproductive follow up in some instances in which the information was incorrect on the external database.

#### **6. Report Did Not Provide Income Information**

The reports from the UI, BENDEX, and SDX matches sometimes provide information other than the amount of income, such as changes in address, changes in living arrangements, application for benefits, termination of benefits, and denial of benefits. The lack of income information on the report was given as a reason for no change in benefits or eligibility for 14 percent of the unproductive follow ups in Michigan. It was cited as a reason for 34 percent of unproductive follow ups of the SDX database, 8 percent of unproductive follow ups of the UI database, and 2 percent of

unproductive follow ups of the BENDEX database.<sup>8</sup> One explanation for this reason being cited less often for the UI database is that only clients who are currently receiving benefits are targeted for follow up.

### **C. CHARACTERISTICS OF CASES AND CLIENTS FOLLOWED UP AND THOSE THAT WERE ACTED UPON AS A RESULT OF IEVS**

In this section, we compare the characteristics of cases and clients targeted for follow up with those that were not targeted and the characteristics of cases and clients acted upon with those not acted upon. We divide the cases and clients into four groups: (1) cases and clients in the research sample, (2) cases and clients ever targeted for follow up (hit) during our study, (3) cases and clients acted upon as a result of any follow up, and (4) cases and clients followed up during our study but not acted upon. Some characteristics of the cases and clients in each of these four groups in Arizona are presented in Table V.5. Table V.6 presents the characteristics of cases and clients in Michigan.

Some of the characteristics of the cases and clients, such as income, may vary over time. In Arizona, we present the characteristics of the cases and clients in July--near the beginning of the study. In Michigan, we present the characteristics of the cases and clients in the month they first applied for food stamps during our study.

Information on the characteristics of the cases in our sample was obtained from the monthly case-record extracts provided by the states. Hence, the characteristics of the cases that are presented in Tables V.5 and V.6 are those that were *reported* by the client and entered into the client database. These may not represent the true characteristics of the case if the client misreports information. In particular, income information reported in Tables V.5 and V.6 represents income reported by the client, not income reported on the external database.

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<sup>8</sup>We suspect that this is an underestimate of the number of follow ups that were unproductive for this reason. We saw some data collection forms that provided no income information for which the caseworker gave no reason for the unproductive follow up.

TABLE V.5

**CHARACTERISTICS OF CASES AND CLIENTS THAT ARE FOLLOWED  
UP AND THOSE ACTED UPON AS A RESULT OF IEVS: ARIZONA**

Characteristic	Research Sample	Hits (Targeted for Follow Up)		
		All	With Action	No Action
<b>Percent of Cases which are:</b>				
Active for Food Stamps	95.0	94.0	94.8	93.9
<b>Percent of Cases with:</b>				
AFDC Benefits	38.0	28.3	22.1	29.1
Positive Gross Income	88.0	93.3	93.5	93.3
Positive Earnings	28.5	40.8	37.7	41.2
SSI	12.4	10.0	5.2	10.7
Social Security	12.3	15.1	29.9	13.0
Assets	54.4	67.9	77.9	66.5
Elderly Persons	10.3	16.7	28.6	15.1
Children under 18	69.7	76.8	62.3	78.8
Monthly Reporting	21.9	33.3	27.3	34.2
<b>Percent Distributions (cases)</b>				
<b>Income as Percent of Poverty</b>				
0	12.1	6.7	6.5	6.7
1 - 50	46.1	40.0	37.7	40.3
51 - 100	33.2	37.6	39.0	37.4
101 - 150	8.1	14.4	16.9	14.1
over 150	0.5	1.3	0.0	1.4
<b>Office</b>				
Phoenix	23.7	26.7	6.5	29.5
Mesa	40.7	35.6	49.4	33.6
Buckeye	4.6	2.9	1.3	3.1
Tucson	14.9	13.7	20.8	12.7
Flagstaff	8.3	9.2	6.5	9.6
Window Rock	5.9	10.5	10.4	10.5
Winslow	1.9	1.6	5.2	1.1
<b>Household Size</b>				
1	29.1	19.3	32.5	17.5
2	22.4	17.4	15.6	17.7
3	19.3	18.8	15.6	19.3
4	14.2	17.4	14.3	17.9
More than 4	14.9	27.0	22.1	27.9

TABLE V.5 (continued)

Characteristic	Research Sample	Hits (Targeted for Follow Up)		
		All	With Action	No Action
<b>Average Values (cases)</b>				
Gross Income	\$480	\$661	\$585	\$670
Earnings	\$194	\$366	\$266	\$380
Assets	\$584	\$878	\$1,117	\$845
Household Size	2.8	3.4	3.0	3.4
Food Stamp Benefit	\$187	\$197	\$190	\$198
Number of Persons in Household with Earnings	0.3	0.5	0.4	0.5
<b>Percent Distributions (clients)</b>				
Age				
0 - 18	55.7	6.8	2.6	7.4
19 - 59	40.7	79.8	71.4	81.0
60 and over	3.6	13.3	26.0	11.6
<b>Sample Size</b>				
Cases	22,500	633	77	556
Clients*	68,695	630	77	553

NOTES: Some of these characteristics varied during our study period. We report the characteristics of the cases in July. Where percentages are given, the base is the number of cases (clients) in the last two rows of the table.

\*The number of clients that were followed up was higher than 630. However, the client identification was missing on some data collection forms, and for some forms the client identification did not match any client on the monthly case-record extracts.

TABLE V.6

**CHARACTERISTICS OF CASES AND CLIENTS THAT ARE FOLLOWED  
UP AND THOSE ACTED UPON AS A RESULT OF IEVS: MICHIGAN**

Characteristic	All	Hits (Targeted for Follow Up)		
		All	With Action	No Action
<b>Percent of Cases which are:</b>				
Active for Food Stamps	64.8	71.7	77.5	71.3
<b>Percent of Cases with:</b>				
Accepted Application <sup>a</sup>	66.6	72.9	76.2	72.6
AFDC Benefits	9.9	7.0	12.5	6.6
Medicaid Eligibility	33.1	41.1	42.5	41.0
Positive Gross Income	61.4	68.5	71.2	68.3
Positive Earnings	20.6	19.7	16.7	20.0
SSI	11.9	19.1	22.7	18.8
Social Security	9.9	19.9	7.6	20.8
Elderly Persons	5.5	10.1	13.2	9.9
Children under 18	43.9	35.6	36.8	35.5
Expedited Service	46.1	43.7	41.2	43.9
Monthly Reporting	26.5	28.9	18.0	29.8
<b>Percent Distributions (cases)</b>				
<b>Income as Percent of Poverty</b>				
0	37.3	32.4	35.9	32.2
1 - 50	15.8	16.1	10.3	16.6
51 - 100	41.8	42.9	48.7	42.4
101 - 150	4.9	8.2	5.1	8.4
Over 150	0.2	0.4	0	0.4
<b>Office</b>				
Bay	6.2	7.8	5.0	8.0
Crawford	1.0	1.2	0.0	1.3
Eaton	3.3	4.0	0.0	4.3
Genesee	8.9	9.8	8.8	9.9
Ionia	2.6	2.4	2.5	2.4
Jackson	7.7	9.1	7.5	9.2
Midland	4.0	4.2	2.5	4.3
Muskegon	11.5	8.0	1.3	8.5
Saginaw	16.6	19.9	13.8	20.3
Sanilac	2.4	2.4	3.7	2.3
Wayne	32.7	29.0	52.5	27.3
Wexford	2.4	2.0	2.5	2.0

TABLE V.6 (continued)

Characteristic	All	Hits (Targeted for Follow Up)		
		All	With Action	No Action
<b>Household Size</b>				
1	58.0	61.7	74.4	60.7
2	17.9	15.2	15.4	15.2
3	11.2	11.4	5.1	11.9
4	7.3	7.4	5.1	7.6
More than 4	5.5	4.4	0	4.7
<b>Average Values (cases)</b>				
Gross Income	\$317	\$360	\$327	\$362
Earnings	\$124	\$124	\$118	\$118
Household Size	1.9	1.9	1.4	1.8
Food Stamp Benefit	\$146	\$146	\$126	\$136
Number of Persons with Earnings in Household	0.2	0.2	0.2	0.2
<b>Percent Distributions (clients)</b>				
<b>Age</b>				
0 - 18	44.5	12.7	14.1	12.7
19 - 59	52.5	77.7	73.1	78.0
60 and over	2.9	9.6	12.8	9.3
<b>Sample Size</b>				
Cases	13,462	1,143	80	1,063
Clients <sup>b</sup>	26,192	1,168	82	1,086

NOTE: Some of these characteristics varied over our study period we report the characteristics of the cases and clients in the month they first entered the study. Where percentages are given, the base is the number of cases (clients) in the last two rows of the table.

<sup>a</sup>On the first application in our study period.

<sup>b</sup>The number of clients that were followed up was higher than 1,168. However, the client identification was missing on some data collection forms, and for some forms the client identification did not match any client on the monthly case-record extracts.

## **1. Characteristics of Cases and Clients in the Research Sample and Those Targeted for Follow Up**

Two factors determine whether a client will be targeted for follow up: (1) whether a match occurs and (2) if a match occurs, whether the client is excluded from follow up by the targeting strategy. As neither the matching nor the targeting process was random, we would expect the characteristics of cases and clients that were targeted for follow up to have differed from those of cases and clients in the research sample as a whole.

The characteristics of cases and clients targeted for follow up differed from those of cases and clients in the research sample in the following ways:

- In both states, cases with reported income were more likely to be followed up than were those with no reported income. This finding is not surprising given that only cases that had income at some time can be matched with the external database. And only the SWICA targeting strategy in Arizona exempts from follow up cases in which the amount

children. Moreover, in Arizona, the targeting strategies exclude children under 16 from follow up.

- In Arizona, caseworkers were more likely to follow up larger households and households with children.
- In Michigan, caseworkers were more likely to follow up accepted applications and active food stamp cases. This is probably because the targeting strategies exclude inactive food stamp cases from follow up.
- In both states, caseworkers were more likely to follow up cases subject to monthly reporting.
- In both states, the proportion of cases followed up varied by office. In Arizona, a higher percentage of cases were followed up in Phoenix, Flagstaff, and Window Rock. In Michigan, the differences were smaller, but a higher percentage of cases were followed up in Bay, Crawford, Genesee, Jackson, Midland, and Saginaw.

## **2. Characteristics of Cases and Clients Acted Upon As a Result of IEVS**

This section compares the characteristics of cases and clients acted upon as a result of IEVS with those for which the follow up did not lead to any change in benefits, eligibility, or the detection of a previous benefit overpayment. Identifying those types of cases and clients for which an IEVS follow up leads to an action may suggest changes to the targeting strategies that would reduce the number of unproductive follow ups. If certain types of cases are rarely acted upon, it would be cost-effective to exclude them from follow up.

The characteristics of cases and clients acted upon differed from those of cases and clients not acted upon in the following ways:

- In both states, follow ups of cases that were food stamp active were more likely to lead to an action. Similarly, applicants who were approved (at the first application) were more likely to be acted upon. This is not surprising, since a follow up of an application that is withdrawn or denied benefits cannot lead to either a change in benefits or a benefit denial or case closure, although it could lead to the detection of a previous benefit overpayment. (It is important to note that status of the cases reported in Tables V.5 and V.6 refer to the status in July in Arizona or when the first application was submitted in Michigan, and not the time the match took place. Hence, some cases that are reported as active in these tables may have been inactive at the time of the match, and vice versa.)

- In both states, cases that were acted upon were more likely than those not acted upon to have reported income, but the difference was small. In Arizona, 94 percent of cases that were acted upon reported income compared with 93 percent that were not acted upon. In Michigan, 71 percent of cases that were acted upon reported income compared with 68 percent that were not acted upon. Hence, whether the case reported income was not a good indication of whether there was misreporting of income.
- In both states, cases with reported earnings were less likely to be acted upon than those that reported no earnings. In Arizona, 38 percent of cases that were acted upon had earnings compared with 41 percent that had earnings but were not acted upon. In Michigan, 17 percent of cases that were acted upon had earnings compared with 20 percent that were not acted upon. This fact together with the fact that many follow ups revealed that the earnings on the external database were consistent with the earnings reported by the client suggests that a targeting strategy that exempted from follow up cases for which there was no discrepancy between earnings reported by the client and earnings on the external database would reduce the number of unproductive follow ups.
- In Arizona, cases that received AFDC or SSI were less likely to be acted upon than were those that did not receive those benefits. The proportion of cases that were acted upon and had SSI (5 percent) was less than half the proportion of cases that were not acted upon and had SSI (11 percent). In contrast, in Michigan, cases that received AFDC or SSI were more likely to be acted upon.
- While cases in Arizona that reported receiving Social Security benefits were much more likely than those not receiving such benefits to be acted upon, the opposite was true in Michigan. In Arizona, 30 percent of cases acted upon reported Social Security benefits compared with only 13 percent that were not acted upon. In contrast, in Michigan, 8 percent of cases acted upon reported Social Security benefits compared with 21 percent that were not acted upon. The difference between states can be explained by the differences in the matches that took place in our study. In Michigan, the BENDEX match compares client-reported Social Security with Social Security reported by the SSA. In Arizona, the BENDEX match was not included in our study.
- In Arizona, cases with assets were more likely to be acted upon than were those that reported no assets. About 78 percent of those cases acted upon reported some assets compared with 67 percent of cases that were not acted upon. This suggests that cases with reported assets were more likely to underreport income. As the majority of actions in Arizona occurred as a result of the IRS match, this underreported income is most likely to be income from assets.
- In both states, cases that were subject to monthly reporting were much less likely to be acted upon than not. In Arizona, 27 percent of cases that were acted upon were subject to monthly reporting compared with 34 percent that were not acted upon. In Michigan, 18 percent of cases that were acted upon had monthly reporting compared to 30 percent that were not acted upon. This may be because clients who are required to provide verification of income each month are less likely to misreport income.
- In Michigan, cases subject to expedited service at application were slightly less likely to be acted upon than other cases.

- In both states, clients who were age 60 or over and cases that contained elderly clients were more likely to have been acted upon than not. This was especially striking in Arizona where 29 percent of households that were acted upon contained elderly persons compared with 15 percent that were not acted upon. The higher proportion of cases with elderly persons that were acted upon is consistent with the higher proportion of cases with Social Security that were acted upon.
- The proportion of follow ups that were acted upon varied by office in both states. In Arizona, a higher proportion of follow ups led to an action in Mesa, Tucson, and Winslow. In Michigan, a higher proportion of follow ups led to an action in Ionia, Wayne, Sanilac, and Wexford.
- In both states, follow ups of smaller households were more likely than follow ups of larger households to lead to an action.
- In Arizona, actions were less likely to occur as a result of a follow up of a client younger than 18 than of older clients.

These findings suggest targeting strategies that would reduce the number of unproductive follow ups and probably increase the cost-effectiveness of the matches. Examples of such targeting strategies include exempting from follow up:

- Cases that are inactive
- Cases that report earnings
- Cases subject to monthly reporting
- Clients younger than age 18 (in Arizona)

Both states are already using targeting strategies with some of these elements. Both states exclude some inactive cases, and Arizona excludes clients younger than age 16 from follow up for each of the databases in our study.

It is important to stress that these targeting strategies would exempt from follow up some cases that would otherwise have been acted upon. Thus, although these targeting strategies would probably be cost-effective, more errors would go undetected. As an example, suppose that the targeting strategy for each database in Arizona excluded from follow up cases that reported no assets. This would reduce the number of follow ups by 202, or about one-third of the follow ups conducted during

our study. However, it would also reduce the number of cases acted upon during our study by 17, or 22 percent of the cases acted upon.

#### **D. MATCH AND HIT RATES**

This section discusses the match and hit rates for the databases in our study. The match rate, the proportion of SSNs that are matched to the external database, indicates the extent to which information is available from the external database. It can also be used to calculate the number of SSNs that would be followed up if there were no targeting strategy. The hit rate, the proportion of matched SSNs that are targeted for follow up, indicates the extent to which the targeting strategy excludes clients from follow up. A restrictive targeting strategy that excludes many SSNs from follow up will lead to a low hit rate. If no targeting strategy is used, the hit rate is 100 percent.

The IEVS regulations require state agencies to report match and hit rates. However, in the IEVS state census (Allin 1991), we found that few states could provide us with these rates. During our demonstration, we learned that it was difficult to calculate these rates for four reasons:

1. The components of the match and hit rates are measured in three different units: records, SSNs, and cases. The SSNs of clients are sent to the external-data agency to be matched. However, the response tapes can include more than one *record* per SSN if, for example, the client has more than one employer or type of unearned income. Follow ups, however, are conducted on a *case*, not a person. We measured the match and hit rates in terms of SSNs. We estimated the number of SSNs that were matched by dividing the number of records by the average number of records per SSN. We calculated the number of clients targeted for follow up from the client identification numbers recorded on the data collection forms.
2. If data from the external database are matched to the client database at the agency, the matching and targeting strategies may be combined. If this is so, it may be difficult to obtain the number of SSNs that are matched prior to targeting. This is true for the SDX match in Michigan.
3. For the BEER and BENDEX matches, the response tape includes information on both clients who were sent on the request tape and clients who were sent on previous request tapes. It is impossible to calculate the match rate without knowing the number of SSNs on the response tape that were sent on previous request tapes.<sup>9</sup>

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<sup>9</sup>The match rate in this case is defined as the proportion of SSNs on the request tape for which information was received on the response tape.

4. To conserve computer resources, the targeting strategy may be applied prior to the match. In Arizona, the SWICA targeting strategy excludes from follow up clients who receive less than \$3,600 in earnings over the quarter as reported by the SWICA database. In practice, persons on the SWICA database who earn less than \$3,600 are excluded *prior* to the match. While this is technically screening rather than targeting, this process does not alter which SSNs are followed up and significantly reduces computer costs. A side-effect of this process is that it is impossible to estimate the number of SSNs that *would* have been matched had the screen not been applied.

For these reasons, we were unable to estimate the match rate for the SWICA and BEER matches in Arizona and the BENDEX and SDX matches in Michigan. We estimate a post-screen "match rate" of the SWICA match in Arizona.

Moreover, because Arizona and Michigan conducted the matches for our research sample along with cases in the rest of the state, we could not observe the number of SSNs matched for our sample except in the SWICA applicant match in Michigan. (Because the SWICA applicant match is not targeted, the number of SSNs matched is equal to the number of SSNs that were targeted for follow up). To estimate the number of SSNs in our research sample that were successfully matched to the other databases, we applied the statewide match rate to the number of SSNs that were eligible to be matched. Hence, while we could calculate the action rates reported in Section A of this chapter specifically for our research sample, the match and hit rates reported in this section are only estimates.

Table V.7 presents the match and hit rates for our research sample in Arizona together with the number of SSNs that were eligible to be matched, the estimated number of SSNs that were matched, and the number of SSNs that were followed up. Table V.8 presents the corresponding rates and numbers for Michigan. As we were unable to estimate the statewide match rate for the BEER database in Arizona or for the BENDEX or SDX databases in Michigan, we were unable to estimate either the number of SSNs that were matched or the hit rates for these databases. The SWICA "match" rate reported in Table V.7 is the number of SSNs that were matched *and* that passed the \$3,600 screen as a proportion of all SSNs that were eligible to be matched. This match rate is lower

TABLE V.7  
MATCH AND HIT RATES: ARIZONA

Database	SSNs					
	Eligible to be Matched	Statewide Match Rate	Estimate of Number of Matches	Targeted for Follow Up	Estimate of Hit Rate	Percentage of SSNs That Were Eligible to Be Matched That Were Hits
SWICA (one match)	11,748	(4%) <sup>a</sup>	(446) <sup>a</sup>	91	(20%) <sup>a</sup>	0.77
BEER	28,542	NA	NA	257	NA	0.90
IRS (annual match)	30,647	8%	2,360	302	13%	0.99

**SOURCE:** The number of SSNs that could be matched was obtained from the monthly case-record extracts. The match rates were calculated from statewide figures provided by the states. The number of SSNs targeted for follow up was calculated from the data collection forms.

NA = Not available.

<sup>a</sup>The SWICA match in Arizona involves matching only persons with quarterly earnings of \$3,600 or more with the client database. The estimated number of matches reported only includes clients whose earnings on the SWICA database are \$3,600 or more. This will affect both the match and hit rate.

TABLE V.8  
MATCH AND HIT RATES: MICHIGAN

Database	SSNs					
	Eligible To Be Matched	Statewide Match Rate	Estimate of Number of Matches	Targeted for Follow Up	Estimate of Hit Rate	Percentage of SSNs That Were Eligible To Be Matched That Were Hits
SWICA	1,652	31% <sup>a</sup>	505 <sup>a</sup>	505	100% <sup>a</sup>	30.6
UI						
Applicant	1,652	44%	1,526 <sup>b</sup>	258 <sup>b</sup>	17% <sup>b</sup>	6.3 <sup>b</sup>
Recipient	2,471	33%				
BENDEX	21,610	NA	NA	440	NA	2.0
SDX	26,192	NA	NA	770	NA	2.9
IRS	2,773	21%	582	11	2%	0.4

SOURCE: The number of SSNs that could be matched was obtained from the monthly case-record extracts. The match rates were calculated from statewide figures provided by the states. The number of SSNs targeted for follow up was calculated from the data collection forms.

NA: Not available.

<sup>a</sup>No targeting strategy is used. The number of matches for the SWICA applicant match was set equal to the number of follow ups. The match rate was calculated from the number of SSNs eligible to be matched and the number of follow ups.

<sup>b</sup>For both applicant and recipient matches.

than the "true" match rate. Conversely, the SWICA "hit" rate reported in Table V.7 is the number of SSNs targeted for follow up as a proportion of matched SSNs that passed the \$3,600 screen. This is higher than the true hit rate.

For the SWICA and IRS databases in Arizona, our estimates of the match and hit rates are based on a single match run: for SWICA, the second SWICA match run conducted during our study, and for IRS, the annual IRS match. This is because the estimates of the statewide match rates were for these particular matches. In Michigan, we were unable to identify for each hit the exact date on which the match took place. Hence, in Michigan, the match rate was calculated by dividing the total number of matched SSNs on all response tapes that included research-sample clients by the total number of SSNs on all request tapes for which matched data were returned during our study.

The denominator of the match rate is the number of SSNs that were eligible to be matched. The IEVS regulations define this as the number of SSNs on the request tape. This definition is appropriate for matches that occur outside of the agency, such as the IRS match or the SWICA match in Michigan. However, if the match is conducted "in house" at the agency, as in the SDX match, the SWICA match in Arizona, and the BEER and BENDEX orbit-file matches, there is no request tape. For these matches, the number of SSNs that were eligible to be matched was the number of SSNs from the client database that were compared to the SSNs on the external database. A detailed description of the estimates of the number of SSNs that were eligible to be matched is provided in Appendix D of Volume II of this report.

The denominator of the hit rate is the number of SSNs that were matched to the external database. We estimate the number of matched SSNs from the product of the statewide match rate and the number of SSNs that were eligible to be matched.

The numerator of the hit rate is the number of SSNs targeted for follow up. We included all SSNs that were targeted for follow up, including those for which a data collection form was not completed. For the SWICA and IRS matches in Arizona, we included only the SSNs targeted for

follow up as a result of the match runs considered. For the other matches, we counted the sum of the SSNs that were matched for all runs. If an SSN was matched more than once (in the UI recipient match, for example), it would be counted each time it was matched.

The last column in both Table V.7 and Table V.8 shows the number of SSNs that were followed up as a percentage of the number of SSNs that were eligible to be matched. The percentages are strikingly low. In Arizona, less than one percent of all recipients were followed up after any match in our study. In Michigan, the highest proportion of clients were followed up after the SWICA match (31 percent), which was not targeted. For the matches that were targeted, the proportion of all clients who were followed up varied from less than 0.5 percent for the IRS match to 2 percent for the BENDEX match, 3 percent for the SDX match, and 6 percent for the UI match.

The probability that information on a client was found on the external database depends on whether that client has, or had, the type of income reported on the database. Hence, the match rate varied by database. The match rates were highest for earnings (SWICA and BEER) and UI benefits, and lowest for unearned income (IRS). The highest match rate was for the UI applicant match in Michigan (44 percent). The lowest match rate was for the IRS match in both Arizona (8 percent) and Michigan (21 percent). Hence, even in the absence of targeting, fewer than half of all clients would have been followed up after each match in our study.

The match rates were higher for applicants than for recipients. In Michigan, the match rate for the UI applicant match was 44 percent compared with 33 percent for the UI recipient match. Similarly, in Arizona, the match rate for the annual IRS match, which includes mostly recipients, was 8 percent compared with 30 percent for the monthly match of new clients.<sup>10</sup> One explanation for the higher applicant match rate was that more applicants than recipients had income over the

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<sup>10</sup>The statewide match rate for the IRS monthly match in Arizona is not reported in Table V.7. This is because we did not think that this match rate was appropriate for our sample. The monthly match in our sample consisted of matches of new clients within old cases, while the statewide monthly match consists of all new clients, including clients in new cases.

reference period of the external database, which is often before the client first applied for food stamps.

The hit rates also varied greatly by database. However, for all matches in which a targeting strategy was used, the hit rate was low. This suggests that the targeting strategies excluded many clients from follow up. The least restrictive targeting strategy was that used for the UI match in Michigan. This strategy targeted for follow up clients who were active and who applied for UI in the 30 days prior to targeting, received UI in the 60 days prior to targeting, or returned to work in the 90 days prior to targeting. It excluded from follow up all but 17 percent of the clients matched to the UI database. The hit rate for the IRS match was 13 percent in Arizona but only 2 percent in Michigan. In Michigan, the IRS targeting strategy had a higher tolerance threshold and was designed to lead to fewer follow ups. The large difference in hit rates between the two states suggests that raising the tolerance threshold dramatically reduced the proportion of clients who are followed up.

In Arizona, one element of the targeting strategy for the SWICA match (the \$3,600 tolerance threshold) was applied prior to the match. Hence, the "match" and "hit" rates reported for this match were calculated using the number of matches after clients with earnings reported on the SWICA database of less than \$3,600 had been removed. The reported match rate was extremely low--less than 4 percent. If we assume that the "true" match rate was only 10 percent--considerably lower than the 31 percent match rate for the applicant SWICA match in Michigan--over 60 percent of the matched clients were excluded from follow up because their income was less than \$3,600. The "hit" rate reported in Table V.7 is 20 percent. Again assuming a 10 percent match rate, the remaining elements of the targeting strategy--the discrepancy between client-reported earnings and earnings on the SWICA database, and the exclusions based on case and client characteristics--excluded from follow up a further 30 percent of the matched clients.

## **VI. SAVINGS RESULTING FROM IEVS**

This chapter examines the savings that resulted from IEVS follow ups during our study. We describe the types of actions that occurred as a result of follow ups and provide estimates of the savings that resulted from these actions. The estimate of total savings for a given IEVS database is the numerator of the cost-effectiveness ratio.

We identified four types of savings that could occur as a result of IEVS: (1) avoided benefit payments, (2) avoided administrative costs, (3) recovered previous benefit overpayments, and (4) unmeasured savings. The type of savings realized depends on the type of action that results from the follow up. If the case is closed or benefits denied, there will be both avoided benefit payments and avoided administrative costs. However, if benefits are simply reduced, there are only avoided benefit payments. There may be savings from recovered overpayments if a previous benefit overpayment is detected during a follow up.

The chapter is organized as follows. Section A describes the type of actions that resulted from follow ups during the demonstration. Section B describes the savings in avoided benefit payments and avoided administrative costs that resulted from case closures, benefit denials, or benefit changes. The estimated savings from the detection of previous overpayments are described in Section C. Section D discusses the unmeasured savings that may result from IEVS. Section E provides a summary of the savings from follow ups of each database in our study.

### **A. TYPES OF ACTIONS**

An IEVS follow up can lead to three types of actions: (1) a case denial or closure,<sup>1</sup> (2) a benefit change (usually a benefit decrease but benefits may also be increased as a result of IEVS), or (3) the detection of a previous benefit overpayment. In our definition of action, we include

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<sup>1</sup>We also include in our definition of action cases that were designated for closure, but were not closed that month because the caseworker did not have adequate time to notify the client.

actions affecting benefits or eligibility in either the Food Stamp, AFDC, or Medicaid programs. We count a case closure, a benefit reduction, a benefit increase, and a detected previous benefit overpayment for each program as a separate action.

Some Medicaid cases were converted to "spend-down" status as a result of the IEVS process. In spend-down, the case is ineligible for Medicaid until the clients' medical expenditures in a given month exceed the amount by which their income exceeds the eligibility threshold. All medical expenditures above this threshold amount are then covered by Medicaid. We count cases converted to spend-down status as a benefit reduction. Only caseworkers in Michigan recorded on the data collection forms whether cases were converted to spend-down status as a result of IEVS.

The types of actions that resulted from follow ups of each database in our study in Arizona and Michigan are presented in Tables VI.1 and VI.2, respectively. The types of actions are not mutually exclusive. For example, an IEVS follow up could lead to both a case closure and the detection of a previous benefit overpayment. Or a case could be closed for one program and benefits reduced for another. Hence, the column totals in Tables VI.1 and VI.2 exceed the number of cases with

TABLE VI.1

TYPES OF ACTIONS RESULTING FROM IEVS FOLLOW UPS: ARIZONA  
(Number of Cases)

	Database			Total
	SWICA	BEER	IRS	
Cases Closed or Denied	2	13	38	53
Food Stamps	2	13	37	52
AFDC	1	6	1	8
Medicaid	1	2	1	4
Benefits Reduced	0	1	2	3
Food Stamps	0	1	2	3
AFDC	0	0	0	0
Benefits Increased	0	0	0	0
Food Stamps	0	0	0	0
AFDC	0	0	0	0
Overpayments	6	10	15	31
Food Stamps	6	10	15	31
AFDC	0	5	2	7
<b>Total Number of Cases Acted on</b>	<b>6</b>	<b>24</b>	<b>47</b>	<b>77</b>
<b>Total Number of Actions (column totals)</b>	<b>10</b>	<b>37</b>	<b>58</b>	<b>105</b>

TABLE VI.2  
 TYPES OF ACTIONS RESULTING FROM IEVS FOLLOW UPS: MICHIGAN  
 (Number of Cases)

	Database					Total
	SWICA	UI	BENDEX	BEER	IRS	
Cases Closed or Denied	11	5	7	16	1	38
Food Stamps	8	3	4	5	1	20
AFDC	3	3	4	1	1	11
Medicaid	8	0	1	8	0	17
Benefits Reduced	7	2	15	17	0	41
Food Stamps	7	2	14	16	0	39
AFDC	2	0	1	2	0	5
Medicaid	0	1	1	3	0	5
Benefits Increased	0	0	3	0	0	3
Food Stamps	0	0	3	0	0	3
AFDC	0	0	0	0	0	0
Overpayments	13	3	4	5	1	25
Food Stamps	13	3	4	5	1	25
AFDC	4	0	0	2	1	6
<b>Total Number of Cases Acted On</b>	<b>25</b>	<b>8</b>	<b>25</b>	<b>24</b>	<b>1</b>	<b>80</b>
<b>Total Number of Actions (column totals)</b>	<b>45</b>	<b>12</b>	<b>32</b>	<b>42</b>	<b>4</b>	<b>131</b>

Benefit changes as a result of IEVS follow ups were rare in Arizona, accounting for less than 3 percent of all actions. However, benefit reductions accounted for about one-third of all actions and occurred in over half of all cases that were acted upon as a result of IEVS in Michigan. Benefit reductions were most frequent after follow ups of the BENDEX and SDX matches, where they accounted for about 50 percent of all actions. For both of these databases, a benefit reduction was the most common form of action. This suggests that the BENDEX and SDX matches in Michigan detect smaller amounts of underreported income than do other matches in the study. One explanation for this is that the BENDEX and SDX matches have a less restrictive targeting strategy than some of the other databases. The IRS match, which is targeted heavily in both states, rarely resulted in a benefit reduction. No benefit reductions occurred as a result of the SWICA match in Arizona, which was targeted. By contrast, benefit reductions accounted for 20 percent of all actions resulting from the SWICA match in Michigan, which was not targeted. Only three follow ups in the study led to a benefit *increase*. These all resulted from the BENDEX match in Michigan.

Previous benefit overpayments were detected more frequently in Arizona than in Michigan. In Arizona, overpayments accounted for 36 percent of all actions and were detected in 40 percent of all cases with actions. In Michigan, overpayments accounted for only 24 percent of all actions and were detected in 31 percent of all cases with actions. One explanation for the difference between states is that in Arizona, the research-sample cases were recipients, while in Michigan, the research-sample cases were applicants or new recipients. Overpayments can only be detected for applicants if the applicant has already begun to receive benefits by the time of the IEVS follow up or if the applicant had a previous spell on the FSP. Overpayments were least often detected after the BENDEX and SDX matches. This is because these matches do not provide information on previous benefit income.

It was frequent for a follow up to result in more than one type of action or actions in more than one program. On average, about 1.4 actions occurred per case in Arizona, and 1.6 actions occurred

per case in Michigan. Some follow ups led to the case being closed for AFDC but remaining eligible for food stamps with a lower benefit. This was possible because in both states the income-eligibility threshold for AFDC is lower than it is for food stamps. Actions for the FSP were more frequent than actions for either the AFDC or Medicaid programs. This reflects that our sample included only cases that were receiving food stamps (Arizona) or that had applied for food stamps (Michigan).

## **B. SAVINGS FROM CASE CLOSURES, BENEFIT DENIALS, AND BENEFIT CHANGES**

In this section, we discuss the savings that were realized from case closures, denial of benefits, and changes in current benefits resulting from IEVS follow ups. We consider only savings from the Food Stamp and AFDC programs. The total savings from these actions depend on two factors: (1) the monthly benefit savings and (2) the number of months for which the savings persist. We start by discussing the savings that were realized each month. We then discuss our assumptions about the length of time for which these savings persist and our estimates of total savings.

### **1. Savings Per Month**

If cases are closed or benefits denied, savings are realized because benefits payments no longer have to be paid, and the costs of administering the case are avoided. If benefits are reduced, savings are realized in avoided benefit payments. On the other hand, if benefits are increased as a result of an IEVS follow up, this action represents a cost to the federal and state governments. We treat this cost as a negative savings.

Table VI.3 presents the savings from case closures, denials, and benefit changes that were realized each month in Arizona. We present the savings by type of action (case closure/denial and benefit change), by program (Food Stamp and AFDC), and by type of savings (avoided benefit payments and avoided administrative costs). The bottom three rows of each table present, for each database, the total savings per month, the total savings per month per case that was either closed, denied benefits, or for which the benefit was changed, and the total savings per month per follow up.

TABLE VI.3  
 SAVINGS PER MONTH FROM CASE CLOSURES  
 AND BENEFIT REDUCTIONS: ARIZONA  
 (In Dollars)

	Database			Total/Average
	SWICA	BEER	IRS	
<b>Cases Closed or Denied</b>				
<b>Food Stamps</b>				
Number of Cases	2	13	37	52
Average Benefit Savings per Case	377	240	166	193
Administrative Cost Savings	14.51	14.51	14.51	14.51
Total Savings	782	3,304	6,680	10,766
<b>AFDC</b>				
Number of Cases	1	6	1	8
Average Benefit Savings per Case	632	406	347	427
Administrative Cost Savings	28.79	28.79	28.79	28.79
Total Savings	661	2,610	376	3,647
<b>Cases for Which Benefits Were Reduced</b>				
<b>Food Stamps</b>				
Number of Cases	0	1	2	3
Average Benefit Savings per Case	NA	78	38	51
Total Savings	0	78	76	154
<b>AFDC</b>				
Number of Cases	0	0	0	0

TABLE VI.3 (continued)

	Database			Total/Average
	SWICA	BEER	IRS	
<b>Subtotals</b>				
Savings in Avoided Benefits	1,385	5,630	6,566	13,581
Savings in Avoided Administrative Costs	58	361	566	985
Savings from Closed/Denied Cases	1,443	5,914	7,056	14,413
Savings from Cases with Benefit Changes	0	78	76	154
Food Stamp Savings	784	3,397	6,798	10,979
AFDC Savings	662	2,617	377	3,656
<b>Totals</b>				
Total Savings	1,443	5,991	7,132	\$14,567
Total Savings per Case Closed/Denied or with Benefit Changes	721	428	178	260
Total Savings per Follow Up	11.78	25.27	24.74	22.48

NA = Not applicable.

Table VI.4 presents the same information for Michigan. If an action was attributable to follow ups of multiple databases, we included the savings in the tally for each database but counted the savings only once in estimating the savings for the state as a whole.

The average food stamp benefit paid prior to a case closure or benefit denial was \$193 in Arizona and \$117 in Michigan. In both states, the average AFDC payment prior to a case closure was more than twice the size of the average food stamp payment (\$427 in Arizona and \$386 in Michigan). As the number of case closures or denials was small for each database, it is difficult to draw conclusions from the differences in the average benefit amount by database. However, the average benefits paid prior to closure were especially large for cases where the action resulted from the IRS match in Michigan and the SWICA match in Arizona. Both of these databases have a restrictive targeting strategy--targeting for follow up only cases with large amounts of underreported income. This suggests that cases with large amounts of underreported income also have, on average, larger benefit payments.

The savings from case closures and benefit denials were much larger than the savings from benefit changes. Savings per month from case closures and benefit denials were over 90 times larger than the savings from benefit changes in Arizona and over twice as large as the savings from benefit changes in Michigan. These differentials were partly due to the much greater frequency of case closures and benefit denials relative to benefit changes. However, savings per case-month also differed. In Arizona, savings per case-month were \$277 for cases closed or denied benefits compared with \$51 for cases with a benefit change. In Michigan, savings per case-month were \$194 for cases closed or denied benefits compared with \$80 for cases with a benefit change. Savings for each case closed or denied benefits were larger than savings for cases with a benefit change for two reasons. First, the avoided benefit payment was typically larger for case closures and benefit denials than for a benefit reduction. Moreover, in Michigan, the "savings" from three benefit changes were negative.

TABLE VI.4

SAVINGS PER MONTH FROM CASE CLOSURES  
AND BENEFIT REDUCTIONS: MICHIGAN  
(In Dollars)

	Database					Total/Average
	SWICA	UI	BENDEX	SDX	IRS	
<b>Cases Closed or Denied</b>						
<b>Food Stamp</b>						
Number of Cases	8	3	4	5	1	20
Average Benefit Savings per Case	106	127	74	90	462	117
Administrative Cost Savings	16.52	16.52	16.52	16.52	16.52	16.52
Total Savings	982	430	361	531	479	2,766
<b>AFDC</b>						
Number of Cases	3	3	4	1	1	11
Average Benefit Savings per Case	337	403	346	290	731	386
Administrative Cost Savings	34.20	34.20	34.20	34.20	34.20	34.20
Total Savings	1,114	1,313	1,522	324	765	4,619
<b>Cases for Which Benefits Were Reduced</b>						
<b>Food Stamps</b>						
Number of Cases	7	2	14	16	0	39
Average Benefit Savings per Case	79	66	83	64	0	74
Total Savings	550	132	1,166	1,022	0	2,878
<b>AFDC</b>						
Number of Cases	2	0	1	2	0	5
Average Benefit Savings per Case	328	NA	47	92	NA	177
Total Savings	656	0	47	183	0	886

TABLE VI.4 (continued)

	Database					Total/Average
	SWICA	UI	BENDEX	SDX	IRS	
<b>Cases for Which Benefits were Increased</b>						
<b>Food Stamps</b>						
Number of Cases	0	0	3	0	0	3
Average Benefit Savings per Case	NA	NA	-34	NA	NA	-34
Total Savings	0	0	-103	0	0	-103
	<b>Subtotals</b>					
Savings in Benefits	3,067	1,722	2,790	1,944	1,193	10,339
Savings in Avoided Administrative Costs	235	152	203	117	51	707
Savings from Closed/Denied Cases	2,096	1,743	1,883	855	1,244	7,384
Savings from Cases with Benefit Changes	1,206	132	1,110	1,205	0	3,661
Food Stamp Savings	1,532	502	1,424	1,553	479	5,541
AFDC Savings	1,770	1,313	1,569	507	765	5,505
	<b>Totals</b>					
Total Savings	3,302	1,875	2,993	2,060	1,244	11,046
Total Savings per Case Closed/Denied or with Benefit Changes	194	312	125	86	1,244	160
Total Savings per Follow Up	8.25	9.19	10.54	3.78	155.47	7.65

NA = Not applicable

Second, the agency realized savings in avoided administrative costs when a case was closed or denied benefits but not when the benefit was changed.

**a. Differences By Program**

In both states, savings to the FSP were higher than savings to the AFDC program. However, this was only because more actions occurred in the FSP than in the AFDC program. In both states, both average avoided benefits and average avoided administrative costs were over twice as high for AFDC than for food stamps.

**b. Differences by Database**

For cases closed, denied benefits, or with a benefit change, average savings were \$260 per month in Arizona and \$160 per month in Michigan. However, these figures mask large variations by database. The highest savings resulted from the IRS match in Michigan. Only one case was closed in our study as a result of this match, but it resulted in a savings of over \$1,200 per month. The SWICA match in Arizona also yielded large savings of over \$700 per month per case closed, denied benefits, or with a benefit change. The IRS match in Arizona, and the SWICA, BENDEX, and SDX matches in Michigan all yielded savings of less than \$200 per month per case closed, denied benefits, or with a benefit change--less than one-sixth the savings from the action resulting from the IRS match in Michigan. These differences can be explained by three factors:

1. The IRS match in Michigan, and the SWICA and BEER matches in Arizona led to case closures and benefit denials more frequently and benefit changes less frequently than did the BENDEX and SDX matches in Michigan.
2. The IRS match in Michigan and the BEER match in Arizona led to a high proportion of case closures or benefit denials for AFDC. Conversely, only a small proportion of the cases acted on as a result of the SDX match in Michigan were closed for AFDC.
3. The average food stamp and AFDC benefit savings per case closed or denied benefits as a result of the IRS match in Michigan and the SWICA match in Arizona were above average.

Although we cannot definitely attribute these differences to differences in the targeting strategies, the strategies may have played a role. Savings per case-month were highest for the IRS match in Michigan, which had the most restrictive targeting strategy, and lowest for the SDX match in Michigan, which did not have a restrictive targeting strategy.

**c. Savings Per Follow Up**

Average savings *per followup* for a given database depend on (1) the amount of savings per case closed, denied benefits, or with a benefit change and (2) the proportion of follow ups that led to a case closure, benefit denial, or benefit change. Savings per follow up per month were on average about \$8 in Michigan and \$22 in Arizona. However, savings per follow up per month varied from \$155 for the IRS match in Michigan, which had both a high action rate and a high average savings per case closed, denied benefits, or with a benefit change, to just under \$4 for the SDX match in Michigan.

While the average savings per case closed, denied benefits, or with a benefit change for the SWICA match in Arizona were the highest for the databases in our study in Arizona, the total savings per follow up were the lowest. This was because although each action resulting from the SWICA match in Arizona yielded a high average savings, the probability of such an action occurring was low.

**2. Total Savings from Case Closures, Benefit Denials, and Benefit Changes**

While we can calculate the savings that will accrue each month a case was closed, denied benefits, or for which a benefit was changed, we cannot observe the number of months for which these savings persist. Hence, we can only *estimate* total savings based on assumptions about the length of time the savings will persist. These estimates are very sensitive to the assumption made. For example, the estimated amount of total savings doubles if we assume that savings will persist for one year rather than six months.

We estimated total savings under three different assumptions:

1. The savings persist until the next recertification
2. The savings persist until the case would have closed in the absence of IEVS
3. The savings from the SWICA applicant match continue until the next SWICA recipient match

We also assume that the savings per month do not vary over time until they change to zero. The rationales for these assumptions were discussed in detail in Section A of Chapter IV.

Table VI.5 presents our estimates of the total savings from case closures, benefit denials, and benefit reductions for each database in our study in Arizona. The same information for Michigan is presented in Table VI.6. The body of these tables present the estimates of savings under our benchmark assumption (the savings persist until the next recertification). The last rows of the tables present our estimates of savings per follow up under the alternative assumptions.

**a. Savings Persist Until the Next Recertification**

The first assumption is based on the premise that in the absence of IEVS, the client would report the income at recertification, the caseworker would detect the income at recertification, or other changes in household circumstances that negate any savings from IEVS would be reported at recertification. The IEVS regulations also require that the states, when conducting cost-effectiveness studies, assume that the savings persist until the next recertification.

The number of months remaining in the certification period in our sample varied by state: the average number of months remaining in the certification period was longer in Michigan than in Arizona. It also varied by database. The difference was partly attributable to the timing of the matches. For example, the SWICA applicant match in Michigan takes place when a client first applies for food stamps, while the SDX match can occur several months after application and hence, several months into a client's certification period. Other variations in the length of the certification

TABLE VI.5

**TOTAL SAVINGS FROM CASE CLOSURES OR BENEFIT REDUCTIONS: ARIZONA**  
(In Dollars)

	Database			Total
	SWICA	BEER	IRS	
<b>Average Number of Months Left in Certification Period</b>	2.2	2.5	3.9	3.5
<b>Avoided Benefit Payments</b>				
<b>Cases Closed/Denied</b>				
Food Stamps	1,664	8,952	21,162	31,778
AFDC	632	5,726	2,429	8,787
<b>Benefits Reduced</b>				
Food Stamps	0	0	667	667
AFDC	0	0	0	0
<b>Total</b>	2,296	14,678	24,258	41,232
<b>Avoided Administrative Costs</b>				
Food Stamps	65	506	1,967	2,537
AFDC	29	443	202	673
<b>Total</b>	94	949	2,168	3,210
<b>Total Savings</b>	2,389	15,627	26,427	44,443
<b>Savings per Case Closed/Denied or with Benefit Change</b>	1,195	1,116	661	794
<b>Savings per Follow Up</b>	19.43	65.66	91.13	68.27
<b>Savings Per Follow Up If Error Persists Until Case Would Have Closed</b>	539.59	1,560.54	1,524.58	1,387.30

TABLE VI.6

**TOTAL SAVINGS FROM CASE CLOSURES AND BENEFIT REDUCTIONS: MICHIGAN**  
(In Dollars)

	Database					Total
	SWICA	UI	BENDEX	SDX	IRS	
<b>Average Number of Months Left in Certification Period</b>	7.1	8.1	7.8	4.7	7.0	6.6
<b>Avoided Benefit Payments</b>						
<b>Cases Closed/Denied</b>						
Food Stamps	5,322	3,475	2,479	1,084	3,234	14,794
AFDC	8,133	10,621	11,299	2,030	5,117	32,515
<b>Benefits Reduced</b>						
Food Stamps	3,431	858	8,857	4,520	0	17,666
AFDC	5,376	0	517	563	0	6,456
<b>Benefits Increased</b>						
Food Stamps	0	0	-621	0	0	-621
AFDC	0	0	0	0	0	0
<b>Total</b>	22,262	14,954	22,531	8,197	8,351	70,809
<b>Avoided Administrative Costs</b>						
Food Stamps	860	424	479	259	116	2,006
AFDC	776	889	1,084	239	239	2,885
<b>Total</b>	1,636	1,313	1,563	499	355	4,893
<b>Total Savings</b>	23,898	16,267	24,093	8,695	8,706	75,702
<b>Savings Per Case Closed/Denied or with Benefit Change</b>	1,406	2,711	1,004	362	8,706	1,129
<b>Savings per Follow Up</b>	59.75	79.74	84.84	15.87	1,088.26	52.43
<b>Savings per Follow Up If Error Persists Until Case Would Have Closed</b>	84.58	165.16	184.82	66.52	2,642.91	115.21
<b>Savings per Follow Up If Error Persists for 4.5 Months</b>	37.15	NA	NA	NA	NA	NA

NA = Not applicable.

period may be attributable to differences in the characteristics of the cases that are targeted for follow up and acted upon.

Assuming savings persist until the end of the recertification period, we estimate that savings *per case* closed, denied benefits, or with a benefit change over all matches in our study were nearly \$800 in Arizona and over \$1,000 in Michigan. Total savings were higher in Michigan than in Arizona, even though the savings *per month* were lower in Michigan, because our assumption implies that the savings persist for nearly twice as long in Michigan. Within each state, the savings per case varied by database, but most of the variation reflected differences in the amount of savings realized per month. In Arizona, savings per case closed, denied benefits, or with a benefit change varied from \$661 (IRS match) to nearly \$1,200 (SWICA match). In Michigan, the savings ranged from \$362 (SDX match) to over \$8,700 (IRS match).

Estimated average savings *per follow up* over all matches in our study were \$68 in Arizona and \$52 in Michigan. Even though the total savings *per case* closed, denied benefits, or with a benefit change were lower in Arizona than in Michigan, the savings *per follow up* were higher because the action rate was significantly higher in Arizona. Savings per follow up varied in Arizona from \$19 (SWICA match) to \$91 (IRS match), and in Michigan from \$16 (SDX match) to over \$1,000 (IRS match).

#### **b. Savings Persist until the Case Would Have Closed**

No savings are realized after the time when, in the absence of IEVS, the case would have closed. Hence, an upper-bound estimate of the length of time savings persist is the expected length of time the case would have remained open in the absence of the IEVS action. As we cannot observe this period of time, we used national figures on the average length of time for which a case is on food stamps.

For our estimates of total savings in Arizona, we assumed that cases acted upon would have remained on the program at the same benefit level for the average amount of time recipient

households remain on the program nationwide. For the SWICA match, we assumed that households would have remained on the program for a further 46 months (the average for all recipient households with earnings); for the BEER and IRS matches, we assumed that they would have remained on the program for an additional 62 months (the average for all recipient households). For our estimates of savings in Michigan, we assumed that savings persist for the average length of time applicant households spend on the program nationwide minus the amount of time the households had already been on the program at the time of the action. For the SWICA match, we assumed that the households would have spent a total of 12 months on the program (the average for applicant households with earnings). For the UI, BENDEX, SDX, and IRS matches, we assumed that the household would have received benefits for a total of 21 months (the average for all applicant households). Once we subtract the amount of time the households had already been on the program at the time the action took place, our assumptions imply that savings persist for an average of 10 months for the SWICA match and 18 months for the other matches in Michigan.

Under these assumptions, the difference between the savings per follow up in Arizona and Michigan becomes larger. In Arizona, savings from all matches in our study were nearly \$1,400 per follow up (over 20 times the savings per follow up under the first assumption). In Michigan, savings per follow up were about \$115.

We stress that these are upper-bound estimates of the savings. They are based on the assumption that in the absence of IEVS, the client would never report the income, the caseworker would never detect the income, and the household circumstances would not change in ways that would affect the savings from IEVS until the case closed. This is a plausible assumption for applicant households (the Michigan cases) where the average length of time on the program is less than two years. However, it is less plausible for recipient households (the Arizona sample), which can be expected to remain on the program for over five more years.

### **c. Savings Persist Until the Next SWICA Recipient Match**

In Michigan, the policy question of interest is not whether it would be cost-effective to discontinue the SWICA match altogether, but whether it would be cost-effective to discontinue the SWICA applicant match while continuing with SWICA recipient match. In this case, we should expect that any error detected through the SWICA applicant match would, in the absence of the match, be detected through the next SWICA recipient match. This argument is not relevant to any other database in Michigan because for the other databases, both applicant and new recipient matches are included in our study.

A case is subject to the SWICA recipient match in Michigan every three months. However, cases that applied within the previous three months are excluded from the recipient match. Hence, an applicant could be subject to a recipient match between three and six months after the applicant match. If we assume that the match occurs an average of 4.5 months after application, the average savings per follow up for the SWICA match in Michigan was just over \$37.

## **C. SAVINGS FROM THE DETECTION OF PREVIOUS BENEFIT OVERPAYMENTS**

An IEVS follow up may lead to detection of unreported income that was received in previous months. If clients received benefits for which they were not eligible, the state agency begins proceedings to recover the benefit overpayments. This section discusses the savings from detection of previous benefit overpayments. We start by describing the size of the overpayments that were detected during our study and then describe our estimates of the value of the overpayments that were recovered.

### **1. Detected Benefit Overpayments**

The average amounts of previous food-stamp and AFDC benefit overpayments detected during IEVS follow ups for each database in Arizona are presented in Table VI.7. Table VI.8 presents the same information for Michigan. These tables also present the value of overpayments that we estimate

TABLE VI.7

PREVIOUS BENEFIT OVERPAYMENTS DETECTED BY IEVS FOLLOW UPS: ARIZONA  
(In Dollars)

	Database			Total
	SWICA	BEER	IRS	
Number of Cases with Overpayments	6	10	15	31
Number of Cases with Food Stamp Overpayments	6	10	15	31
Average Value of Overpayment	2,686	1,191	1,982	1,836
Total Overpayments	13,431	11,912	29,726	55,071
Number of Cases with AFDC Overpayments	0	5	2	7
Average Value of Overpayments	NA	2,874	872	2,302
Total Overpayments	0	14,369	1,744	16,113
<b>Total Overpayments</b>	<b>13,431</b>	<b>26,281</b>	<b>31,470</b>	<b>71,182</b>
<b>Total Overpayments per Case with Overpayment</b>	<b>2,239</b>	<b>2,628</b>	<b>2,098</b>	<b>2,296</b>
<b>Total Overpayments per Follow Up</b>	<b>109.20</b>	<b>110.42</b>	<b>108.52</b>	<b>109.34</b>
<b>Average Recovery Rate</b>	<b>39%</b>	<b>52%</b>	<b>51%</b>	<b>49%</b>
<b>Total Recovered Overpayments</b>	<b>5,259</b>	<b>13,725</b>	<b>16,046</b>	<b>35,031</b>
<b>Total Recovered Overpayments per Case with Overpayment</b>	<b>877</b>	<b>1,373</b>	<b>1,070</b>	<b>1,130</b>
<b>Total Recovered Overpayments per Follow Up</b>	<b>42.76</b>	<b>57.67</b>	<b>55.33</b>	<b>53.81</b>

NOTES: The amount of overpayment was missing for one BEER follow up. The average overpayment for BEER follow ups was used to calculate the total overpayments.

NA = Not applicable.

TABLE VI.8

**PREVIOUS BENEFIT OVERPAYMENTS DETECTED BY IEVS FOLLOW UPS: MICHIGAN**  
(In Dollars)

	Database					Total
	SWICA	UI	BENDEX	SDX	IRS	
Number of Cases with Overpayments	13	3	4	5	1	25
Number of Cases with Food Stamp Overpayments	13	3	4	5	1	25
Average Value of Overpayment	183	201	198	512	462	288
Total Overpayments	2,376	604	793	2,562	462	6,340
Number of Cases with AFDC Overpayments	4	0	0	2	1	6
Average Value of Overpayments	645	NA	NA	766	731	685
Total Overpayments	2,580	0	0	1,531	731	4,111
<b>Total Overpayments</b>	<b>4,956</b>	<b>604</b>	<b>793</b>	<b>4,093</b>	<b>1,193</b>	<b>10,451</b>
<b>Total Overpayments per Case with Overpayment</b>	<b>381</b>	<b>201</b>	<b>198</b>	<b>819</b>	<b>1,193</b>	<b>418</b>
<b>Total Overpayments per Follow Up</b>	<b>12.39</b>	<b>2.96</b>	<b>2.79</b>	<b>7.47</b>	<b>149.00</b>	<b>7.24</b>
<b>Average Recovery Rate</b>	<b>27%</b>	<b>27%</b>	<b>27%</b>	<b>27%</b>	<b>27%</b>	<b>27%</b>
<b>Total Recovered Overpayments</b>	<b>1,343</b>	<b>164</b>	<b>215</b>	<b>1,109</b>	<b>323</b>	<b>2,832</b>
<b>Total Recovered Overpayments per Case with Overpayment</b>	<b>103</b>	<b>55</b>	<b>54</b>	<b>222</b>	<b>323</b>	<b>113</b>
<b>Total Recovered Overpayments per Follow Up</b>	<b>3.36</b>	<b>0.80</b>	<b>0.76</b>	<b>2.02</b>	<b>40.41</b>	<b>1.96</b>

NOTES: One overpayment was detected by both the SDX and IRS match. This overpayment is included under both databases but only once under the total.

The amounts of three overpayments resulting from the SDX match were missing but the data collection form states they they were referred to OIG. We used \$500, the minimum overpayment suspected, for the case to be referred to the OIG. The amounts of three overpayments resulting from the SWICA match were missing. We used \$183, the average overpayment for the SWICA match, for the missing values.

NA = Not applicable.

will be recovered.

On average, detected overpayments were much larger in Arizona than in Michigan. The average detected food-stamp overpayment in Arizona (\$1,836) was over six times the size of the average detected food-stamp overpayment in Michigan (\$288). One explanation for this difference is that applicants and new recipients have less of an opportunity to misreport income for a lengthy period of time than does the average recipient. In Arizona, a client could have been misreporting income for many months before the IEVS follow up, while in Michigan, a client may have been on the program for only a month or two at the time of the follow up.

The averages in Tables VI.7 and VI.8 mask wide variations in the size of detected overpayments. In Arizona, the size of the detected food-stamp overpayment varied from \$1 to nearly \$12,700. In Michigan, the size of the detected food-stamp overpayment varied from \$1 to \$629. In both states, the average size of the detected overpayment varied by database. However, the number of overpayments is too small to draw any firm conclusions from this variation.

In both states, all cases with detected overpayments were found to have received excess food-stamp benefits, and about one-quarter were also found to have received excess AFDC benefits. The typical AFDC overpayment was much larger than the typical food-stamp overpayment. The average AFDC overpayment was 25 percent larger than the average food-stamp overpayment in Arizona and over twice as large as the average food-stamp overpayment in Michigan.

In total, over \$71,000 in overpayments were detected in Arizona, and over \$10,000 in overpayments were detected in Michigan as a result of IEVS follow ups in our study. For each case with a detected overpayment, the average detected overpayment was \$2,296 in Arizona and \$418 in Michigan. In Arizona, the average detected overpayment varied little by database. It was slightly higher for the BEER match because this match detected a higher proportion of cases with AFDC overpayments. In Michigan, the average overpayment per case with a detected overpayment varied from about \$200 for the BENDEX and UI matches to nearly \$1,200 for the IRS match. Only one

follow up of the IRS match in Michigan detected previous overpayments, but it found both a large food-stamp and a large AFDC overpayment.

The average amount of overpayment detected *per follow up* was \$109 in Arizona and \$7 in Michigan. As neither the probability of a follow up leading to an overpayment nor the size of the average overpayment detected varied much by database in Arizona, the average detected overpayment per follow up varied among databases by less than two dollars. In Michigan, however, the amount of overpayment detected per follow up varied from \$3 for the UI and BENDEX matches to \$149 for the IRS match.

## **2. Recovered Benefit Overpayments**

A large proportion of detected benefit overpayments is never repaid by clients. Hence, we should include only recovered benefit overpayments as a savings. Because we cannot observe the amount of overpayments that will be recovered for cases in our sample, we estimate recovered overpayments based on statewide estimates of the proportion of detected overpayments that are recovered. The estimate of the recovery rate varies by state, by program (it is higher for AFDC than food stamps), and in Arizona, by whether the overpayment was caused by agency or client error. Our estimates of the average recovery rate, or the proportion of the dollar value of detected overpayments that will be recovered are presented in Tables VI.7 and VI.8.

Although the recovery rates vary by state and by program, we estimated that in both states, less than half of the dollar value of the overpayments detected during our study will be recovered. However, our estimates of the recovery rate varied by database in Arizona. The recovery rate was lowest for the SWICA match because more of the overpayments were assumed to be an agency error.<sup>3</sup> For Michigan, we assumed that the recovery rate for AFDC was the same as the recovery

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<sup>3</sup>The overpayment writers were asked to indicate on the data collection form the cause of the error (agency or household). In some cases, the overpayment writer did not complete this part of the form. For these cases, as the recovery rate is lower for agency errors, we assume that the error was caused by the agency.

rate for food stamps. This assumption probably led to an underestimate of recovered overpayments in Michigan.

The total amount of savings from recovered overpayments was about \$35,000 in Arizona and only about \$3,000 in Michigan. The average value of recovered overpayments per case with a detected overpayment was \$1,130 in Arizona and \$113 in Michigan.

The amount of recovered overpayments per case with a detected overpayments was lowest for the SWICA match (\$877) in Arizona, and the UI and BENDEX matches (about \$55) in Michigan because for these three matches no AFDC overpayments were detected. AFDC overpayments were detected by all other matches in our study. The detection of an AFDC overpayment yielded a larger amount of recovered benefits than the detection of a food-stamp overpayment for two reasons: (1) the average detected AFDC overpayment was higher than the average detected food-stamp overpayment, and (2) the recovery rate was higher for AFDC overpayments than for food-stamp overpayments (in Arizona).

The average amount of recovered overpayment *per follow up* was \$54 in Arizona and \$2 in Michigan. In Arizona, the average amount of recovered overpayments per follow up varied from \$43 for the SWICA match to \$58 for the BEER match. In Michigan, the average value of recovered overpayments per follow up was less than one dollar for the UI and BENDEX matches, but over \$40 for the IRS match.

#### **D. UNMEASURED SAVINGS**

There are sources of potential savings in addition to the savings that we have discussed so far in this chapter. These include savings from (1) actions in other programs, (2) the deterrent effect, and (3) improved caseworker morale. We provide some rough estimates of the savings from Medicaid case closures and benefit denials. However, it was beyond the scope of this study to provide quantitative measures of the other potential savings. These estimates are not as accurate as our other estimates of savings and so are not included in our estimates of the savings-to-cost ratios.

In this section, we discuss our estimates of savings from Medicaid and some qualitative evidence of the importance of other unmeasured savings.

### **1. Savings from Actions in Other Programs**

In both Arizona and Michigan, the food-stamp agency also administers other welfare programs, such as Medicaid and General Assistance. If misreported income is detected as a result of an IEVS follow up, the caseworker will recompute eligibility and benefits for all programs under their administration. Hence, IEVS follow ups could lead to savings in other programs.

Caseworkers in both states reported on the data collection form whether a case was closed for Medicaid as a result of the IEVS follow up. From this information, we made a rough estimate of the savings from Medicaid case closures and benefit denials.

Arizona's Medicaid program is unusual in that the state makes a fixed monthly payment per person of \$149 for each individual categorically eligible for Medicaid. We estimated an average monthly Medicaid benefit per case by multiplying this amount by the average number of clients per household. In Michigan, Medicaid benefits depend on medical need, so without additional information, we could not determine the actual Medicaid savings for each month the case was closed. We therefore used the average monthly Medicaid benefit per person in an AFDC-related case (\$106) to estimate an average monthly Medicaid benefit per case.

The total avoided Medicaid payments were estimated on the assumption that the case remains closed until the next food-stamp recertification. We assumed that there were no Medicaid savings for cases converted to spend-down status as a result of the IEVS process. Although this is an extreme assumption, it prevents us from including savings that may not materialize.

The number of cases closed for Medicaid, the estimated average payment per case, the estimated total payments saved per month, and the estimated total avoided Medicaid payments in Arizona are shown in Table VI.9. The same information for Michigan is provided in Table VI.10.

TABLE VI.9

ESTIMATES OF SAVINGS FROM MEDICAID: ARIZONA  
(In Dollars)

	Database			Total
	SWICA	BEER	IRS	
Number of Cases Closed for Medicaid	1	2	1	4
Average Benefit per Case	447	447	447	447
Total Benefits Saved per Month	447	894	447	1,788
Total Benefits Saved	1,207	2,414	1,207	4,828
Savings from Avoided Administrative Costs	+	+	+	+
<b>Total Medicaid Savings per Follow Up</b>				
	<b>9.81</b>	<b>10.14</b>	<b>4.16</b>	<b>7.42</b>

NOTE: A plus sign (+) indicates that we expect this factor to generate a net savings.

TABLE VI.10

ESTIMATES OF SAVINGS FROM MEDICAID: MICHIGAN  
(In Dollars)

	Database					Total
	SWICA	UI	BENDEX	SDX	IRS	
Number of Medicaid Cases Affected by IEVS	8	1	2	11	0	22
Cases Closed	8	0	1	8	0	17
Converted to Spend-Down Status	0	1	1	3	0	5
Average Benefit per Case	148.40	148.40	148.40	148.40	148.40	148.40
Average Benefit Saved per Month	1,187	148	297	1,632	0	3,265
Total Benefits Saved	5,224	148	801	5,669	0	11,842
Savings from Avoided Administrative Costs	+	+	+	+	+	+
<b>Total Medicaid Savings per Follow Up</b>	<b>13.06</b>	<b>0.73</b>	<b>1.46</b>	<b>10.34</b>	<b>0</b>	<b>8.20</b>

NOTE: A plus sign (+) indicates that we expect this factor to generate a net savings.

The savings from Medicaid case closures during our study were nearly \$5,000 in Arizona and \$12,000 in Michigan. About \$7 in Medicaid savings were saved per follow up in Arizona and \$8 per follow up in Michigan. In both states, this was much smaller than the total savings per follow up from food-stamp case closures or benefit denials (about \$49 in Arizona and \$10 in Michigan). However, this was primarily because case closures or benefit denials were much more frequent for food stamps or AFDC than Medicaid.

In Arizona, the BEER match led to the most savings in avoided Medicaid payments, accounting for nearly twice the amount of savings as the IRS match produced. In Michigan, savings from Medicaid case closures or denials were largest for the SWICA and SDX matches.

It is important to stress that the figures in Tables VI.9 and VI.10 are only rough estimates of the potential Medicaid savings and probably significantly underestimate the savings to the Medicaid program. The figures exclude savings from cases that were made ineligible via spend-down and the savings in administrative costs from case closures and benefit denials. In addition, although we have no information on actions in other programs, we would expect that savings from other programs, such as General Assistance, could also be significant.

## **2. Qualitative Evidence on Other Potential Savings**

From discussions with caseworkers and other agency staff in Arizona and Michigan, we obtained some qualitative evidence of the importance of some other potential savings. This evidence is discussed in detail in a companion report (Allin and Maxfield 1993). We summarize the findings below.

### **a. Deterrent Effect**

Clients are informed at application that the income information they provide will be checked against information on external databases. Clients may also be made aware of the IEVS process if

a discrepancy is found or if someone they know is penalized for misreporting income. It is reasonable to expect that this awareness will deter the client from misreporting income.

However, caseworkers in both states believed that IEVS did little to affect the probability that a client would misreport his or her income. This was because of the weak penalties applied if misreported income was detected.

#### **b. Caseworker Morale**

For some IEVS matches in both states (for example, the IRS match in Arizona and the UI match in Michigan), caseworkers believed that conducting the match was useful. For these matches, IEVS may raise caseworkers' morale by reducing the number of clients who receive benefits they are not entitled to. However, caseworkers in both states believed that some matches (for example, the SWICA match) were not cost-effective. For these matches, caseworkers felt frustrated at having to spend considerable time following up on information that produced no savings. Caseworkers were particularly concerned that only a small proportion of detected overpayments were recovered. If this effect predominated, IEVS would reduce caseworkers' morale. As it is unclear whether IEVS, as it is currently operated in Arizona and Michigan, reduces or raises caseworkers' morale, this effect may represent either a savings or a cost (negative savings) to the agency.

### **E. SUMMARY OF SAVINGS FROM IEVS**

In the previous sections of this chapter, we described the different types of savings that were realized because of actions taken as a result of IEVS during our study. This section provides an overview of our findings.

Table VI.11 shows the total savings from avoided benefit payments, avoided administrative costs, and recovered overpayments for each IEVS database in our study in Arizona. The last four rows present total savings, total savings per follow up that resulted in an action, total savings per follow up, and total savings per case in the research sample. These figures are based on the assumption that

TABLE VI.11

**TOTAL SAVINGS FROM IEVS MATCHES: ARIZONA**  
(In Dollars)

	Database			Total/Average
	SWICA	BEER	IRS	
Avoided Benefit Payments <sup>a</sup>	2,296	14,678	24,258	41,232
Avoided Administrative Costs	94	949	2,168	3,210
Recovered Benefit Overpayments	5,259	13,725	16,046	35,031
Unmeasured Benefits <sup>b</sup>				
Savings from Other Programs	+	+	+	+
Greater Deterrence	+	+	+	+
Improved Staff Morale	?	?	?	?
<b>Total</b>	<b>7,648</b>	<b>29,352</b>	<b>42,473</b>	<b>79,474</b>
Total per Follow Up with Action	956	1,223	904	1,006
Total per Follow Up	62.18	123.33	146.46	122.08
Total per Research-Sample Case	1.98	3.45	4.19	3.53

<sup>a</sup>On the assumption that savings persist until the next recertification.

<sup>b</sup>A plus sign (+) indicates that we expect that the factor would generate a net savings. A (?) indicates that the factor may either generate a net savings or cost.

savings from case closures, case denials, or benefit changes will persist until the next recertification. Similar information for the IEVS databases in Michigan is presented in Table VI.12.

In both states, the majority of total savings resulted from avoided benefit payments. Avoided benefit payments accounted for 52 percent of total savings in Arizona and 90 percent of total savings in Michigan. Recovered overpayments accounted for a large proportion (44 percent) of total savings in Arizona, but only a small proportion (4 percent) of total savings in Michigan. In both states, avoided administrative costs were fairly unimportant, accounting for only 4 percent of total savings in Arizona and 6 percent of total savings in Michigan.

Total savings *per follow up* were on average \$122 in Arizona and \$54 in Michigan. While some follow ups yielded large savings, most follow ups yielded no savings at all. The amount of savings per follow up can be viewed as the expected or average savings from conducting a follow up. Savings per follow up were higher in Arizona than in Michigan for two reasons. First, and most important, the proportion of follow ups that led to an action was nearly twice as large in Arizona. Second, for those follow ups that led to an action, savings were larger in Arizona (\$1,006) than in Michigan (\$903). This was primarily because the average overpayment in Arizona was much higher than the average overpayment in Michigan.

In both states, savings per follow up varied greatly by database. In Arizona, savings per follow up ranged from \$62 (SWICA) to \$146 (IRS). In Michigan, the range was even larger, varying from \$18 (SDX) to over \$1,129 (IRS). The savings per follow up were highest for the IRS match in both Arizona and Michigan because (1) the action rate for the IRS match was high and (2) the savings per follow up that resulted in an action were high. In Michigan, there were only eight IRS follow ups in our study, but one of these follow ups led to extremely large savings. In contrast, savings per follow up were lowest overall for the SDX match in Michigan because the action rate was fairly low and the savings per follow up with an action were only about half the average savings for all databases.

TABLE VI.12

**TOTAL SAVINGS FROM IEVS MATCHES: MICHIGAN**  
(In Dollars)

	Database					Total/Average
	SWICA	UI	BENDEX	SDX	IRS	
Avoided Benefit Payments <sup>a</sup>	22,262	14,954	22,531	8,197	8,351	70,809
Avoided Administrative Costs	1,636	1,313	1,563	499	355	4,893
Recovered Benefit Overpayments	1,343	164	215	1,109	323	2,832
Unmeasured Benefits <sup>b</sup>						
Savings from Other Programs	+	+	+	+	+	+
Greater Deterrence	+	+	+	+	+	+
Improved Staff Morale	?	?	?	?	?	?
<b>Total</b>	<b>25,241</b>	<b>16,431</b>	<b>24,309</b>	<b>9,804</b>	<b>9,029</b>	<b>78,534</b>
Total per Follow Up with Action	1,010	1,826	900	392	9,029	903
Total per Follow Up	63.10	80.55	85.60	17.89	1,128.67	54.39
Total per Research-Sample Case	10.26	6.68	1.81	0.73	2.34	5.83

<sup>a</sup>On the assumption that savings persist until the next recertification.

<sup>b</sup>A plus sign (+) indicates that we expect that the factor would generate a net savings. A (?) indicates that the factor may either generate a net savings or cost.

A targeting strategy designed to maximize cost-effectiveness should raise the action rate and target for follow up cases which will lead to large savings. The success of the targeting strategies used in our study is illustrated in Tables VI.11 and VI.12. Savings per follow up were higher in Arizona, which employs more restrictive targeting strategies, than in Michigan. The most restrictive targeting strategy used in the demonstration was the IRS targeting strategy in Michigan. This match led to the largest savings per follow up.

It is surprising that the savings per follow up from the SWICA match were similar in both states even though the SWICA recipient match in Arizona was targeted fairly heavily and the SWICA applicant match in Michigan was not targeted at all. While savings per month from a case closure, a benefit denial, or a benefit change was higher in Arizona, we assumed that savings persist longer in Michigan. This is because the length of time until recertification is longer for applicants than for recipients and the recertification period is longer in Michigan than in Arizona. If we assume that the savings from the SWICA match in Michigan persist until the next recipient follow up (4.5 months), the savings per follow up for the SWICA applicant match in Michigan were only \$40,<sup>4</sup> considerably lower than the savings per follow up for the SWICA recipient match in Arizona.

Under our benchmark assumptions (savings from reduced or denied benefits persist until the end of the certification period), total savings from IEVS matches during our study were just under \$80,000 in each state. However, comparing savings in the two states is misleading because there were many more cases in our study in Arizona than in Michigan. A more meaningful comparison can be made between savings *per research-sample case* in the two states, which were about \$3.50 in Arizona and about \$5.80 in Michigan. This difference may be attributable to the difference in targeting strategies used in the two states. While using a targeting strategy can increase the average savings for each follow up, the targeting strategy can decrease total savings by reducing the number of follow ups conducted. The IRS match provides a good illustration of this effect. The IRS match is targeted in

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<sup>4</sup>This figure is not reported in Table VI.12.

both states, but while about 1 percent of all SSNs sent to be matched were followed up in Arizona, less than 0.5 percent were followed up in Michigan. Savings per IRS follow up were nearly eight times higher in Michigan than in Arizona. However, savings from the IRS match per research-sample case were nearly 80 percent higher in Arizona. Similarly, while savings per follow up were about the same for the SWICA match in the two states, savings per research-sample case from the SWICA match were nearly eight times higher in Michigan where the match was not targeted.

The estimates of savings shown in Tables VI.11 and VI.12 include only those savings derived from avoided benefit payments, avoided administrative costs, and recovered overpayments in the Food Stamp and AFDC programs. Other savings, which we did not measure, may also be important. In particular, substantial savings may be realized in other programs, such as Medicaid.

## **VII. COSTS INCURRED BY THE IEVS PROCESS**

We identified four types of costs that could be incurred by the IEVS process: (1) the cost of follow ups conducted by the caseworkers, (2) the cost of establishing and collecting claims, (3) data processing costs, and (4) the cost of developing the matching and targeting strategies. The first two costs--caseworker time and the cost of establishing and collecting claims--are incurred during follow up. Data processing costs are incurred in conducting the match, applying the targeting strategy, and producing the reports containing the information on the external database. The costs of developing the matching and targeting strategies are incurred only once and hence are not included in our cost-effectiveness ratio. Our estimate of the costs of the IEVS process is the denominator of the cost-effectiveness ratio.

This chapter is organized as follows. Section A describes the cost of the caseworkers' follow up. Section B presents our estimates of the costs of establishing and collecting claims. In Section C, we present our estimates of the data processing costs. Section D covers the development costs incurred by Arizona (we could not collect information on development costs for Michigan). Section E provides a summary of the costs incurred by the IEVS process for each database in each state.

### **A. COST OF CASEWORKERS' FOLLOW-UP**

Although much of the IEVS process is automated, nearly all of the procedures involved in following up a match are conducted manually. This section explains the cost of the follow-up procedures conducted by caseworkers. We begin by describing the tasks that caseworkers perform. We then describe the time involved in conducting these tasks and provide estimates of the cost of conducting the follow ups.

## 1. Tasks Performed by Caseworkers During Follow Up

Once a caseworker receives notification that a case has been targeted for follow up, he or she investigates whether income was misreported, and if it was, whether eligibility or benefits were affected and whether there was a previous benefit overpayment. This may involve a variety of tasks and handling the case on a number of different days. For example, a caseworker may review a case, write a letter to an employer one day, and recompute eligibility and benefits on another day. The follow up may also be conducted by more than one caseworker. If an overpayment is detected, a case may be referred to a caseworker who specializes in handling overpayments--an *overpayment writer* in Arizona and a *designated staff person* (DSP) in Michigan.<sup>1</sup> The follow up could also be handled by more than one caseworker if a case is transferred to another office.<sup>2</sup>

We identified six tasks, or groups of tasks, that are performed during a follow up:

1. **Review Case.**
2. **Contact Client.** This contact could be made by mail, phone, or in-person. In Michigan, the data collection form distinguished between contact by mail and contact by phone/in-person.
3. **Contact Third Party for Verification.** A caseworker may contact an employer or financial institution to verify information on the external database. The contact could be made by mail, phone, or, in a rare instance, in-person. In Michigan, the data collection form distinguished between contact by mail and contact by phone/in-person.
4. **Recompute Eligibility and Benefits.** In Michigan, the data collection form distinguished between recomputing eligibility and benefits, and entering the information into the computer (input into the Client Information System). In Arizona, both of these tasks were included under "recompute eligibility and benefits."
5. **Referral to Other Staff.** If an overpayment is detected, a caseworker may refer a case to a specialized caseworker or to a special unit that deals with overpayments.

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<sup>1</sup>We did not distinguish on the data collection forms between tasks conducted by a caseworker and tasks conducted by specialized caseworkers (the overpayment writer in Arizona and the DSP in Michigan).

<sup>2</sup>In our sample, this could only occur if the case was transferred to an office that was participating in our study.

6. ***Other Tasks.*** The data collection forms in both states included a category called "other" tasks. Tasks in this category included (1) locating casefiles, (2) obtaining information on the case from the client database, and (3) discussing issues with a caseworker supervisor.

The average number of tasks conducted per follow up, the average number of times each task was conducted per follow up, and the average number of times the case was handled per follow up in Arizona is presented in the last column of Table VII.1. The same information for Michigan is presented in the last column of Table VII.2.

~~During our study caseworkers in Arizona tended to handle each case more often and perform~~

TABLE VII.1

TASKS INVOLVED IN FOLLOW UPS IN ARIZONA:  
BREAKDOWN BY WHETHER ACTION OCCURRED

	Result of IEVS Follow Up		Total/Average
	Action	No Action	
Number of Times Case Is Handled per Follow Up	2.71	1.62	1.76
Number of Tasks Performed per Follow Up	3.66	2.01	2.21
Number of Times Task Is Performed			
Review Case	1.22	1.27	1.27
Client Contact	1.10	0.47	0.55
Third-Party Contact	0.97	0.57	0.62
Recompute Eligibility and Benefits	0.35	0.10	0.13
Referral to Overpayment Writer	0.27	0.03	0.06
Calculate Overpayment	0.51	0.01	0.07
Other	0.30	0.10	0.12
Average Time Spent on Task Each Time Performed (minutes)			
Review Case	15.9	13.8	14.1
Client Contact	8.3	7.9	8.0
Third-Party Contact	10.6	9.0	9.2
Recompute Eligibility and Benefits	38.1	19.8	25.8
Referral to Overpayment Writer	8.0	6.2	7.2
Calculate Overpayment	103.1	71.7	97.9
Other	133.8	32.4	59.8
Mean Total Time per Follow Up (minutes)	180.8	31.2	49.8
Median Total Time per Follow Up (minutes)	65.0	25.0	25.0
Number of Observations <sup>a</sup>	79	558	637

<sup>a</sup>No time information was entered on 14 data collection forms. These data collection forms were removed for this analysis.

TABLE VII.2

**TASKS INVOLVED IN FOLLOW UPS IN MICHIGAN:  
BREAKDOWN BY WHETHER ACTION OCCURRED**

	Result of IEVS Follow Up		Total/Average
	Action	No Action	
Number of Times Case Is Handled per Follow Up	1.61	1.12	1.15
Number of Tasks Performed per Follow Up	3.40	1.31	1.44
Number of Times Task Is Performed			
Review Case	1.05	0.93	0.94
Client Contact (mail)	0.52	0.07	0.10
Third-Party Contact (mail)	0.23	0.04	0.05
Client Contact (phone/person)	0.25	0.07	0.08
Third-Party Contact (phone/person)	0.10	0.03	0.03
Recompute Eligibility and Benefits	0.56	0.04	0.07
Input into Client Database	0.74	0.09	0.13
Referral to DSP	0.14	0.00	0.01
Referral to OIG	0.10	0.01	0.01
Other	0.18	0.07	0.08
Average Time Spent on Task Each Time Performed (minutes)			
Review Case	10.5	8.7	8.8
Client Contact (mail)	7.2	6.3	6.6
Third-Party Contact (mail)	8.1	8.6	8.4
Client Contact (phone/person)	17.11	7.9	9.8
Third-Party Contact (phone/person)	15.8	5.9	7.7
Recompute Eligibility and Benefits	16.1	9.5	12.8
Input into Client Database	6.9	5.5	6.0
Referral to DSP	5.4	9.3	6.6
Referral to OIG	7.6	8.5	8.0
Other	11.8	6.5	7.1
Mean Total Time Per Follow Up (minutes)	46.0	11.1	13.2
Median Total Time per Follow Up (minutes)	30.0	5.0	5.0
<b>Number of Observations<sup>a</sup></b>	<b>87</b>	<b>1,354</b>	<b>1,441</b>

<sup>a</sup>No time information was entered on three data collection forms. These data collection forms were removed for this analysis.

Michigan, caseworkers recomputed eligibility and benefits on average 0.07 times per follow up and input information into the client database an average of 0.13 times per follow up. In Arizona, caseworkers conducted either of these tasks an average of only 0.13 times per follow up. All other tasks in both states were conducted less than 0.12 times on average per follow up.

For many tasks, the average time to perform the task was greater in Arizona than in Michigan. For example, caseworkers spent an average of 14 minutes each time they reviewed the case in Arizona, compared with just under 9 minutes in Michigan. Recomputing eligibility and benefits and inputting information into the client database took an average of just under half an hour (26 minutes) in Arizona, compared with less than 20 minutes in Michigan.

The average amount of time for other tasks was remarkably similar in the two states. On average, a client contact took about 8 minutes in both states, and a third-party contact took about 8 minutes in Michigan and 9 minutes in Arizona. In both states, referring the case to an overpayment writer or DSP took about 7 minutes. In Arizona, the overpayment writer spent an average of over one-and-a-half hours completing a report about the overpayment (FA-529).

## **2. Time Taken to Conduct a Follow Up**

The total time taken to conduct an IEVS follow up during our study was, on average, 50 minutes in Arizona and 13 minutes in Michigan.<sup>3</sup> (The average and median times required for the follow up are presented in Tables VII.1 and VII.2.) In both states, a small number of follow ups were extremely time-consuming, taking days or even weeks of caseworker time. These follow ups drive up the average figure. The median amount of time per follow up is 25 minutes in Arizona and only 5 minutes in Michigan--over 50 percent of follow ups took 25 minutes or less in Arizona and 5 minutes or less in Michigan.

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<sup>3</sup>This is probably an overestimate of the time taken to conduct a follow up in Michigan. Caseworkers reported that in many cases they rounded up the time taken for a follow up from one or two minutes to five minutes.

**a. Time Taken to Conduct a Follow Up by whether an Action Occurred**

Considerably more time was spent on follow ups that resulted in an action--a change in eligibility, a change in benefits, or the detection of an overpayment--than on those that did not. (Tables VII.1 and VII.2 present the statistics on the tasks involved in a follow up by whether an action occurred.) In Arizona, a follow up that led to an action took an average of over three hours, while a follow up that did not lead to an action took only about half an hour. In Michigan, a follow up that led to an action took an average of 46 minutes, compared with an average of 11 minutes for a follow up that did not lead to an action. As the average amount of time spent on a follow up that did not lead to an action was significantly longer in Arizona than in Michigan, the difference between the states in the time taken per follow up cannot be completely explained by the differences in the action rates in the two states.

The time spent on follow ups that led to an action was higher on average than the time spent on follow ups that did not lead to an action for three reasons. First, when an action occurred, the case was handled more frequently. Second, when an action occurred, more tasks were performed per follow up. For instance, a follow up that led to an action was more likely to involve a client contact, a third-party contact, the recomputation of eligibility and benefits, and a referral to the overpayment writer or DSP. Third, when an action occurred, nearly all tasks took considerably longer each time they were performed. It took the caseworker longer to review the case, to contact the client, to contact the third-party, to recompute eligibility and benefits, and to refer the case to an overpayment writer or DSP. The only, (and rather surprising) exception was that the referral to the DSP and OIG in Michigan took longer when there was no action. However, the average time taken for the referral are calculated from extremely small samples--only seven follow ups were referred to the DSP or OIG without the caseworker reporting an overpayment.

## **b. Time Taken to Conduct a Follow Up by IEVS Database**

The average and median amount of total time spent per follow up, the average number of times the case was handled, the average number of tasks performed each time the case was handled, the average number of times each task was performed, and the average amount of time spent performing each task *by database* in our study in Arizona are presented in Table VII.3. The same information for Michigan is provided in Table VII.4.

In Arizona, the average time spent conducting follow ups was remarkably similar for each database. There was a difference of less than five minutes between the average amount of time taken to conduct a follow up of the BEER match (52 minutes) and the time taken to conduct a follow up of the SWICA match (48 minutes).

In Michigan, the average time spent conducting a follow up varied by database. The SDX follow ups took the least time--on average, only 10 minutes. The SWICA and IRS follow ups were the most time-consuming, each follow up taking an average of about 19 minutes of the caseworker's time. On average, a follow up of a UI match took about 14 minutes, and a follow up of a BENDEX match took about 12 minutes.

Follow ups of SWICA and IRS matches took longer than those of the other matches in Michigan because three tasks--reviewing the case, contacting the client, and contacting third parties--were performed more frequently and/or took longer than average to conduct. For the SWICA match, caseworkers also more frequently recomputed eligibility and benefits, and took more time than average to conduct this task. In contrast, caseworkers conducting follow ups of the SDX match rarely contacted a third party and most tasks were performed in a relatively short period of time. These differences in follow-up time by database can be explained by three factors:

1. *The action rate varied by database.* Follow ups were more time-consuming when they led to an action. The action rate was highest for the IRS database, and IRS follow ups were the most time-consuming. On the other hand, the action rate was lowest for the SDX match, which took the least time to follow up. However, this cannot explain all of the variation. In Michigan, the time spent following up the SWICA match was

TABLE VII.3

TASKS INVOLVED IN FOLLOW UPS IN ARIZONA:  
BREAKDOWN BY DATABASE

	Database			Total/Average
	SWICA	BEER	IRS	
Number of Times Case Is Handled per Follow Up	1.38	1.58	2.07	1.76
Number of Tasks Performed per Follow Up	1.78	2.12	2.49	2.21
Number of Times Task Is Performed				
Review Case	1.11	1.18	1.41	1.27
Client Contact	0.24	0.51	0.72	0.55
Third-Party Contact	0.77	0.59	0.73	0.62
Recompute Eligibility and Benefits	0.17	0.14	0.11	0.13
Referral to Overpayment Writer	0.07	0.04	0.07	0.06
Calculate Overpayment	0.08	0.06	0.08	0.07
Other	0.03	0.06	0.22	0.12
Average Time Spent on Task Each Time Performed (minutes)				
Review Case	14.4	16.1	12.2	14.1
Client Contact	8.5	8.2	7.8	8.0
Third-Party Contact	9.2	9.4	9.1	9.2
Recompute Eligibility and Benefits	26.3	20.3	30.1	25.8
Referral to Overpayment Writer	8.8	7.4	6.5	7.2
Calculate Overpayment	186.3	84.7	77.2	97.9
Other	10.1	21.7	71.9	59.8
Mean Total Time per Follow Up (Minutes)	47.8	52.1	48.6	49.8
Median Total Time per Follow Up (minutes)	15.0	25.0	30.0	25.0
Number of Observations <sup>a</sup>	120	236	281	637

<sup>a</sup>No time information was entered on 14 data collection forms. These data collection forms were removed for this analysis.

TABLE VII.4  
TASKS INVOLVED IN FOLLOW UPS IN MICHIGAN:  
BREAKDOWN BY DATABASE

	Database					Total/Average
	SWICA	UI	BENDEX	SDX	IRS	
Number of Times Case Is Handled per Follow Up	1.20	1.19	1.11	1.11	1.88	1.15
Number of Tasks Performed per Follow Up	1.51	1.43	1.50	1.35	2.00	1.44
Number of Times Task is Performed						
Review Case	1.00	0.99	0.95	0.86	1.50	0.94
Client Contact (mail)	0.12	0.05	0.10	0.09	0.25	0.10
Third-Party Contact (mail)	0.10	0.05	0.03	0.03	0.13	0.05
Client Contact (phone/person)	0.12	0.06	0.06	0.08	0.38	0.08
Third-Party Contact (phone/person)	0.05	0.10	0.01	0.01	0.25	0.03
Recompute Eligibility and Benefits	0.08	0.05	0.12	0.05	0.00	0.07
Input into Client Database	0.11	0.10	0.17	0.13	0.00	0.13
Referral to DSP	0.03	0.01	0.00	0.01	0.00	0.01
Referral to OIG	0.02	0.00	0.00	0.01	0.00	0.01
Other	0.06	0.10	0.08	0.08	0.13	0.08
Average Time Spent on Task Each Time Performed (minutes)						
Review Case	10.5	9.2	8.1	7.6	10.1	8.8
Client Contact (mail)	9.0	5.2	6.6	5.0	5.0	6.6
Third-Party Contact (mail)	10.5	7.0	10.4	4.3	5.0	8.4
Client Contact (phone/person)	11.1	12.4	8.4	8.8	4.0	9.8
Third-Party Contact (phone/person)	6.7	8.1	12.1	7.7	3.0	7.7
Recompute Eligibility and Benefits	17.6	8.3	10.2	13.8	--	12.8
Input into Client Database	6.1	6.0	6.3	5.7	--	6.0
Referral to DSP	7.2	8.0	5.3	5.0	--	6.6
Referral to OIG	9.8	1.0	4.0	7.4	--	8.0
Other	6.3	10.0	6.7	6.5	5.0	7.1
Mean Total Time per Follow Up (minutes)	18.7	13.7	11.8	9.7	18.8	13.2
Median Total Time per Follow Up (minutes)	10.0	10.0	5.0	5.0	20.0	5.0
<hr/>						
Number of Observations <sup>a</sup>	400	204	284	545	8	1,441

<sup>a</sup>No time information was entered on three data collection forms. These data collection forms were removed for this analysis.

longer than the time spent following up the BENDEX match even though the action rate was higher for the BENDEX match.

2. ***Information from some databases requires third-party verification.*** The information on the SWICA and IRS databases must be verified by a third party, while the information on the UI, BENDEX, and SDX databases is considered already verified.
3. ***The aggregation and reference period of the databases vary.*** Income on the SWICA and IRS databases is aggregated over a quarter or a year and refers to a previous quarter or year. Income on the UI, BENDEX, and SDX databases is current and is reported by month. During a follow up of a SWICA or IRS match, the caseworker must compare monthly income reported by the client in a previous quarter or year with quarterly or annual data on the external database. This is much more complicated than making a direct comparison between monthly income reported by the client and monthly income on the external database for the current month.

These factors also explain some of the difference between the average time per follow up by state. First, the action rate was higher on average in Arizona. Second, all of the databases in our study in Arizona--the SWICA, BEER, and IRS--require third-party verification, while only two of the five databases in our study in Michigan require third-party verification. Third, each of the databases in our study in Arizona contain quarterly or annual data from a previous quarter or year, while only the UI, BENDEX, and SDX databases in Michigan contain current, monthly income data. However, these three factors do not explain all of the differences in average follow-up time between the states. Even for follow ups of the SWICA match, which has a similar action rate in Arizona and Michigan, caseworkers spent an average of 48 minutes in Arizona and only 19 minutes in Michigan.

### **3. Estimates of Follow-Up Costs**

The time caseworkers spend on follow up is costly because it diverts them from other tasks and increases the number of caseworkers needed to administer the caseload. The cost of a caseworker's time in conducting follow ups depends on both the time spent on IEVS follow ups and the hourly cost of the caseworkers' time. Table VII.5 presents the average time spent on each follow up, the fully loaded hourly cost of a caseworker, the total cost of caseworkers' time spent conducting follow

TABLE VII.5

COST OF CASEWORKERS' FOLLOW UPS: ARIZONA

	Database			Total/Average
	SWICA	BEER	IRS	
Time per Follow Up (minutes)	48	52	49	50
Hourly Cost of Caseworkers' Follow Ups (dollars)	39.07	39.07	39.07	39.07
Total Cost (dollars)	3,831	8,081	9,181	21,093
Cost per Follow Up (dollars)	31.14	33.95	31.66	32.40

ups during our study, and the total cost per follow up in Arizona. The same information for Michigan is presented in Table VII.6.

We estimate that the hourly cost of caseworkers' time was about \$39 in Arizona and \$49 in Michigan. These are estimates of the marginal cost of a caseworker-hour, that is, the cost of increasing by one the number of caseworker-hours required by the agency. Hence, the measure includes not only the salaries of the caseworkers, but also estimates of (1) the cost of fringe benefits (such as medical benefits), (2) the cost of supervisory and clerical staff who are required to work with the caseworker, (3) costs of supplies and services used by the caseworker (such as the telephone), and (4) the rental cost of providing office space to the caseworker. The hourly cost of a caseworker was higher in Michigan than in Arizona primarily because salaries of the caseworkers were higher in Michigan.

The average cost of the time caseworkers spent conducting one follow up was \$32 in Arizona and \$11 in Michigan. Although the hourly cost of a caseworker was higher in Michigan, the cost per follow up was higher in Arizona because more time was spent on average on a follow up in Arizona. The total cost of conducting follow ups during our study was about \$21,100 in Arizona and \$15,500 in Michigan.

The average cost of a follow up did not vary much by database in Arizona. Follow ups of the SWICA match were the least costly (\$31), and follow ups of the BEER match were the most costly (\$34). A follow up of the IRS match in Arizona cost about \$32. The average cost of follow up varied more by database in Michigan. The cost of a follow up varied from about \$8 for the SDX match to over \$15 for the SWICA and IRS matches. A follow up of the UI match in Michigan cost about \$11, and a follow up of the BENDEX match in Michigan cost about \$10.

## **B. CLAIMS ESTABLISHMENT AND COLLECTION COSTS**

If a caseworker detects a previous benefit overpayment, they begin procedures to recover the overpayment. This involves establishing the overpayment as a claim and collecting the claim.

TABLE VII.6

COST OF CASEWORKERS' FOLLOW UPS: MICHIGAN

	Database					Total/Average
	SWICA	UI	BENDEX	SDX	IRS	
Time per Follow Up (minutes)	19	14	12	10	19	13
Hourly Cost of Caseworkers' Follow Ups (dollars)	48.78	48.78	48.78	48.78	48.78	48.78
Total Cost (dollars)	6,081	2,272	2,729	4,335	122	15,539
Cost per Follow Up (dollars)	15.20	11.13	9.61	7.91	15.24	10.73

Procedures for establishing and collecting claims may include investigations, hearings, and fraud prosecutions. In this section, we discuss the costs involved in claims establishment and collection. In this category of costs, we include only the costs that are incurred after the case leaves the hands of the caseworker (either a regular caseworker or the caseworker specialized in dealing with overpayments). As some of the costs of recovering overpayments were incurred by caseworkers, and hence were included in the cost of the caseworkers' follow ups, the estimates of the costs of claim establishment and collection are underestimates of the total cost of recovering the overpayments.

The cost of establishing and collecting a claim varies by the size of the claim and whether the client misreported income (household error) or the caseworker made an error in computing eligibility and benefits (agency error). The cost of establishing and collecting a claim increases with the size of the overpayment because the agency is more likely to prosecute the client and is prepared to expend more resources to recover the overpayment. It is less costly to establish and process a claim caused by agency error because these claims do not involve hearings or prosecutions.

In Table VII.7, we present the number of overpayments detected in our study in Arizona, the estimated cost of each claim, the estimated total cost of claims establishment and collection, the total cost per case for which an overpayment was detected, and the total cost per follow up. The same information for Michigan is presented in Table VII.8.

We estimate that for cases in our sample, the average cost of establishing and collecting each claim was nearly twice as high in Michigan (\$284) than it was in Arizona (\$152). It is interesting to compare these costs with our estimates of the value of recovered overpayments in each state. In Arizona, for each dollar spent on establishing and collecting claims, we estimate that the agency recovers about \$7.40. In Michigan, for each dollar spent on establishing and collecting claims, we estimate that the agency recovers only 40 cents. Our estimates imply that, in Michigan, the agency actually loses money in recovering overpayments. (These estimates ignore the potential savings from any deterrent effect of prosecuting clients who misreport income). To some extent, this loss is due

TABLE VII.7

COSTS OF CLAIMS ESTABLISHMENT AND COLLECTION: ARIZONA  
(In Dollars)

	Database			Total/Average
	SWICA	BEER	IRS	
<b>Number of Overpayments</b>				
Less Than \$35	0	2	1	3
Agency Error	2	4	5	11
Household Error	4	4	9	17
<b>Cost of Each Claim</b>				
Less Than \$35 (food stamps)	2	2	2	2
Agency Error	77	77	77	77
Household Error	227	227	227	227
<b>Total Cost</b>	1,063	1,220	2,431	4,714
<b>Cost per Overpayment</b>	177	122	162	152
<b>Cost per Follow Up</b>	8.64	5.13	3.38	7.24

TABLE VII.8

**COSTS OF CLAIMS ESTABLISHMENT AND COLLECTION: MICHIGAN**  
(In Dollars)

	Database					Total/Average
	SWICA	UI	BENDEX	SDX	IRS	
<b>Number of Overpayments</b>						
Less Than \$200	8	2	2	0	0	12
\$200 - \$499	2	1	2	0	0	5
\$500 or More	3	0	0	5	1	8
<b>Cost of Each Claim</b>						
Less Than \$200	23	23	23	23	23	23
\$200 - \$499	244	244	244	244	244	244
\$500 or More	702	702	702	702	702	702
<b>Total Cost</b>	2,776	289	533	3,512	702	7,111
<b>Cost per Overpayment</b>	252	96	133	702	702	284
<b>Cost per Follow Up</b>	6.94	1.42	1.88	6.41	87.75	4.92

to the very low rate of recovering overpayments that we used to estimate the amount of recovered overpayments in Michigan. However, even if all detected overpayments were recovered, our estimates suggest that the agency only receives about \$1.50 for every dollar spent on establishing and collecting claims.

The average cost per overpayment of establishing and collecting a claim varied by database. In Arizona, the average cost was highest for the SWICA match and lowest for the BEER match. This was because the BEER match detected more overpayments caused by agency error than did the SWICA match. In Michigan, the average cost was lowest for the UI and BENDEX matches, which uncovered no large overpayments, and highest for the SDX and IRS matches, which detected overpayments that were all \$500 or more. However, because the number of detected overpayments in our study was small, we cannot draw many conclusions from these differences.

### **C. DATA PROCESSING COSTS**

Data processing costs are incurred in preparing for and/or conducting the match, running the targeting algorithm, and producing IEVS reports. We divided the data processing costs into four categories:

1. The cost of producing the request tape and/or the cost of matching a tape from the external database against the client database
2. The cost of processing the response tapes and/or the cost of running the targeting algorithm
3. The cost of producing the IEVS reports
4. Payments to agencies that maintain the external database

Table VII.9 shows the cost of data processing incurred in each of these four categories in Arizona. Table VII.10 provides the same information for Michigan. The data processing costs in the first three categories include the cost of labor, equipment, software, and overhead involved in using a mainframe computer to run programs and store data.

TABLE VII.9

DATA PROCESSING COSTS: ARIZONA  
(In Dollars)

	Database			Total
	SWICA	BEER	IRS	
Producing Request Tapes or Matching Extract Tapes Against Client Database	27	25	75	127
Processing Response Tapes and/or Running Targeting Algorithms	6	46	5	57
Producing Reports	6	5	26	37
Payments to Agency That Maintains External Data Source	0	0	327	327
<b>Total</b>	<b>39</b>	<b>76</b>	<b>434</b>	<b>548</b>
Total per Follow Up	0.3	0.32	1.50	0.84
Total per Research-Sample Case	1.0c	0.9c	4.3c	2.4c

TABLE VII.10

DATA PROCESSING COSTS: MICHIGAN  
(In Dollars)

	Database					Total
	SWICA	UI	BENDEX	SDX	IRS	
Producing Request Tapes or Matching Extract Tapes Against the Client Database	2	6	75	(34) <sup>a</sup>	1	83
Processing Response Tapes and/or Running Targeting Algorithms	1	1	11	34	1	48
Producing Reports	0.4	0.2	0.3	21	0.1	22
Payments to Agency that Maintains External Database	78	0	0	0	20	98
<b>Total</b>	<b>81</b>	<b>7</b>	<b>86</b>	<b>55</b>	<b>22</b>	<b>251</b>
Total per Follow Up	0.20	0.03	0.30	0.10	2.80	0.17
Total per Research-Sample Case	3.3¢	0.3¢	0.6¢	0.4¢	0.6¢	1.9¢

<sup>a</sup>Matching and targeting occurs in the same step for the SDX match. We estimate that this step costs \$34. In the row and column totals, we include this cost only as a targeting cost.

The matching and targeting procedures for the SDX data take place in a single batch processing job in Michigan. Hence, we were unable to distinguish the costs of matching from the costs of targeting. For Table VII.10, we arbitrarily chose to present these matching and targeting costs as "targeting" costs.

The data processing costs for the IEVS matches in our study were not high in either state. In total, data processing costs were only \$548 in Arizona and \$251 in Michigan. A large proportion of these costs were payments to the agencies that maintain the external database. Payments to the IRS comprised over 75 percent of the total data processing costs of the IRS match in Arizona and over 90 percent of the IRS data processing costs in Michigan. Payments to the MESC accounted for nearly all of the data processing costs for the SWICA match in Michigan.

The most costly computer programs to run were those that produced the request tape or matched the external data against the client database. This was because these steps involved manipulating extremely large databases. For the other programs, the number of observations were limited to those SSNs that were matched or targeted for follow up. The programs to process the response tapes and/or run the targeting algorithm accounted for about 10 percent of all costs in Arizona and 19 percent of all costs in Michigan. These costs should not be interpreted as the costs of targeting as they involve some processing steps, such as reading tapes and deleting blank records, that would be required even if no targeting strategy were used.

In the last two rows of Tables VII.9 and VII.10, we present the data processing costs per follow up and costs per case in the research sample. The cost per follow up is presented only for comparison with the other costs discussed in this chapter. The cost per research-sample case is presented to account for the different number of research-sample cases subject to each match. In both states, the average cost of data processing per research-sample case was about 2 cents.

In Arizona, the cost per research-sample case varied from 0.9 cents for the BEER match to 4.3 cents for the IRS match. Data processing costs are highest for the IRS match because of the

sample case for the UI match to 3.3 cents for the SWICA match. The data processing costs of the SWICA match were negligible, accounting for about a tenth of a cent per research-sample case--payments to the MESC accounted for most of the SWICA data processing costs in Michigan.

#### **D. COSTS OF DEVELOPING THE MATCHING AND TARGETING STRATEGIES**

Starting a new match with an IEVS database involves developing computer programs to conduct the match, produce the request tape, and produce IEVS reports. Introducing a new targeting strategy involves both designing the algorithms and developing computer programs to implement the algorithms. All these procedures can be costly. These costs are one-time-only start-up costs and should not be included in the cost-effectiveness ratio. However, knowledge of these costs would be useful to other state agencies contemplating introducing a new IEVS match or a new targeting

TABLE VII.11

COSTS OF DEVELOPING IEVS MATCHES: ARIZONA  
(In Dollars)

	Database			Total
	SWICA	BEER	IRS	
Programming	42,373	29,059	26,025	97,457
Computer-Test Runs	5,804	380	340	6,524
Total	48,177	29,439	26,364	103,980

The cost to develop the matching and targeting procedures was nearly \$50,000 for the SWICA match and just less than \$30,000 for the BEER and IRS matches. Without a further breakdown of costs, we cannot explain why the costs varied so much by database. However, one possible explanation for the high costs of developing the SWICA match is that the SWICA targeting strategy was much more complicated than the BEER and IRS targeting strategies because it involved a direct comparison of the income reported on the client database with the income on the SWICA database. The BEER and IRS targeting strategies did not involve a comparison of income reported on the client and external databases, but consisted only of screens on the characteristics of the clients and the amount of income reported on the external database.

**E. TOTAL COSTS INCURRED BY THE IEVS PROCESS**

This section provides an overview of the costs incurred by the IEVS process during our study. Table VII.12 shows the total costs incurred during caseworker follow ups, the total costs involved in establishing and collecting claims, and the total costs of processing data for the IEVS matches in Arizona during our study. The costs of developing the match are one-time-only costs and so are not included in the table. The last three rows show the total cost, the total cost per follow up, and the total cost per research-sample case. Similar information for Michigan is shown in Table VII.13.

TABLE VII.12

TOTAL COSTS OF IEVS MATCHES: ARIZONA  
(In Dollars)

	Database			Total
	SWICA	BEER	IRS	
Caseworkers' Follow Ups	3,831	8,081	9,181	21,093
Claims Establishment and Collection	1,063	1,220	2,431	4,714
Data Processing Costs	39	76	434	549
<b>Total</b>	<b>4,932</b>	<b>9,351</b>	<b>12,046</b>	<b>26,330</b>
Total per Follow Up	40.10	39.29	41.54	40.45
Total per Research-Sample Case	1.28	1.10	1.19	1.17

TABLE VII.13

TOTAL COSTS OF IEVS MATCHES: MICHIGAN  
(In Dollars)

	Database					Total
	SWICA	UI	BENDEX	SDX	IRS	
Caseworkers' Follow Ups	6,081	2,272	2,729	4,335	122	15,539
Claims Establishment and Collection	2,776	289	533	3,512	702	7,111
Data Processing Costs	81	7	86	55	22	251
<b>Total</b>	<b>8,938</b>	<b>2,568</b>	<b>3,348</b>	<b>7,902</b>	<b>847</b>	<b>22,901</b>
Total per Follow Up	22.34	12.59	11.79	14.42	105.85	15.86
Total per Research-Sample Case	3.63	1.04	0.25	0.59	0.22	1.70

In both states, the majority of the costs were incurred by caseworkers during follow up. Caseworker follow ups accounted for 80 percent of the costs in Arizona and 68 percent of the costs in Michigan. The cost of establishing and collecting claims was also substantial in both states, accounting for 18 percent of all costs in Arizona and 31 percent of all costs in Michigan. As the number of detected overpayments was lower in Michigan, the higher costs of claims establishment and collection in Michigan is attributable to the higher cost of processing each claim. Data processing costs account for about 2 percent of all costs in Arizona and 1 percent of all costs in Michigan.

During our study, the total cost of IEVS was about \$26,000 in Arizona and nearly \$23,000 in Michigan. The \$40 average cost per follow up in Arizona was over twice the \$16 average cost per follow up in Michigan. Costs were higher in Arizona because caseworkers spent considerably more time per follow up. However, the hourly cost of a caseworker and the cost of claims establishment and collection were both higher in Michigan.

In Arizona, the average cost per follow up varied by database by about two dollars. The IRS match was the most costly per follow up, at about \$42. The BEER match was the least costly--at about \$39 per follow up. The average amount of time spent conducting a follow up was about the same for each database in Arizona.

In contrast, the average cost per follow up in Michigan varied by database by \$94. The IRS was the most costly match per follow up, costing an average of \$106 for each of the eight follow ups that occurred during our study. This was because caseworkers spent considerable time conducting the IRS follow ups, and claims establishment and collection costs were incurred for the one follow up that led to an action. The SWICA match in Michigan cost an average of \$22 per follow up. While much lower than the average cost of an IRS follow up, this was a relatively costly match. Caseworkers spent more than average time on SWICA follow ups, and claims establishment and collection were costly. The least costly matches per follow up were the UI, BENDEX, and SDX matches, which all

cost less than \$15 per follow up. Caseworkers in Michigan spent the least time per follow up on these matches.

From the state agencies' perspective, the total cost of the match is more important than the cost per follow up. The total cost of the match can be low, even if the cost per follow up is high, if relatively few follow ups occur. As the size of the research sample varied by database, we show the total cost of each match per research-sample case to compare the total costs by database (last rows of Table VII.12 and Table VII.13). The total cost incurred by the IEVS process was \$1.17 per research-sample case in Arizona and \$1.70 per research-sample case in Michigan. Thus, even though the cost per follow up was lower in Michigan, the total cost per research-sample case was higher. This was because for most matches, Michigan used a much less restrictive targeting strategy, which led to a larger number of follow ups.

In Arizona, the cost per research-sample case did not vary greatly by database. The SWICA was the most costly match at \$1.28 per research-sample case, and the BEER match was the least costly at \$1.10 per research-sample case. While the SWICA was not the most costly match per follow up, it was in *total* the most costly because a relatively large number of follow ups were conducted.

In Michigan, there was a tremendous variation in costs by database. The IRS match was the least costly match, costing only 22 cents per research-sample case. Even though the cost per follow up was high for the IRS match, the total cost per research-sample case was low because only eight SSNs were targeted for follow up in our study. While the IRS targeting strategy was extremely restrictive, the SWICA match was not targeted at all. The total cost per research-sample case for the SWICA match was \$3.63. Both the cost per follow up and the proportion of cases followed up for this match was high. The total costs per research-sample case of the UI, BENDEX, and SDX matches were \$1.04, 25 cents, and 59 cents, respectively. These relatively low costs reflect the shorter time spent by caseworkers in conducting follow ups of these matches.

## **VIII. THE COST-EFFECTIVENESS OF IEVS**

This chapter presents the overall findings from our evaluation of the IEVS process as operated during the demonstrations in Arizona and Michigan. We begin in Section A by presenting our estimates of the cost-effectiveness of IEVS. We then discuss in Section B the sensitivity of our results to different assumptions about the savings and costs. Some limitations of our study are described in Section C. In Section D we explain what we have learned about targeting strategies and suggest some targeting strategies that may increase the cost-effectiveness of IEVS. We conclude the chapter by summarizing our overall findings and conclusions.

### **A. ESTIMATES OF THE COST-EFFECTIVENESS OF IEVS**

The main objective of this study was to measure the cost-effectiveness of IEVS. We find that under a wide range of assumptions, all IEVS matches were cost-effective during the demonstration. That is, for each match, the savings from the IEVS process exceeded the costs incurred by the IEVS process.

The estimates of the savings and costs incurred by the IEVS process during our demonstration in Arizona are summarized in Table VIII.1. These estimates are based on our benchmark assumptions. To allow a meaningful comparison of savings and costs between databases and states, we have divided each measure of savings and costs by the number of cases in the relevant research group. The same information for Michigan is presented in Table VIII.2.

This study has focused on the cost-effectiveness of IEVS as measured by the savings-to-cost ratio. We begin this section by describing our estimates of the savings-to-cost ratios. We then discuss our estimates of two alternative criteria that may be used to evaluate IEVS: (1) the difference between savings and costs (net savings) and (2) total savings.

TABLE VIII.1  
SAVINGS AND COSTS FROM IEVS: ARIZONA  
(In Dollars per Research-Sample Case)

	Database			Total/Average
	SWICA	BEER	IRS	
<b>Savings</b>				
Avoided Benefit Payment	0.60	1.73	2.39	1.83
Avoided Administrative Costs	0.02	0.11	0.21	0.14
Recovered Prior Benefit Overpayments	1.36	1.61	1.58	1.56
<b>Unmeasured Savings</b>				
Savings from Other Programs	+	+	+	+
Greater Deterrence	+	+	+	+
Improved Staff Morale	?	?	?	?
<b>Total</b>	<b>1.98</b>	<b>3.45</b>	<b>4.19</b>	<b>3.53</b>
<b>Costs</b>				
Caseworkers' Time Conducting Follow Ups	0.99	0.95	0.91	0.94
Claims Establishment and Collection	0.28	0.14	0.24	0.21
Data Processing Costs	0.01	0.01	0.04	0.02
<b>Total</b>	<b>1.28</b>	<b>1.10</b>	<b>1.19</b>	<b>1.17</b>
<hr/>				
<b>Savings-to-Cost Ratio</b>	<b>1.55</b>	<b>3.13</b>	<b>3.53</b>	<b>3.02</b>
<b>Net Savings per Research-Sample Case</b>	<b>0.70</b>	<b>2.35</b>	<b>3.00</b>	<b>2.36</b>

TABLE VIII.2  
SAVINGS AND COSTS FROM IEVS: MICHIGAN  
(In Dollars per Research-Sample Case)

	Database					Total/Average
	SWICA	UI	BENDEX	SDX	IRS	
<b>Savings</b>						
Avoided Benefit Payment	9.05	6.08	1.67	0.61	2.16	5.26
Avoided Administrative Costs	0.67	0.53	0.12	0.04	0.09	0.36
Recovered Prior Benefit Overpayments	0.55	0.07	0.02	0.08	0.08	0.21
<b>Unmeasured Savings</b>						
Savings from Other Programs	+	+	+	+	+	+
Greater Deterrence	+	+	+	+	+	+
Improved Staff Morale	?	?	?	?	?	?
<b>Total</b>	<b>10.26</b>	<b>6.68</b>	<b>1.81</b>	<b>0.73</b>	<b>2.34</b>	<b>5.83</b>
<b>Costs</b>						
Caseworkers' Time Conducting Follow Ups	2.47	0.92	0.20	0.32	0.03	1.15
Claims Establishment and Collection	1.13	0.12	0.04	0.26	0.18	0.53
Data Processing Costs	0.03	0.003	0.006	0.004	0.006	0.02
<b>Total</b>	<b>3.63</b>	<b>1.04</b>	<b>0.25</b>	<b>0.59</b>	<b>0.22</b>	<b>1.70</b>
<hr/>						
<b>Savings-to-Cost Ratio</b>	<b>2.82</b>	<b>6.40</b>	<b>7.26</b>	<b>1.24</b>	<b>10.66</b>	<b>3.43</b>
<b>Net Savings per Research-Sample Case</b>	<b>6.63</b>	<b>5.64</b>	<b>1.56</b>	<b>0.14</b>	<b>2.12</b>	<b>4.13</b>

## 1. The Savings-to-Cost Ratios

For all matches in our study, the savings-to-cost ratio exceeded one. The savings-to-cost ratio averaged over all databases was 3.0 in Arizona and 3.4 in Michigan. Thus, for each dollar spent on matching, targeting, and follow up under IEVS, federal and state agencies realized more than three dollars in savings. The savings-to-cost ratio varied by database. In Arizona, the savings-to-cost ratio varied from 1.6 for the SWICA match to 3.5 for the IRS match. In Michigan, the savings-to-cost ratio varied from 1.2 for the SDX match to 10.7 for the IRS match.

The cost-effectiveness of an IEVS match depends on four factors:

1. ***The Action Rate.*** Everything else equal, the greater the action rate--the probability that a follow up will lead to a change in eligibility, a change in benefits, or the detection of a previous benefit overpayment--the greater the cost-effectiveness of the match.
2. ***The Size of the Savings When an Action Occurs.*** Everything else equal, the larger the savings, the greater the cost-effectiveness of the match. Savings from an action are higher if the case is closed or denied than if benefits are reduced. Savings are also higher if AFDC eligibility or benefits are affected.
3. ***The Number of Follow Ups.*** Everything else equal, the fewer follow ups that are conducted, the more cost-effective the match.
4. ***The Cost of Conducting Each Match and Follow Up.*** The costliest part of the IEVS process is the follow up procedures conducted by the caseworkers. Everything else equal, the higher the costs of the match and follow ups, the lower the cost-effectiveness of the match.

A targeting strategy may increase the cost-effectiveness of an IEVS match by affecting the first three of these factors--the action rate, the size of the savings when an action occurs, and the number of follow ups. While a targeting strategy reduces the number of follow ups, it is unlikely to reduce the cost of each follow up and may actually increase the cost by increasing the proportion of follow ups that lead to an action.

It is informative to describe the differences in the cost-effectiveness of each IEVS match in our study in terms of these four factors. Below we discuss the savings-to-cost ratio of each match, beginning with the most cost-effective match and ending with the least cost-effective match.

**a. IRS Match in Michigan**

The IRS match was the most cost-effective match in our study—nearly 11 dollars were saved for every dollar spent on this match. Follow-up costs were low because there were only eight follow ups during our study. However, one of these follow ups led to an action, and the savings from this action were high (the case was closed for both food stamps and AFDC, and both a food stamp and AFDC overpayment were detected). This match had an extremely restrictive targeting strategy—only about 2 percent of matched SSNs were followed up.

**b. BENDEX Match in Michigan**

Over seven dollars were saved for every dollar spent on this match. This match was cost-effective primarily because the action rate was high (nearly 10 percent). In addition, there were relatively few follow ups, and on average, the follow ups were quick. The BENDEX targeting strategy excluded from follow up inactive clients and clients not receiving Title-II benefits. We could not estimate the hit rate, but only about 2 percent of the SSNs eligible to be matched were followed up.

**c. UI Match in Michigan**

Over six dollars were saved for every dollar spent on the UI match in Michigan. This match was cost-effective only because large savings—primarily in terms of avoided benefit payments—were realized when an action occurred. These large savings compensated for a relatively low action rate, a relatively large number of follow ups, and a slightly longer-than-average time spent on follow ups. The UI targeting strategy targets for follow up clients who have applied for UI benefits in the past 30 days, have received UI benefits in the past 60 days, or have returned to work in the past 90 days. This is not a particularly restrictive targeting strategy—over 17 percent of matched SSNs were targeted for follow up.

**d. IRS Match in Arizona**

Over three and a half dollars were saved for each dollar spent on the IRS match in Arizona. This match was cost-effective because (1) the action rate was relatively high (over 16 percent), (2) there were relatively few follow ups, and (3) fairly large savings were realized as a result of the case closures and detected previous benefit overpayments. This match would have been more cost-effective but for the fact that caseworkers spent a long time on follow ups (on average, 49 minutes each). The IRS targeting strategy in Arizona excluded from follow up clients with unearned income of \$100 or less. While this is a restrictive targeting strategy--only about 13 percent of matched SSNs were followed up--it is much less restrictive than the targeting strategy used for the IRS match in Michigan, where only 2 percent of matched SSNs were followed up.

**e. BEER Match in Arizona**

About three dollars were saved for each dollar spent on the BEER match in Arizona. The BEER match was cost-effective in Arizona for the same reasons that the IRS match in Arizona was cost-effective. While the action rate was slightly lower for the BEER match, the average savings when an action occurred were higher. The follow ups of this match were even more time-consuming than the IRS follow ups, lasting an average of 52 minutes each. The BEER targeting strategy was fairly restrictive. We could not estimate the hit rate, but less than 1 percent of all SSNs eligible to be matched were followed up.

**f. SWICA Match in Michigan**

Just less than three dollars were saved for every dollar spent on the SWICA match in Michigan. This match was cost-effective because, when an action occurred, the savings were quite high. However, the action rate was low, the caseworkers conducted many follow ups, and the follow ups were time-consuming relative to other follow ups in Michigan (lasting an average of 19 minutes each).

This match was the only one that was not targeted. All clients who were matched with the SWICA database were followed up.

**g. SWICA Match in Arizona**

Just over one and a half dollars were saved for every dollar spent on the SWICA match in Arizona. When an action occurred, the savings were quite high. However, the action rate was low, and the follow ups were time-consuming. The recipient SWICA match in Arizona was less cost-effective than the applicant SWICA match in Michigan because, on average, each SWICA follow up in Arizona took over twice as long as a SWICA follow up in Michigan. The average savings per follow up were remarkably similar in the two states. The SWICA match was less cost-effective than the other matches in Arizona because the action rate was lower. Like the other two targeting strategies used in Arizona in our study, the SWICA targeting strategy was restrictive--less than one percent of SSNs that were eligible to be matched were followed up.

**h. SDX Match in Michigan**

The SDX match in Michigan was the least cost-effective match in our study. However, still nearly one and a quarter dollars were saved for every dollar spent on the match. It was the least cost-effective for three reasons: (1) the action rate was low, (2) the savings were fairly small when an action occurred (there was a relatively high proportion of benefit reductions), and (3) although, on average, each follow up was quick, there were many follow ups. The SDX targeting strategy was not restrictive. Many follow ups occurred on IEVS reports that provided no income information. We were unable to estimate the hit rate, but about 3 percent of all SSNs eligible to be matched were followed up.

**2. Net Savings**

If the objective is to maximize the difference between savings and costs rather than to maximize the return on each dollar spent on IEVS, the matches should be evaluated by net savings (total

savings minus costs) rather than the savings-to-cost ratio. As all of the IEVS matches in our study were cost-effective, net savings from all the matches were positive. Per case in the research sample, net savings were, on average, over two dollars in Arizona and over four dollars in Michigan.

The ranking of the IEVS matches changes if net savings rather than the savings-to-cost ratio is used to evaluate the matches. The SWICA match in Michigan, which had one of the lowest savings-to-cost ratio, had the highest net savings. Conversely, the BENDEX match in Michigan, which had a high savings-to-cost ratio, resulted in low net savings. The ranking of the matches in Arizona by net savings is the same as the ranking of the matches by the savings-to-cost ratios.

If a state is considering developing a match, the development costs should be compared with the total net savings. If the savings for each of our research-sample cases were realized for each case in Arizona, net savings per year would be around \$355,000 for the SWICA match, \$1.2 million for the BEER match, and \$1.5 million for the IRS match.<sup>1</sup> Thus, the net savings for one year far exceed our estimates of the costs of developing all three matches in Arizona (about \$100,000). In Michigan, if the savings for each of our research-sample cases were realized for each applicant case, net savings per year would be about \$2.7 million for the SWICA match, \$2.3 million for the UI match, \$850,000 for the IRS match, \$626,000 for the BENDEX match, and \$56,000 for the SDX match.<sup>2</sup>

### 3. Total Savings

If the objective of the IEVS matches is to detect as many errors in client-reported income as possible, irrespective of the cost of this detection, then the total savings from the matches is a more appropriate criterion by which to evaluate the IEVS process than is either the savings-to-cost ratio or net savings. The greatest savings were realized from the SWICA match in Michigan--conducting this match saved over 10 dollars per research-sample case. The UI and IRS matches in Michigan,

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<sup>1</sup>These figures are based on the assumptions that there are, on average, about 169,000 recipient cases each month and the same savings are realized each quarter.

<sup>2</sup>These figures are based on the assumptions that there are, on average, about 401,000 applicant cases per year and that the savings are the same each quarter.

and the BEER and IRS matches in Arizona also yielded large savings per case. The SWICA match in Arizona, and the BENDEX and SDX matches in Michigan all yielded less than two dollars in savings per case.

## **B. SENSITIVITY OF THE COST-EFFECTIVENESS ESTIMATES TO ASSUMPTIONS**

In measuring savings and costs, we were forced to make many assumptions. Several were associated with a good deal of uncertainty. If there was more than one equally reasonable assumption, we chose the assumption that led to the lowest savings and highest costs for our "benchmark" estimates presented in Tables VIII.1 and VIII.2. Hence, these estimates probably underestimate the true savings-to-cost ratios.

In this section, we discuss estimates of the cost-effectiveness of each IEVS match based on alternative assumptions. Table VIII.3 presents our estimates of the savings-to-cost ratios for the IEVS matches in Arizona under the benchmark and alternative assumptions. Table VIII.4 presents our estimates of the savings-to-cost ratios for the IEVS matches in Michigan under the benchmark and alternative assumptions.

### **1. Length of Time Savings Persist**

We could not observe how long savings from case closures, case denials, or benefit reductions persisted. Hence, we were forced to make rather ad hoc assumptions. Our benchmark assumption was that savings from case closures, benefit denials and benefit changes persist until the next recertification. We considered two alternative assumptions: (1) the savings persist until the case would have closed in the absence of IEVS, and (2) the SWICA savings persist until the next SWICA recipient match (4.5 months).

#### **a. Savings Persist until the Case Would Have Closed**

Assuming that the savings persist until the case would have closed in the absence of IEVS yields upper-bound estimates of the savings-to-cost ratios. Under this assumption, the average number of

TABLE VIII.3

ESTIMATES OF SAVINGS-TO-COST RATIOS UNDER  
DIFFERENT ASSUMPTIONS: ARIZONA

Assumptions	Database			Average
	SWICA	BEER	IRS	
Benchmark	1.55	3.13	3.53	3.02
Savings Persisted until the Case Would Have Closed	14.52	30.87	38.03	31.08
Neither Savings from Detected Overpayment nor Costs of Claims Establishment and Collection	0.62	1.92	2.75	2.05
Recovery Rate for Detected Overpayments is 27.1 Percent (the recovery rate in Michigan)	1.22	2.43	2.90	2.42
Costs of Claims Establishment and Collection are the Same as in Michigan	1.00	2.70	2.38	2.19
Recovery Rate and Costs of Claims Establishment and Collection are the Same as in Michigan	0.79	2.10	1.96	1.74
Cost of Caseworker Time is \$48.78 per hour (cost in Michigan)	1.30	2.58	2.96	2.52
Savings from Recovered Overpayments Accrue after Two Years, Costs of Claims Establishment and Collection Occur Immediately	1.45	2.96	3.39	2.88
Including Only Savings to the FSP	1.42	1.42	3.21	2.24

TABLE VIII.4

ESTIMATES OF SAVINGS-TO-COST RATIOS UNDER  
DIFFERENT ASSUMPTIONS: MICHIGAN

Assumptions	Database					Average
	SWICA	UI	BENDEX	SDX	IRS	
Benchmark	2.82	6.40	7.26	1.24	10.66	3.43
Savings Persist until Case Would Have Closed	3.94	13.19	15.74	4.75	25.35	7.39
Savings Persist until Next Recipient Match	1.81	NA	NA	NA	NA	NA
Neither Savings from Detected Overpayments nor Costs of Claims Establishment and Collection	3.88	7.14	8.56	1.98	60.30	4.79
Savings from Recovered Overpayments Accrue After Two Years, Costs of Claims Establishment and Collection Occur Immediately	2.69	6.39	7.25	1.23	10.63	3.37
Savings Persist for 2.5 Months and Follow Up Takes an Average of 34.3 Minutes (Ward and Smucker's assumptions)	0.69	N/A	N/A	N/A	N/A	N/A
Takes Only 6.2 Minutes for Follow Up (Puma's assumptions)	5.18	12.41	11.85	1.55	11.80	5.36
Including Only Savings to the FSP	1.15	1.92	3.41	0.83	4.10	1.55

NA = Not applicable

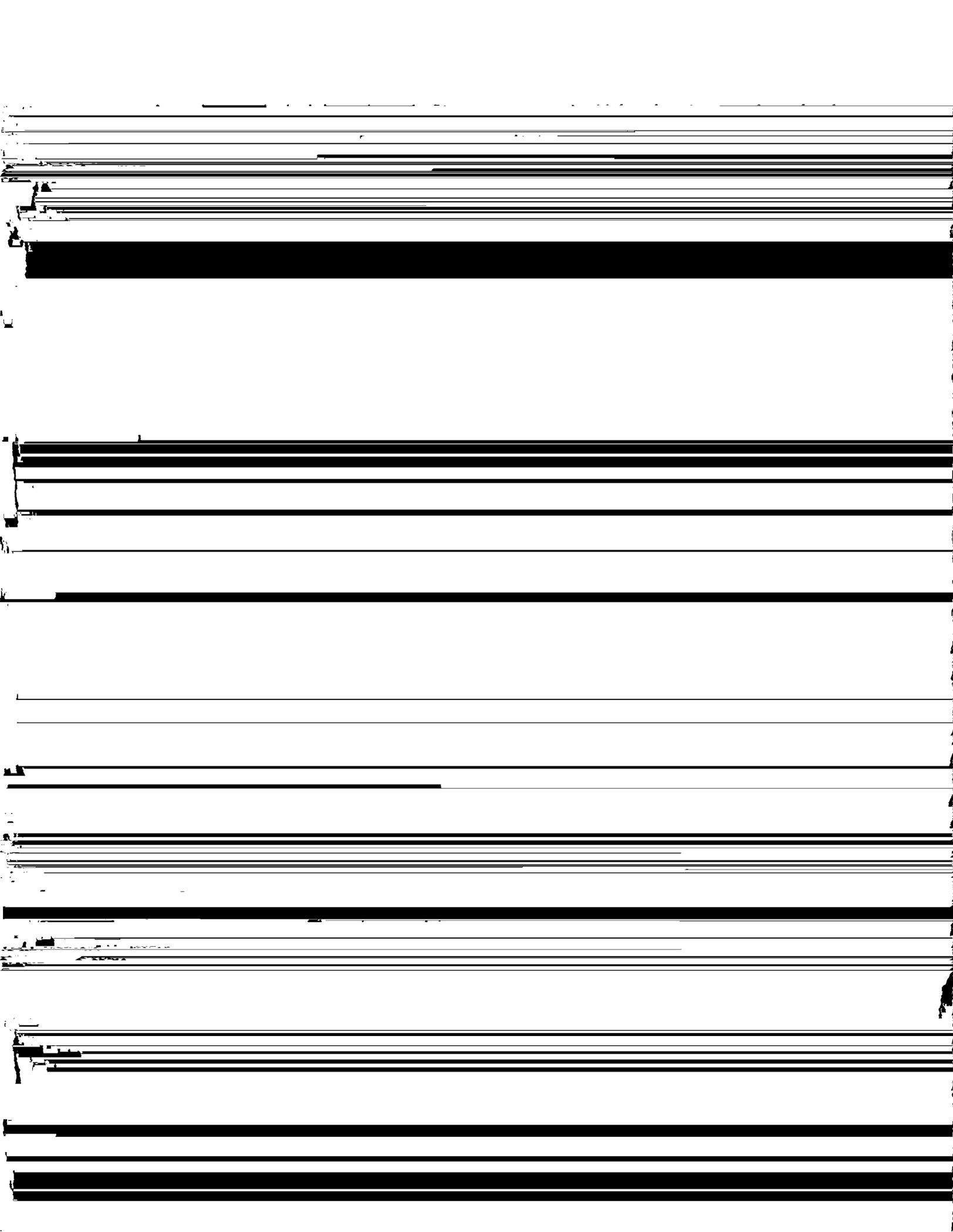


TABLE VIII.5

MINIMUM NUMBER OF MONTHS THAT SAVINGS MUST  
PERSIST FOR MATCH TO BE COST-EFFECTIVE:  
ARIZONA AND MICHIGAN

State	Database	Benchmark Assumptions	No. Recovered Overpayments
Arizona	SWICA	0	2.68
	BEER	0	1.36
	IRS	0	1.35
	Total	0	1.49
Michigan	SWICA	2.30	1.87
	UI	1.28	1.22
	Bendex	1.05	0.94
	SDX	3.30	2.13
	IRS	0.42	0.12
	Total	1.82	1.43

collection, the savings from case closures, benefit denials, and benefit changes would have to persist for three or more months for the matches to be cost-effective in Arizona.

In Michigan, the savings need only persist for three-and-a-third months for all of the matches to have been cost-effective. The IRS match is cost-effective if savings persist for only one month, the UI and BENDEX matches are cost-effective if savings persist for two months, the SWICA match is cost-effective if savings persist for two-and-a-third months, and the SDX match is cost-effective if savings persist for three-and-a-third months. Hence, under most reasonable assumptions, all of the matches are cost-effective. If we exclude all of the savings from recovered overpayments and all of the costs of claims establishment and collection, the number of months the savings must persist for the match to be cost-effective is even lower.

If the SWICA *recipient* match was changed in Michigan so that *all* recipients, including new recipients, were sent to be matched every three months, the average amount of time between the SWICA applicant match and the next SWICA recipient match would be only one-and-a-half months. If the next recipient match were conducted within one-and-a-half months of the applicant match and many of the errors detected by the applicant match were detected by the recipient match, the SWICA applicant match would not be cost-effective.

## **2. Recovery of Previous Benefit Overpayments and Costs of Claims Establishment and Collection**

Both our estimates of the proportion of detected previous benefit overpayments that were recovered and the costs of claims establishment and collection are based on many, unverifiable assumptions. The estimates vary considerably between Arizona and Michigan. Our estimates of the proportion of detected overpayments recovered in Michigan are much lower than those in Arizona. On the other hand, our estimates of the cost of claims establishment and collection in Michigan are higher than those in Arizona.

To investigate the sensitivity of our estimates to these assumptions, we estimated the savings-to-cost ratios under the assumption that there are neither savings from the detection of overpayments

nor costs of claims establishment and collection.<sup>3</sup> Under this extreme assumption, the savings-to-cost ratios fall in Arizona. The BEER and IRS matches remain cost-effective, but the SWICA match ceases to be cost-effective. Under this assumption, only about 60 cents would be saved for every dollar spent conducting the SWICA match in Arizona.

Under our benchmark assumptions, the costs of establishing and collecting claims exceeded the savings from recovering previous overpayments in Michigan. Hence, if we ignore all savings from recovered overpayments and all the costs of claims establishment and collection, our estimates of the savings-to-cost ratios in Michigan rise. Under this alternative assumption, the savings-to-cost ratios vary from about 2 (the SDX) to about 60 (the IRS).

It is perhaps more reasonable to estimate the savings-to-cost ratios under two alternative assumptions: (1) the recovery rate in Arizona is as low as it is in Michigan (27.1 percent) and (2) the costs of claims establishment and collection in Arizona are the same as in Michigan. Under either assumption, the savings-to-cost ratios in Arizona fall, but remain greater than one. However, the savings-to-cost ratio for the SWICA match is barely greater than one if the costs of claims establishment and collection in Arizona are the same as they are in Michigan. If both assumptions are applied together, the BEER and IRS matches are still cost-effective, but the SWICA match is no longer cost-effective. If we assume that the recovery rate in Michigan is as high as in Arizona, and that the costs of claims establishment and collection in Michigan are as low as in Arizona, all of the savings-to-cost ratios in Michigan would increase.<sup>4</sup>

### **3. Hourly Cost of the Caseworkers' Time**

The hourly cost of the caseworkers' time is nearly 25 percent higher in Michigan than in Arizona. This is primarily because caseworkers' salaries are higher in Michigan. We might therefore question

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<sup>3</sup>We include all of the costs of the caseworkers' follow up and thus include some costs of the caseworkers' time involved in dealing with overpayments.

<sup>4</sup>These results are not reported in Table VIII.3.

whether the IEVS matches in Arizona are cost-effective only because the cost of the caseworkers' time is relatively low. To address this question, we calculated the savings-to-cost ratios in Arizona under the assumption that the cost of a caseworker-hour was \$48.78 (the hourly cost in Michigan). As a result, the savings-to-cost ratios fall, but all of the IEVS matches in Arizona are still cost-effective.

#### **4. Discounted Future Savings and Costs**

For our benchmark estimates, we valued all savings and costs in the same way irrespective of *when* they occurred. However, because a dollar saved today can be invested and earn interest, that dollar is worth more than a dollar saved in the future. Similarly, it is preferable for costs to be incurred in the future rather than immediately. In the IEVS process, the cost of the caseworkers' time is incurred before any savings in avoided benefit payments, avoided administrative costs, or recovered previous benefit overpayments are realized. Similarly, many of the costs of claims establishment and collection would occur prior to the recovery of the overpayments. This problem should be handled by converting future savings and costs into their *present value* using a discount rate.

We did not convert the savings and costs to their present value because we did not know when the costs of claims establishment and collection would be incurred or when the overpayment would be recovered. However, because under our benchmark assumptions the savings from case closures, benefit denials, and benefit changes occur within the first year, and because our estimates include only the overpayments that were recovered within the first two years, converting the savings and costs to their present value would make only a small difference in our savings-to-cost ratios. To illustrate, we have assumed that the federal and state agencies' discount rate was 10 percent and that all costs of claims establishment and collection were incurred immediately, while no overpayments were recovered until the end of the second year. Even under these extreme assumptions, the savings-to-cost ratios of all the IEVS matches in our study are still greater than one.

## **5. Assumptions Used by Ward and Smucker (1990)**

Ward and Smucker found that while the SWICA match in Michigan was cost-effective for recipients, it was not cost-effective for applicants. For applicants and new recipients, they estimated a savings-to-cost ratio of about 0.8 for the SWICA match. This estimated savings-to-cost ratio is much lower than our estimate of 2.8.

Their measures of savings and costs vary from ours in five ways:

1. They did not include recovered overpayments in their estimates of savings or the costs of claims establishment and collection in their estimates of costs. As we discussed earlier, eliminating these savings and costs would increase the SWICA savings-to-cost ratio to about 3.9, even higher than the estimate based on our benchmark assumption.
2. They did not include the savings from avoided administrative costs. If we excluded these savings, our SWICA savings-to-cost ratio would fall slightly to about 2.6.
3. They did not include any of the payments to the SWICA (MESC) in their measure of costs. If we excluded the MESC costs, our SWICA savings-to-cost ratio would increase slightly to 2.9.
4. They estimated that savings from case closures, benefit denials, and benefit reductions persist for 2.5 months. Our benchmark assumption was that the savings from case closures, benefit denials, and benefit changes persist until the next recertification—on average, just over seven months after the action took effect. If we used Ward and Smucker's estimates, our estimates of the SWICA savings-to-cost ratio would fall to 1.1.
5. They estimated that, on average, each follow up took 34.3 minutes of the caseworkers' time. This is much longer than our estimate of about 19 minutes. If we used Ward and Smucker's estimate of the average time involved in a follow up, our estimate of the SWICA savings-to-cost ratio would fall to 1.8.

If we simultaneously apply all the above five assumptions, our estimate of the savings-to-cost ratio for the SWICA match would be 0.7 (see Table VIII.4), which is very similar to the savings-to-cost estimate made by Ward and Smucker. However, if we apply only the first three assumptions, our estimate remains at 2.8. The last two assumptions—the length of time the savings persist and the amount of time spent on a follow up—explain nearly all of the difference between our estimate of the savings-to-cost ratio for the SWICA match and the estimate made by Ward and Smucker.

## 6. Assumptions Used by Puma (1989)

Puma estimated the cost-effectiveness of applicant matches in nine sites. His study was fundamentally different from our study in five ways. First, he examined only applicant matches. Hence, his findings should be more comparable to our findings in Michigan than in Arizona. Second, his study took place before targeting was permitted, and hence all matched clients were followed up. Third, the sites were selected so that the information from the IEVS match was available to the caseworker prior to certification. This is not the case in Michigan—the caseworker often does not get the IEVS report until after certification. It is more likely to be the case for states such as Arizona that have on-line access to the SWICA database. Fourth, Puma included savings from Medicaid. Fifth, in most sites, the burden was on the client, not the state agency, to verify income. The caseworker made collateral contacts in only two of the nine sites. In contrast, in both Arizona and Michigan, caseworkers made efforts to verify the income. This difference is reflected in the time taken to complete a follow up. Puma estimated that a follow up took, on average, only 6 minutes, less than half of the average time spent on a follow up in our study in Michigan.

Puma found that the average savings-to-cost ratio was 3.8. However, it varied by database. He estimated a savings-to-cost ratio of 8.2 for the SWICA match, 2.7 for the UI match, 1.1 for the BENDEX match, and 0.2 for the SDX match. While his estimate of the savings-to-cost ratio for the SWICA match is much higher than our estimate for Michigan, the other estimates are lower than ours. Table VIII.4 presents our estimates of the savings-to-cost ratios in Michigan under Puma's assumption that, on average, a follow up took 6.2 minutes. Except for the SWICA match, all our estimates of the savings-to-cost ratios far exceed the estimates made by Puma. One interpretation, is that our estimates of the savings-to-cost ratios for the UI, BENDEX, and SDX matches exceed those made by Puma because these matches were targeted during our demonstration.

## **7. Include Only Savings to the FSP**

We developed our benchmark estimates of the cost-effectiveness of IEVS from the perspective of the federal and state governments. However, FCS may also be interested in the cost-effectiveness of IEVS from the perspective of the federal and state agencies that administer the FSP.

To estimate the savings that are realized by the FSP, we excluded all estimates of the savings from avoided AFDC payments, avoided AFDC administrative costs, and recovered AFDC previous overpayments. It is much less straightforward to estimate the costs of IEVS to the FSP. The state agencies divide the costs of the caseworker follow ups and the costs of data processing between the Food Stamp and AFDC programs. It is beyond the scope of this study to determine the rules used to allocate these costs. For simplicity, we assumed that *all* the costs of IEVS are incurred by the FSP.

Our estimates of the ratio of FSP savings to costs were presented in Tables VIII.3 and VIII.4. As we included all IEVS costs, not just costs incurred by the FSP, these are underestimates of the cost-effectiveness of the IEVS matches to the federal and state agencies that administer the FSP. Even so, from the perspective of the agencies that administer the FSP, all IEVS matches, except the SDX match in Michigan, are cost-effective.

## **C. LIMITATIONS OF OUR STUDY**

The results of our study should be interpreted in the context of seven limitations of the study.

### **1. We Included Only the Savings and Costs That Accrued to the Federal and State Agencies**

Our savings-to-cost ratios measure the cost-effectiveness of IEVS from the perspective of the federal and state agencies. We did not include the savings or costs to:

- *Clients*. IEVS imposes a cost on clients in terms of loss of privacy and the time involved in verifying income.
- *Employers and Financial Institutions*. IEVS imposes a cost on these third-party collateral contacts who are asked to provide income verification.

- **Agencies That Provide the External Data.** While we included the payments to the IRS and the MESIC, we did not include the cost of maintaining the SWICA and UI data in Arizona or the cost of maintaining the BENDEX, SDX, or BEER data at the SSA.
- **Justice System.** We did not include the costs imposed on the justice system from the detection of fraud in the welfare system.
- **General Public.** By improving the public perception of the programs, IEVS may yield a benefit to the general public.

It is also important to note that the cost-effectiveness of the IEVS process may differ depending on whether it is measured from the federal or state perspective. The benefits for the FSP are 100 percent federally funded, but the federal and state agencies share equally in the administrative costs. Hence, while the savings in terms of avoided benefit payments accrue only to the federal government, the costs of the follow up are shared equally between the federal and state agencies.

## **2. The Study Was Conducted in Only Two States and in Only Some Offices**

While the IEVS procedures in Arizona and Michigan are not unrepresentative, IEVS procedures do vary greatly between states. Our results may not apply to other states with different procedures. For example, the cost-effectiveness of the SWICA applicant match may be greater if the match is conducted on-line rather than by matching two tapes, as in Michigan. In addition, the cost-effectiveness of the matches may fall if the states do not have caseworkers who specialize in dealing with overpayments.

Moreover, in both states, not all local offices were included in the demonstration. (Although in both states, the research-sample comprised over 10 percent of the caseload). However, the demonstration offices were chosen to be representative of the state. If the project offices do not differ in important ways from the other offices in the state, our results can be generalized to the state as a whole.

### **3. The Agency Staff in Both Arizona and Michigan Knew They Were Participating in the Study**

The caseworkers and other agency staff in both states knew that they were participating in the study, and this may have affected their behavior. In Arizona, the first SWICA match was delayed so that it would occur in our study. In both states, the caseworkers may have been more conscientious in following up on IEVS reports because they were aware that their supervisor and an outside research contractor would review the data collection forms. Alternatively, the caseworkers may have exaggerated how long it took to complete a follow up in order to show that the matches were not cost-effective.

### **4. We Did Not Learn of the Outcome of Some Follow Ups of Research-Sample Cases**

We did not learn of the outcome in about 5 percent of the follow ups of cases in our research sample in Arizona and in about 27 percent of the follow ups of cases in our research sample in Michigan. This was either because the case was transferred out of a study office or because the data collection form was not returned. Our estimates assume that the savings realized from and the costs incurred by each of these undocumented follow ups is, on average, equal to the average savings and average costs in our research sample in the state. This may not be so if the cases that were transferred between offices had characteristics different from those that were not transferred. Similarly, the probability that a data collection form was returned may be correlated with some characteristics of the follow up. For example, the data collection form may have been more likely to be returned if there was no discrepancy between the income reported by the client and income on the external database and the caseworker did not need to wait for verification from a third party. On the other hand, it may be that the data collection form was not returned because the caseworker did not have time to even begin the follow up.

## **5. The Cost-Effectiveness of IEVS Matches May Be Greater When the Match is First Introduced**

In Arizona, follow ups were not conducted for any of the matches in our study prior to the demonstration. When a match is first introduced or first followed up, the action rate may be higher, and the size of the savings when misreported income is detected may be larger than if the match has been implemented for some time. If an IEVS match occurs regularly, the period over which a client could have received benefits for which he or she was ineligible is short.

## **6. The Number of Follow Ups Was Small**

While the number of cases in our research sample was large, the number of follow ups was relatively small. This was because the state agencies had expected that the hit rate--the proportion of all SSNs in our sample that were followed up--would be much higher. The targeting strategies were much more restrictive, and the number of follow ups were consequently much smaller than expected. Because the hit rate was so low, the number of follow ups that led to an action was also small. Hence, the estimates of the average amount of savings from follow ups of a particular match were less precise than originally planned.

## **7. We Cannot Determine the Precision of Our Estimates**

Our estimates of the cost-effectiveness of IEVS are based on measures of many different components of savings and costs. Each of these components was measured with some error. As we cannot measure the degree of uncertainty associated with each of these measures, we cannot estimate the precision of our cost-effectiveness estimates. However, we do estimate the savings-to-cost ratios under a range of alternative assumptions. Our major results are robust to adopting these alternative assumptions.

#### **D. TARGETING STRATEGIES**

Our study was designed to estimate the cost-effectiveness of the whole IEVS process, not targeting *per se*. Hence, we cannot come to many firm conclusions about the targeting strategies used in the study. However, our results do suggest some implications for the design of targeting strategies.

The targeting strategies in Arizona were very sophisticated. Conversely, the targeting strategies in Michigan consisted of only a few simple screening rules. The SWICA applicant match in Michigan was not targeted at all. The only new targeting strategy used in Michigan was for the IRS match, and this differed from the old strategy only by an increase in the interest-income threshold from \$100 to \$200.

Many of the targeting strategies used in the study were very restrictive, excluding many clients and cases from follow up. The proportion of SSNs eligible to be matched that were followed up was less than 1 percent for all matches in Arizona and less than 7 percent for all matches in Michigan (except the SWICA match which was not targeted).

Because all of the matches were cost-effective, we can in some sense conclude that all of the targeting strategies used in this study were successful. We cannot say whether these matches would have been cost-effective if they had *not* been targeted. However, the matches with the most restrictive targeting strategies--all of the matches in Arizona and the IRS match in Michigan--had higher than average action rates as well as larger savings per action.

Our results suggest that there is a trade-off between the cost-effectiveness of a targeting strategy and the proportion of all misreported income that is detected. This trade-off occurs because it is nearly impossible to design a targeting strategy that exempts from follow up only those cases in which there is no misreported income. Targeting strategies may exempt from follow up cases that are unlikely to have misreported income, but it is difficult to ensure that *only* cases with no misreported income are excluded. The most cost-effective match in our study was the IRS match in Michigan, which led to only eight follow ups (one of these eight follow ups resulted in an action). We do not

know how many actions would have occurred if all of the matched SSNs had been followed up, but it is reasonable to believe that there would have been many more than one. The IRS targeting strategy was less restrictive in Arizona than in Michigan. While the cost-effectiveness of the IRS match in Arizona was much lower than in Michigan, total savings per research-sample case were nearly twice as high in Arizona. Similarly, one of the least cost-effective matches in our study was the SWICA applicant match in Michigan, which was not targeted. However, this match yielded the largest amount of savings per research-sample case in our study--over four times the savings from the IRS match in Michigan.

In the rest of this section, we discuss the rationale for prohibiting applicant targeting and suggest some targeting strategies that may raise the cost-effectiveness of IEVS.

### **1. Applicant Targeting**

The IEVS regulations explicitly prohibit states from targeting applicants. Two reasons for this regulation are that (1) it is less costly to detect misreported income before a case begins to receive benefits and (2) Puma (1989) found that following up on all applicant matches was cost-effective.

Without on-line access to the database, the caseworker may not receive information from the match prior to certification. In Michigan, it took weeks for the SWICA, UI, and IRS matches to be completed. It then took, on average, an additional 57 days for caseworkers to complete the follow up. Hence, it is unlikely that many cases were denied benefits at application because of the IEVS report.

Our findings are consistent with Puma's findings--we also found the SWICA applicant match to be cost-effective even without targeting. However, using a targeting strategy may increase the cost-effectiveness of the SWICA match. The SWICA applicant match in Michigan was one of the least cost-effective matches in our study. It is also interesting that our estimates of the cost-effectiveness of the UI, BENDEX, and SDX matches--all of which were targeted--were higher than Puma's estimates of the cost-effectiveness of these matches without targeting.



Michigan applies the same targeting strategy to both applicants and recipients for the UI, SDX, and IRS matches.<sup>5</sup>

## 2. Suggested Targeting Strategies

The reasons that some follow ups did not lead to actions and the characteristics of cases that were acted upon suggest some targeting strategies that would probably improve the cost-effectiveness of the matches. However, it is important to stress again that these strategies would almost certainly reduce the number of cases with misreported income that are detected and thus the total savings from the IEVS process. These targeting strategies include:

1. ***Exclude from Follow Up IEVS Reports That Do Not Provide Any Income Information.*** Over 30 percent of the SDX follow ups that did not lead to an action were follow ups of IEVS reports that did not contain income information. For example, the report may have indicated only that the client applied for SSI or that the client no longer received SSI. A possible targeting strategy would be to exclude from follow up any clients who are not currently receiving SSI (as reported on the SDX database). A similar targeting strategy could be applied to the UI and BENDEX databases.
2. ***Exclude from Follow Up Clients Who Reported Income on the External Database That is the Same, or Similar to, the Income on the External Database.*** Caseworkers conduct follow ups even if the income on the external database is exactly the same as the income reported by the client. It is straightforward to design and implement a targeting strategy that compares client-reported income with income on UI, BENDEX, and SDX, which is current and aggregated by month. However, it is more difficult to design and implement a targeting strategy that compares client-reported income and income on the SWICA, BEER, and IRS databases. This is because the strategy must take into account that the data are from a previous period and are aggregated over a quarter or year.
3. ***Exclude from Follow Up Cases That Are Inactive.*** Although a previous overpayment may be detected for an inactive case, no savings can be realized through benefit reductions or case closures.

Other targeting strategies that may raise the cost-effectiveness of the matches are to exclude from follow up (1) cases that are subject to monthly reporting, (2) clients who are younger than age 18,

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<sup>5</sup>Michigan is currently not sending applicants to be matched with BENDEX.

and (3) cases that do not report any assets (for the IRS match). However, these strategies are likely to have a large negative impact on the number of cases with misreported income that are detected.

#### **E. SUMMARY OF FINDINGS AND CONCLUSIONS**

All IEVS matches in our study were cost-effective during the demonstrations. We cannot conclude that each IEVS match is *always* cost-effective. However, our results suggest that the matches were cost-effective for the types of clients that were in the research-sample in each state (recipients in Arizona, and applicants and new recipients in Michigan), with the type of targeting strategy applied, and with the IEVS procedures used in each state.

The cost-effectiveness of the matches varied both by database and by state. The most cost-effective match was the IRS match in Michigan, for which the savings-to-cost ratio was nearly 11. The SDX match in Michigan was the least cost-effective match, having a savings-to-cost ratio of 1.2. The BEER and IRS matches in Arizona, and the UI and BENDEX matches in Michigan all had savings-to-cost ratios of at least 3.0. The savings-to-cost ratio was 1.6 for the SWICA match in Arizona and 2.8 for the SWICA match in Michigan.

Our major finding--all the IEVS matches were cost-effective--is robust to changes in many of our assumptions. All three matches in Arizona were cost-effective even if there were no savings from case closures, benefit denials, or benefit changes. All matches in Michigan were cost-effective as long as savings from case closures, benefit denials, or benefit changes persist, on average, for at least three-and-a-half months. Our estimates of the cost-effectiveness should be considered as underestimates of the true cost-effectiveness of IEVS. Our estimates of each component of savings and costs are conservative, and our estimates of the savings-to-cost ratios do not include some important savings, such as the savings to the Medicaid program.

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